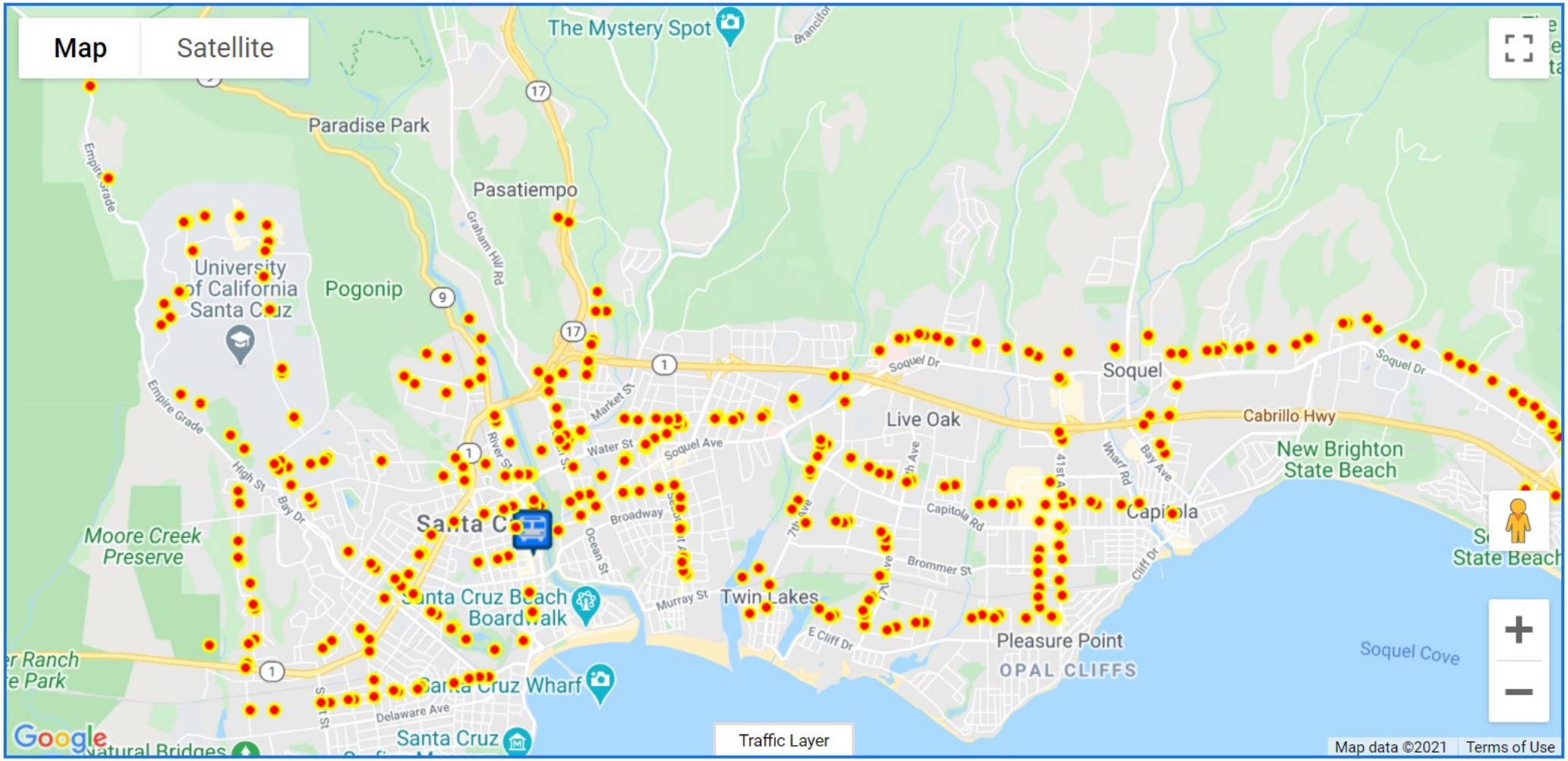
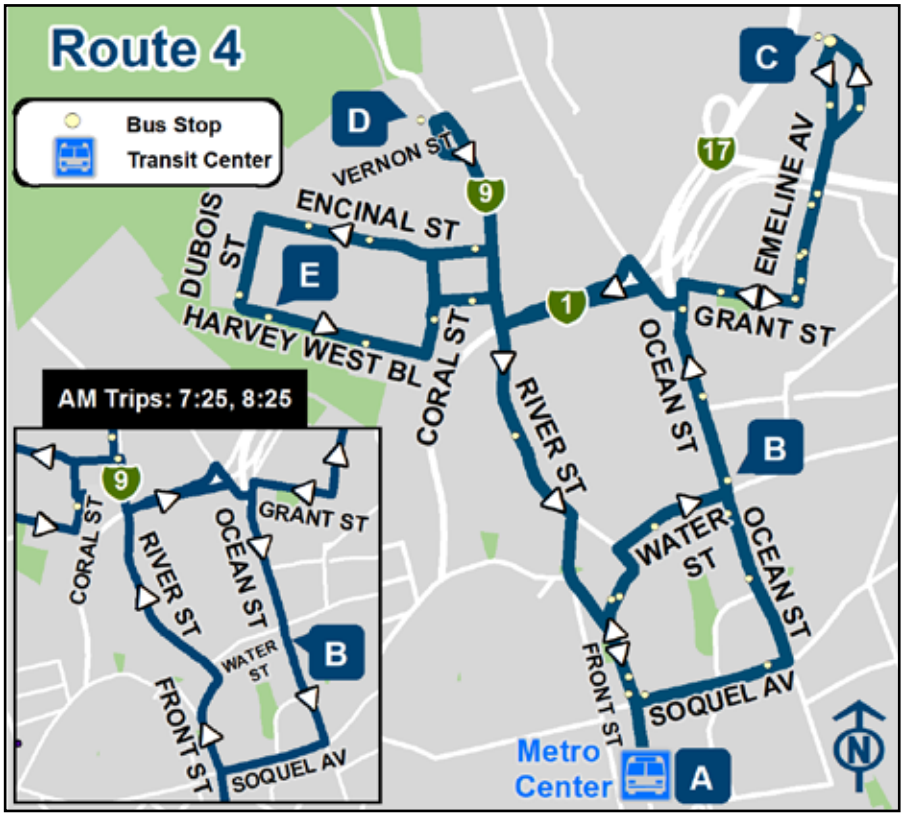
Route:

Pick a Route



# 4 Harvey West/Emeline

| Departs | Departs | Departs | Departs | Departs | Departs | Departs | Departs | Arrives |
|---|---|---|---|---|---|---|---|---|
| Santa Cruz Metro Lane 2 | Water & Ocean | Emeline Complex | METRO Admin. Offices | Harvey West Park | METRO Admin. Offices | Emeline Complex | Water & Ocean | Santa Cruz Metro Center |
| A | B | C | D | E | D | C | B | A |
| **MONDAY - FRIDAY** | | | | | | | | |
| 7:25AM | ------ | ------ | ------ | 7:35 | 7:38 | 7:53 | 8:00 | 8:08 |
| 8:25 | ------ | ------ | ------ | 8:35 | 8:38 | 8:53 | 9:00 | 9:08 |
| 9:25 | 9:30 | 9:34 | 9:46 | 9:51 | ------ | ------ | ------ | 10:10 |
| 10:25 | 10:30 | 10:34 | 10:46 | 10:51 | ------ | ------ | ------ | 11:10 |
| 11:25 | 11:30 | 11:34 | 11:46 | 11:51 | ------ | ------ | ------ | 12:10PM |
| **12:25** | **12:30** | **12:34** | **12:46** | **12:51** | ------ | ------ | ------ | **1:10** |
| **1:25** | **1:30** | **1:34** | **1:46** | **1:51** | ------ | ------ | ------ | **2:10** |
| **2:25** | **2:30** | **2:34** | **2:46** | **2:51** | ------ | ------ | ------ | **3:10** |
| **3:25** | **3:30** | **3:34** | **3:46** | **3:51** | ------ | ------ | ------ | **4:10** |
| **4:25** | **4:30** | **4:34** | **4:46** | **4:51** | ------ | ------ | ------ | **5:10** |
| **5:00** | **5:05** | **5:09** | **5:21** | **5:26** | ------ | ------ | ------ | **5:45** |



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# Accessible Services

***Santa Cruz METRO's*** *top priority is to provide courteous, safe, and reliable mobility and accessibility to our community. In cooperation with the* ***Americans with Disabilities Act of 1990 (ADA), Santa Cruz METRO*** *is committed to providing transportation services that can be used by all of our customers.*

## Accessibility Features

- All ***METRO*** vehicles are accessible
- Priority seating is available for older adults and customers with disabilities
- All ***METRO*** buses have "kneeling" capabilities, which permit the front entry door to be lowered to ease entry and exit of the bus
- If you have difficulty climbing steps, ask the Bus Operator to "kneel" the bus for you before you enter or exit the front entry
- All ***METRO*** buses are equipped with ramps or lifts to accommodate passengers who have difficulty climbing stairs, or who use mobility devices
- For passengers using mobility devices, there are reserved areas with securement systems to provide a safe ride
- If you have special needs, please notify your Bus Operator; they are trained to assist with the mandatory securement of any mobility device
- For more information regarding ***METRO's*** Accessible Services Program, call the **Accessible Services Coordinator at (831) 423-3868** or call Customer Service

## Fixed Route Features

- In the event of a passenger lift failure, the Bus Operator will notify the Dispatcher for guaranteed ***Back-Up Service*** if another bus heading to the passenger's destination will not arrive within 30 minutes
- If a ***METRO*** bus cannot be provided, our ***METRO ParaCruz*** paratransit service will be utilized
- Every ***METRO*** Bus is equipped with a Call Stop Announcement System that will announce every bus stop (except
- those within 600 feet of an earlier stop)
- Upon boarding, you may ask the Bus Operator to assist in finding your destination

## Attendants

- One ***Personal Care Attendant (PCA)*** can ride free with a fare-paying passenger who presents a ***ParaCruz ID Card***, or a *Discount Photo ID Card*

## Service Animal Accessibility

- A ***Service Animal*** is defined as any animal that is individually trained to do work or perform tasks for the befefit of an individual with a disabilty, including a physical, sensory, psychiatric, intellectual, or other mental disability
- Passengers with disabilities may be accompanied on a ***METRO*** bus, or ***METRO ParaCruz*** vehicle by a ***Service Animal*** specifically trained to assist them
- The owner must be in control of the animal at all times
- Any working ***Service Animal*** should NOT be petted or handled by any person other than the owner
- For complete information see ***METRO's*** Service Animal Policy

## Life Support Equipment

- Individuals required to use respirators, portable oxygen, and other life support equipment, are permitted to board with them, unless it would violate Federal Regulations (49 CFR Parts 100 - 199) concerning the transportation of hazardous materials

## Mobility Devices

- ***Santa Cruz METRO*** allows for all mobility devices to access our vehicles regardless of weight or size, and will attempt to carry any wheelchair or mobility device that can physically and safely be accommodated on either our ***Fixed Route*** or ***Paratransit*** equipment
- Boarding is permitted as long as the device can maneuver the ramp or be picked up by the lift, and the passenger can maneuver the device into the passenger area in a forward facing position for securement
- ***METRO*** vehicles utilize a multi-point securement system, including: lap belt, shoulder harness (and safety restraint bar for fixed route)

### For Your Safety

- Securement of mobility devices is mandatory
- ***METRO*** requests that you lock your brakes on your mobility device while using the lift and also while the bus is in motion
- While traveling in a scooter, the Bus Operator will suggest transferring to a passenger seat once your scooter has been secured

## Mobility Training

Many customers find that our fixed route buses provide greater flexibility and independence while being less expensive than our paratransit service. ***Santa Cruz METRO's Accessible Services Program*** provides free individualized instruction to older adults and people with disabilities of all ages who want to learn how to:

- Ride the bus safely and confidently
- Use passenger lifts, ramps, kneeling bus steps, and other special features
- Handle unique mobility situations
- Make connections between buses

- Obtain a ***METRO*** Discount Photo ID Card
- Purchase discount fare passes
- Read the *Headways* *Bus Rider's Guide*
- Plan your trip using METRO website

Complimentary ***Stokes Straps*** (for protecting your wheelchair from tie-down scratches) are available.
Contact the ***Accessible Services Coordinator*****, at (831) 423-3868** for complete information.

## ADA Complaint Procedure

In accordance with the requirements of Title II of the Americans with Disabilities Act of 1990 (ADA), and Section 504 of the Rehabilitation Act of 1973 (504), the Santa Cruz Metropolitan Transit District (METRO) will not discriminate against qualified individuals with disabilities on the basis of disability in the METRO's services, programs, or activities. METRO will not tolerate acts of retaliation against anyone exercising his/her rights under the ADA/504.

- Any person with a disability or his/her representative who believes that METRO's programs, activities or services are not in compliance with the ADA/504 statutes or regulations, may file a formal complaint with METRO as outlined in the **ADA Complaint Procedure**.


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# ADA Paratransit Information

***METRO ParaCruz*** is Santa Cruz METRO's ***ADA Complementary Paratransit*** service offering accessible door-to-door shared rides for people who are not able to use the bus due to a physical, cognitive, or psychiatric disability.

METRO ParaCruz provides people with disabilities a level of access to mass public transportation that is comparable to the rest of the community.

METRO operates a fleet of safe, clean, modern and accessible large buses, small buses, and minivans, connecting people to educational, business, medical, shopping, social, and other destinations. All METRO fixed route buses and ParaCruz vehicles are accessible to any customers needing the use of a ramp or lift to board a METRO vehicle.

Santa Cruz METRO ParaCruz is a shared-ride service, providing door-to-door public transportation for people who have a temporary or permanent physical, cognitive, or psychiatric disability that prevents them from making some or all of their trips on METRO's fixed route bus system.

Customers may arrange for an assistant to travel with them. Rides are scheduled in advance, and frequently include picking up and dropping off other customers along the way.

## ParaCruz Customer Guide

- **Click here for the Customer Guide**

## How To Apply

- Eligibility for this service is determined through an in-person interview.
- Click here to find out how to apply

## For ParaCruz Customer Service Inquiries

- **Click here to send us a convenient ParaCruz Customer Service Report**
- **Or call (831)425-4664**
- Responses to ParaCruz Customer Service Reports may take up to 30 days.

## ParaCruz Reservations and Customer Service Hours

- Rides must be reserved at least one day in advance of the ride.
- Reservations may be arranged between the hours of **8:00am and 5:00pm**
- **Call (831)425-4664** (Dial 711 for CRS Hearing & Speech Impaired Services)

## ParaCruz Service Area

- METRO ParaCruz provides service to any destination within Santa Cruz County that is within three-quarter (¾) miles of an operating bus route.

## ParaCruz Service Days and Hours

The days and hours that paratransit service operates reflect the days and hours that METRO local fixed route bus service operates in same area (excluding Amtrak Highway 17 Express).

- If fixed route bus service operates limited trips, paratransit service will be available only during the times when those fixed route bus trips are operating
- Weekend and holiday paratransit service will only be provided when and where local fixed-route bus service is operating

- METRO ParaCruz operates additional evening hours to correspond with certain fixed routes, and operates limited hours (6:00am to 10:30pm) adjacent to fixed routes #33 and #34 on weekdays only during the summer months, when these fixed routes do not operate.
- **Call for more information (831)425-4664** (Dial 711 for CRS Hearing & Speech Impaired Services)

## ParaCruz Fares

- **Fixed Route Bus Equivalent Fares**
  - If a fixed route passenger needs to board one bus to get to their destination, they would pay a single one-way fare ($2)
  - If a fixed route passenger needs to board two buses to get to their destination, they would pay two one-way fares ($4)
- **Paratransit Fares**
  - A Reservationist will inform the paratransit passenger of the exact fare at the time of booking the ride, based on the following criteria:
  - If a paratransit passenger's ride is equivalent to a single fixed route bus fare, they would pay a paratransit base fare ($4)

- If a paratransit passenger's ride is equivalent to two or more fixed route bus fares, they would pay a paratransit base fare plus an additional $2 ($6 maximum)

- **Premium Fares**
  - For will-call returns, a paratransit passenger will pay twice the $4 base fare ($8)
  - For a re-dispatched vehicle, a paratransit passenger will pay four times the $4 base fare ($16)

### Pre-paid ParaCruz coupons are available

- Click here to purchase online
- Or purchase at the Santa Cruz METRO Center Information Booth during business hours

### Mobility Devices

- See the Accessible Services page for complete information


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# METRO's Cruz On-Demand Service

Santa Cruz METRO has a new pilot transit service, Cruz On-Demand, throughout Santa Cruz County that lets you book trips on-demand.

Whether running a neighborhood errand or connecting to the nearest METRO Transit Center for longer journeys, a Cruz On-Demand vehicle will come to you when you schedule it for service to any address within METRO's service area up to a maximum distance of three miles.

Reserve your trip through the Ecolane app or by calling (831) 425-4664. Cruz On-Demand fares are $4.00 for trips up to two miles and $6.00 for trips from two to three miles. Single rides can be paid for with cash onboard the vehicle (exact change required) or with the METRO Splash Pass mobile app. Customers need to purchase the appropriate fare as determined by the Ecolane app or by METRO Customer Service if booking by phone.

Cruz On-Demand is a shared ride experience on smaller vans operated by METRO's trained ParaCruz operators. During this estimated yearlong pilot project, METRO will gather customer feedback and make adjustments to this service as needed to increase efficiency and streamline our on-demand transit service model.

## How to Ride:

**Schedule a ride.** Download the Ecolane app on your mobile device or call METRO's ParaCruz Customer Service at (831) 425-4664. Your pick-up location can be any address within METRO's service area and drop-off locations can be anywhere within a three mile radius of your pick-up address. Trips can be booked up to 24 hours in advance. The scheduler will display the next available pick-up time or you can schedule a future trip for later in the day.

**Get ready to ride.** Be ready to board the Cruz On-Demand vehicle at any time during the "Ready Window". The "Ready Window" begins ten minutes before your scheduled pick-up time. You can track your ride in real-time in the Ecolane app. When your vehicle arrives, meet your driver outside within 2 minutes.

**Ride!** Pay for your ride with the METRO Splash Pass app by purchasing the $4.00 or $6.00 fare calculated by Ecolane or with cash on board (exact change required). Like METRO's fixed-route bus service, Cruz On-Demand is a shared-ride service. Expect stops along the way to pick up and drop off other customers before reaching your destination.

## Service Area

The Cruz On-Demand service area extends 3/4s of a mile from any of METRO's fixed bus routes, excluding Highway 17 and the UCSC campus.

## FAQ

1. **Why on-demand transit?**
   Public on-demand, or "microtransit," is a form of demand response public transportation that has been rapidly growing in cities across the nation. Some have compared this type of service to "Uber Pool for the transit world." The service allows users to request a same day ride via a smartphone app, online, or via the Customer Service call center to connect to destinations that may be off the fixed-route METRO network.
2. **How does Cruz On-Demand work?**
   Cruz On-Demand is a rideshare service that uses dynamic scheduling and ride-matching to pick up riders along a flexible route. There is no fixed-route or schedule. There is also no advanced booking requirement, though wait times will vary based on demand. We recommend you book at least 30 minutes in advance to guarantee your trip. Rides will be shared with other Cruz On-Demand and ParaCruz customers.
3. **Where is Cruz On-Demand available?**
   The Cruz On-Demand service area extends 3/4s of a mile from any METRO fixed-route bus route, excluding Highway 17 and the UCSC campus.
4. **Why are trips limited to 3 miles?**
   Cruz On-Demand is intended for short neighborhood trips or to connect you to a Transit Center to transfer to a METRO fixed-route service for longer journeys. It is not meant to replace trips that could be served by METRO's fixed-route bus system. Shorter trips also mean that more people will get to use the system.
5. **Why is Cruz On-Demand a pilot project?**
   METRO, like many agencies use pilot programs when first launching a new service to perform preliminary studies in order to evaluate feasibility, cost, duration, and make improvements on performance prior to launching a full-scale project. METRO plans on doing just that over the next year with our Cruz On-Demand pilot and will continue to evaluate the program while it is in service.
6. **Why is UCSC excluded?**
   Two reasons: The UCSC campus already benefits from very frequent fixed-route service and the demand on campus would be far too great for on-demand service. Cruz On-Demand is intended to supplement METRO's fixed-route service in areas where service is less frequent and demand is not as great.
7. **Will Cruz On-Demand pick me up at my house?**
   Yes! The service will pick-up you up at any address or bus stop in METRO's service area and drop you off anywhere within a three miles radius of the pick-up address.
8. **How will I know my ride is here?**
   Be ready to board the Cruz On-Demand vehicle at any time during the "Ready Window". The "Ready Window" begins ten minutes before your scheduled pick-up time. You can track your ride in real-time in the Ecolane app. When your vehicle arrives, meet your driver outside within 2 minutes.

9. **How long are typical wait times?**
   Wait times may vary, especially during high demand periods. Wait times can be as little as a few minutes to upwards of an hour.
10. **How much does it cost to ride?**
    Cruz On-Demand fares are $4.00 for trips up to two miles and $6.00 for trips from two to three miles. Pricing will continue to be evaluated during the pilot period of Cruz On-Demand.
11. **How can I pay for my ride?**
    Pay for your ride with the METRO Splash Pass app by purchasing the $4.00 or $6.00 fare calculated by Ecolane or with cash on board (exact change required).. Multi-day or multi-ride passes, GO Santa Cruz Passes, UCSC Student ID's, and Cabrillo Student ID's are not valid for this service.
12. **Who drives METRO Cruz On-Demand?**
    Trained METRO ParaCruz drivers will be operating METRO's Cruz On-Demand vehicles.
13. **How do I download and use Ecolane?**
    Ecolane can be downloaded for the App Store or Google Play. For more information visit METRO's app page.
14. **How do I download and use the METRO Splash Pass?**
    The METRO Splash Pass, METRO's mobile ticketing app, can be downloaded from the App Store or Google Play. For additional information on the METRO Splash Pass visit METRO's app page. For step-by-step user instructions download the brochure. Once your Cruz On-Demand fare is purchased on the Splash Pass, show the ticket to the driver when boarding and driver will visually inspect the validity of the ticket.
15. **How can I request a ride without a smartphone?**
    You can request a ride without a smartphone by calling METRO's ParaCruz Customer Service at (831) 425-4664 between the hours of 8AM and 5PM, 7 days a week.


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# VI-9. REGIONAL PLANNING

Collaborating, in mutually beneficial regional partnerships, is the key for ensuring sustainable transportation and land use investments that will affect the future of Santa Cruz and the greater region.

## KEY RECOMMENDATIONS

Successful regional collaboration can address:

- Existing and future regional vehicle traffic congestion problems on Highway 1
- The location, extent and balance of future employment and population growth, including the provision of mixed-use development and affordable housing near transit, to preserve open space
- The type and availability of transit services and accessible routes to expand person-trip travel options
- Managing multi-modal travel way capacity more efficiently
- Managing parking availability and cost to increase carpooling and transit, and to encourage more efficient, compact land use
- Expanding regional bicycle and recreational trail networks.

Key partners include UCSC, Metro, SCCRTC, Santa Cruz County, Caltrans, Downtown Merchant's Association and major Santa Cruz employers.

The challenge of transportation planning is that solutions to one issue generally have both beneficial and negative consequences for related issues. Therefore, success relies upon regional collaboration and relying on the principles of sustainable transportation planning. Applying the principles will reflect core community values and help achieve balanced and integrated regional transportation and land use solutions. This approach offers a comprehensive perspective to frame issues and solutions. Santa Cruz should:

1. **Support regional funding and implementation of key regional projects that can significantly benefit the city, including:**
    - Metrobase Transit District Consolidations Operations Facility
    - Right-of-way acquisition on rail corridor
    - Bike and pedestrian path on rail right-of-way
    - Local bike projects
    - Expanding local and regional bus service
2. **Ensure, as the proposed Regional Transportation Commission Highway 1 widening project moves forward, that the following criteria are sufficiently**

**evaluated so selection and funding of future projects are consistent with the MTS vision and community needs.**

- *New travel choices.* Make a major regional transportation investment to provide new travel choices to ensure high-occupancy, high-frequency regional transit service and carpooling that serves local and regional activity centers as the primary means to address vehicle traffic congestion and increase person-trip mobility.
- *Funding availability for transit.* Ensure that Highway 1 widening project capital, operating and maintenance costs, which would be covered by an increase in sales tax, do not reduce funding for bus and transit services. In addition, ensure that sales tax funds are annually available to support other priority transportation projects.
- *Acceptable levels of local street vehicle congestion.* Ensure that there are no significant local street vehicle traffic congestion and increased SOV traffic impacts induced by Highway 1 widening or as a result of construction impacts related to the widening project.
- *Support local transit, carpooling pedestrian and bicycle travel.* Ensure that the design and operations of the widening project connect to the local street system in a manner that can support transit and carpooling operations as a priority on local arterial streets. Additionally, support pedestrian and bicycle connections across the highway to interconnect north and south neighborhoods.
- *Demonstrate sufficient benefits relative to other feasible alternatives to justify project costs and impacts.* Ensure that the future travel benefits and travel time savings for transit and carpooling are sufficient to justify the costs and environmental impacts of a Highway 1 widening project when compared with other feasible alternatives, including a BRT system on the rail corridor.
- *Minimize auto-oriented land use impacts both regionally and locally.* Conduct an evaluation of the land use impacts of a Highway 1 widening project. It should monitor progress in promoting compact, walkable, mixed-use and transit-oriented development (moving away from inducing low density, auto-oriented development). The evaluation should identify other feasible alternatives that support sustainable land use.

# BACKGROUND

## Regional Setting

The City of Santa Cruz is located on the Monterey Bay between the San Francisco Bay Area to the north and the Monterey Peninsula to the south. As the home for the University of California at Santa Cruz, county government, and several of the County's largest employers, Santa Cruz is an employment center for Santa Cruz County. With coastal mountains, sandy beaches and a vibrant downtown, Santa Cruz is also a major tourist destination and recreation attraction for the San Francisco Bay Area and the Monterey Bay Area.

## Population and Employment Growth

As shown in Table 1, Association of Monterey Bay Area Governments (AMBAG) forecasts for population and employment growth for the City and County of Santa Cruz indicate that:

- Local programs can influence 74% of Santa Cruz peak hour travel demand. 50% are local trips and 24% are commute trips into the City.
- 26% are commute trips out of the City, which are significantly less influenced by local programs.
- The City of Santa Cruz contributes less than 20% to total regional PM peak hour trips, declining from 18% in 2000 to 17% in 2020.
- Santa Cruz County's population, residential housing construction and employment are projected to increase at a greater rate than the City's between 2000 and 2020.
- 69 percent of regional population growth by 2020 will be in Watsonville and the unincorporated areas of Santa Cruz County, increasing by 31,561 from 180,334 to 211,895 by 2020.
- Approximately 211,895 people will live in South County, approximately 70 percent of the County's projected 2020 population. Due to South County's low-density development pattern, future growth will continue to contribute to increased auto dependence and is less responsive to transit services.
- A net 19% of the County workforce commutes to areas outside of the County for employment in areas such as Monterey County and the Bay Area, with the majority of these trips going to the Silicon Valley area in Santa Clara County.
- Population in Santa Cruz County is anticipated to increase by 17,8% between 2000 and 2020 growing from 257,739 to 303,646.
- Employment in Santa Cruz County is anticipated to increase by 19% between 2000 and 2020, growing from 140,589 to 168,532 jobs.

**Table 1: Population and Employment Growth, Santa Cruz County 2000 - 2020**

| | 2000 | Size in Region | 2020 | Growth | Rate | Percent of Region | Percent of Growth |
|---|---|---|---|---|---|---|---|
| **Employment** | | | | | | | |
| Santa Cruz County | 140,589 | | 168,532 | 27,943 | 19.9% | | |
| **Population** | | | | | | | |
| Capitola | 11,172 | 4% | 11,750 | 578 | 5.2% | 4% | 1% |
| Santa Cruz | 55,013 | 21% | 64,386 | 9,373 | 17.0% | 21% | 20% |
| Scotts Valley | 11,218 | 4% | 15,615 | 4,397 | 39.2% | 5% | 10% |
| Watsonville | 43,620 | 17% | 55,875 | 12,255 | 28.1% | 18% | 27% |
| Unincorporated | 136,714 | 53% | 156,020 | 19,306 | 14.1% | 51% | 42% |
| **Santa Cruz County** | 257,737 | 100% | 303,646 | 45,909 | 17.8% | 100% | 100% |
| **Unincorporated + Watsonville** | 180,334 | 70% | 211,895 | 31,561 | 42% | 70% | 69% |

# TRANSPORTATION SETTING

## Network

Regionally, State Highway Route I is the major inter and intra county route for the County, following the coast from San Francisco and San Mateo County south through the City of Santa Cruz. Within the city, Highway 1, traverses from the recently improved Mission Street, traverses east to its junction with Highway 17. At Highway 17 Highway 1 forms a four-lane freeway extending south to Watsonville and Monterey County. State Highway 17, which traverses the Santa Cruz mountains, terminates in Santa Cruz and connects Santa Cruz County to the greater San Francisco Bay area.

Highways I and 17 experience average annual daily traffic volumes of up to 110,000 and 66,000, respectively. The two highways serve regional traffic, motorists who commute every day to the high-tech job centers in the Silicon Valley, and motorists who travel into Santa Cruz County to enjoy the scenic recreation opportunities offered by the region. Highway 17 is often subject to high accident rates, primarily due to motorists driving faster than is safe for conditions.

## Traffic Volume/Capacity

Annual Average Daily Traffic (AADT) along Route I range from 36,000 near the Monterey County line to in excess of 110,000 near the "fishhook" interchange with Route 17. Between State Park Drive and Morrissey Boulevard, current AADT ranges from 83,000 to 110,000 with the highest daily volumes occurring between the Soquel and Morrissey interchanges.

Peak hour travel demand in the study area exceeds the carrying capacity of the highway. Route 1 operates at Level of Service (LOS) "F" for multiple hours each day. Typical northbound AM mid week recurrent morning congestion lasts for over 3.5 hours; mid week southbound PM congestion lasts for over 4 hours.

Recurrent congestion related queuing on State Route 1 extends for several miles during peak hours. In the PM, southbound traffic queues from the Bay Porter Interchange back through the 1/17 Junction towards Pasatiempo Drive and north on Route 1 towards the Route 9 Junction. In the AM peak period, northbound congested queuing typically extends from Morrissey Drive to beyond Freedom Boulevard. Accidents, events, and other incidents in the corridor can further increase congestion related delays in either direction, on any day, including weekends.

The AMBAG travel forecasting model projects that the 2020 Average Annual Daily Traffic (AADT) volumes in the study area will range from 115,000 near State Park Drive to 144,000 between Morrissey and Soquel. With this projected increase in travel demand, the extent and duration of congestion in the study area will significantly increase. The duration of daily northbound congested conditions would increase by several hours with weekday recurrent congestion related queues extending as far back as Watsonville during both the AM and PM peak periods. In the southbound direction, the anticipated increase in travel demands will further impact Route 17, Route 9, Ocean Street, and Mission Street as congestion queues extend north. Soquel Avenue, Seabright neighborhood, Morrissey Boulevard and the Hwy 1/9 intersection also experience high levels of vehicle traffic.

## Accident Data

During the five year period, there were a total of 921 accidents on Hwy 1 from Morrissey-St. Park with no fatalities and 281 injuries resulting in a total accident rate of 1.22, which is below the statewide average rate of 1.60. The types of collisions were rear end (287), hit object (66), and sideswipe (47). The primary collision factors for these types of accidents were speeding (263); improper turn (40), and tailgating (45). The times of the day when a large percentage of these accidents occurred were 8:00 a.m. (60), 9:00 a.m. (36), and 5:00 p.m. (70).

## Transit Services

Regional bus routes provide service to destinations in Santa Clara and Monterey Counties. Weekday service is provided by the Highway 17 Express Bus, which serves Santa Cruz, Scotts Valley and San Jose (destinations include the Caltrain Station and San Jose State University). Amtrak buses provide service to downtown Santa Cruz's transit center and to the San Jose Caltrain station, with train connections to San Francisco, Sacramento, Stockton and intermediate cities. Limited Amtrak bus service is also available between Watsonville and San Jose. Greyhound buses serve downtown Santa Cruz, Los Gatos and the San Jose Airport.

## Modal Choice/Transit

Although the urbanized portions of the County, especially University oriented areas of Santa Cruz, exhibit support for alternative transportation modes including transit and bicycling, the preponderance of new growth has been at lower, less transit conducive densities in communities and unincorporated area lying south of Santa Cruz. As a result, a recent survey indicates that 83% of the County's workers commute in single occupant vehicles. Those who live in Santa Cruz County and work elsewhere also impact Highway 1. According to the 1990 Census approximately 20% of employed Santa Cruz County residents travel to jobs in Silicon Valley and beyond; a significant proportion of these travelers use Highway 1 to access Highway 17 over the Santa Cruz Mountains.

The Route 1 facility currently includes park and ride lots in support of transit use, vanpools, and high occupancy vehicles. "Express Buses", including Route 17 Express Service are trapped in mixed flow lanes with all other traffic, and no incentives such as ramp meter HOV bypass lanes or mainline HOV lanes exist to encourage ridesharing.

## Lack of Alternative Routes

Owing to geography, topography and historical development patterns, Route 1 is the lifeline for transportation through the County and its urbanized areas. While Route 1 is the only continuous route through the County, Soquel Drive/Soquel Ave and other local arterials including Capitola Road and Murray Street/East Cliff Drive, serve as parallel routes within certain sections of the urbanized area. These roadways, however, are themselves congested during peak hours and little opportunity exists to expand their capacity. An underutilized branch rail line provides potential for future transit growth in the corridor, and including potential use for as a bicycle and pedestrian path. The closest parallel State highway for interregional travel is U.S Route 101, which is separated from Route 1 by coastal mountains.

# REGIONAL TRANSPORTATION PLANNING

## Institutional Context

The regional transportation planning agency for Santa Cruz County is the Santa Cruz County Regional Transportation Commission (SCCRTC). SCCRTC oversees planning and funding programs for local & regional projects using state and federal transportation funds. The City of Santa Cruz has one City representative on the 12-member SCCRTC board and many City transportation projects are funded through grant programs administered by the SCCRTC.

## Adopted Plans and Programs

Three regional transportation planning efforts directly affect the future of transportation planning for the City of Santa Cruz:

1. The Master Transportation Investment Study (MTIS), approved by the RTC in 1999, which sets forth a program of $260 million in transportation projects for the Watsonville - Santa Cruz - UCSC corridor to be pursued over the next 15 years.
2. The Regional Transportation Plan (RTP), adopted by the RTC in October 2001, which is the comprehensive regional transportation planning document providing guidance for transportation policy and projects to improve mobility through 2025 and incorporates the MTIS decision.
3. The 2002 Regional Transportation Improvement Program (RTIP), adopted by the RTC in December 2001, which implements the RTP, proposes how regional funds should be spent to the California Transportation Commission, and is the summary document which tracks state and federal transportation funding through fiscal year 2006/07.

## Key Regional Projects

The adopted RTP confirmed the recommendations of the MTIS, with the following projects having significant potential to affect the mobility future for the City of Santa Cruz:

- **Acquisition of the Santa Cruz Branch rail line** for future transportation resource for the community.
- **Development of a bicycle and pedestrian pathway adjacent to the rail line**, where freight operations will continue and future transit options will not be precluded.
- **Implementation of the Highway 1/17 Merge Lanes project**. This project provides operational improvements by widening the existing to add merge lanes between Highway 17 and Morrissey Blvd. It is funded with $52 million in State Transportation Improvement Program (STIP) funds and is scheduled to start construction in 2004. It can be characterized as the next step toward full highway widening (with Mission St. widening as the first step).
- **Planning for Highway 1 widening from four lanes to six lanes to add HOV lane both ways is beyond the limits of the upcoming Highway 1/17 Merge Lanes project.** This project would modify six interchanges and ten structures, including three additional structures for pedestrian over crossings and sound walls. The extended Highway 1 widening project is not yet funded and will require a local sales or gas tax to enable future construction.

- **Funding for a 15-year growth plan for increasing bus service**, including new buses, bus stops, equipment and upgraded maintenance/operations facilities.
- **Funding for high priority local bike projects**, including around schools, and an **electric bike program** allowing discounted distribution and sale of electric bikes to people committed to driving less.

None of these projects are fully funded yet.

## CONSISTENCY WITH MTS GOALS

Table 2 presents 2002 Regional Transportation Improvement Program funded projects and longer-term RTP projects that will affect future City of Santa Cruz travel. The table provides a conceptual evaluation for consistency with the MTS goals. All identified RTIP and RTP projects are consistent with the MTS, with the following comments:

### MTS High Priority Projects

The following projects are MTS high priority projects:

- Metrobase Transit District Consolidations Operations Facility.
- Right of Way Acquisition on rail corridor.
- Bike and pedestrian path on rail right-of-way.
- Local bike projects.
- Expanded Bus Service

### Projects Requiring Further Evaluation

The proposed Highway 1 widening projects, both the 1) widening of existing on-ramps, adding auxiliary lanes and ramp metering, and 2) adding one HOV lane each direction - widening Highway 1 from 4 to 6 lanes - modification to 6 interchanges and 10 structures, including 3 pedestrian over crossing and sound walls, require additional design and operational information to evaluate project impacts and ensure consistency with MTS goals.

*Key questions to be analyzed in the environmental analysis are:*

1. The potential effect of increasing SOV use with the addition of HOV lanes.
2. Local street system peak hour traffic impacts associated with increased HOV and SOV traffic including the Highway 1 and Mission Street corridors, as well as on Soquel Avenue.
2. Operational efficiency and travel timesaving with the design of the transitions from Hwy 1 HOV lanes to local city streets including the flow of transit and ridesharing to UC, downtown and employment center locations.

4. Opportunities for new bicycle lanes and pedestrian connections across Highway 1 to link the north and south areas of Santa Cruz together.

**A proposed Route 1 strategy for MTS is to**

1. Recognize the regional problem;
2. Raise questions regarding the problem and potential solutions for consideration;
3. Identify issues, solutions and alternatives to address potential impacts for environmental analysis. Items identified by the Steering Committee are:

- Park and ride at Hwy 1/9 is critical.
- Park and ride all along the Hwy 1 corridor.
- Transit stops directly along Hwy 1 corridor (on the freeway).
- Consider Hwy 1 corridor/ROW as accommodating other very high occupancy transit systems (fixed guide way).
- Increase efficiency of Hwy 1 corridor.
- Provide better housing opportunities for those working in the City and currently residing in the County.
- Balance jobs & housing.
- Widening of all bridges across the corridor to accommodate bike lanes and pedestrian facilities.
- Parking pricing options.
- Consider appropriate transit technologies given regional distribution of land use, i.e. that 50% future growth is in low density, auto dependent unincorporated areas of county.
- Provide land use alternatives in EIR analysis for region.
- Providing alternatives, including HOV lanes, improve SOV travel.
- City hire separate EIR consultant to independently evaluate HOV lane impacts.
- Offer choices.
- Recommend rationale to council.
- Ensure that if there is a 1/2 cent sales tax to pay for the widening, that it does not eliminate funding for transit.
- What are the local street impacts of the Highway 1 widening?

## Table 2: Regional Projects

| Project | Cost | Consistent MTS | Remarks |
|---|---|---|---|
| Hwy 1 widening - merge lanes cost increases | $52 million | - Projects Funded in the RTIP that Affect the City -- | need additional information to evaluate impacts & insure consistency with MTS goals |
| Metrobase - Transit District Consolidated Operations Facility | $31 million | Yes | **MTS high priority** *needs additional funds* |
| Traffic management - Hwy 1 freeway service patrol | $240,000 | Yes | non capacity increasing project that improves safety and traffic flow |
| Traffic management - Commute solutions | $444,000 | Yes | regional carpool program |
| Project management - SB45 planning funds | $230,000 | Yes | helps track funding for all projects |
| Sanctuary Scenic Trail | $1.5 million | | Only $150,000 currently funded |
| Santa Cruz Metro Center Rehabilitation | $6 million | | |
| Highway 17 Bus Purchases | $4 million | | |
| Santa Cruz Branch Rail Line Acquisition needs additional funds | $15 million | yes | **MTS high priority** |
| Regional Vanpool Incentive Program | $100,000 | | |
| Santa Cruz Area TMA Program | $90,000/yr | | |
| Electric Bicycle Commuter Incentive Program | $1 million | yes | *needs additional funds* |
| One in Five (Don't Drive) Rideshare Promotion | $1 million | yes | *needs additional funds* |
| Bike & pedestrian path on rail right-of-way only environmental and planning phase funded | $12 million | yes | **MTS high priority** |
| Battery Backup of Signals program | $200,000 | | |

## City of Santa Cruz Projects

| | | | |
|---|---|---|---|
| San Lorenzo River bike/ pedestrian bridge needs additional funds | $3 million | yes | **MTS high priority** |
| Santa Cruz Multimodal Station at Depot Site | $4 million | | |
| Broadway-Brommer Bike Path | $2 million | | |
| Beach Street Contraflow Bikeway | $600,000 | | |
| Front St. pavement rehabilitation | $325,000 | yes | |
| High St./Highland Ave. pavement rehabilitation | $611,000 | yes | |
| Water St. pavement rehabilitation | $195,000 | yes | |
| EastCliff/Murray St. pavement rehabilitation | $395,000 | yes | |

| Project | Cost | Consistent MTS | Remarks |
|---|---|---|---|
| San Lorenzo/E. Cliff/Riverside pavement rehabilitation | $900,000 | yes | |
| West Cliff Dr Path Widening | $888,000 | yes | *may need additional funds* |
| Mission St/Hwy 1 Lighting | $1 million | yes | *needs additional funds* |
| Water, Soquel, and Broadway pavement rehabilitation | $395,000 | yes | aka "arterial roadway rehab" |
| Mission St/Hwy 1 Landscaping | $625,000 | | |

## RTP Projects that may be implemented/constructed 2002-2025 (Not currently funded)

| **Bus service improvements** | | yes | **MTS high priority** |
|---|---|---|---|
| -Bus stop improvements | $7.5 million | | |
| -Fleet preventative maintenance | $1.1 million | | |
| -Hwy 17 Express Service Expansion | $21 million | | |
| -Local transit service expansion | $32.2 million | | |
| -Replacement Buses | $69 million | | |
| -Metro System Automated Customer Service | $200,000 | | |
| -Transit Alternative Fuel Conversions | $3.2 million | | |
| -Transit Mobility Training Program Expansion | $1.2 million | | |
| -Transit Service Operations and maintenance | $732 million | | |
| -Transit Technological Improvements | $5 million | | |
| -UCSC Bus Service Expansion | $12.3 million | | |
| -Web-based Transit Rte Info | $300,000 | | |
| -ADA Paratransit fleet and service | $21.5 million | | |
| -Countywide Specialized Transportation | $34.5 million | | |
| -Liftline Consolidated Op Facility | $10 million | | |
| -Non-ADA Paratransit Service Expansion | $17 million | | |
| | | | |
| **Hwy Improvements** | | | |
| Adding 1 HOV lane each direction by Widening Hwy 1 from 4 to 6 lanes, Morrissey Blvd to State Park Drive | $300 million | | need additional information to evaluate impacts & insure consistency with MTS goals |
| Hwy 1/9 intersection modifications and park and ride lot | $6 million | yes | |
| Intelligent Transportation Systems on Hwy 1 | $3 million | | |
| Bike/Ped bridge on Hwy1 @ Mattison | $2 million | | |
| Hwy 1 Ramp Metering | $2.5 million | | |

| Project | Cost | Consistent MTS | Remarks |
|---|---|---|---|
| Hwy 1/San Lorenzo Bridge Widening | $10 million | | |
| Hwy 17 ITS | $7 million | | |
| Hwy 17 Operational Improvements | $50 million | | |
| Hwy 17 CHP Safety Program | $2.5 million | | |
| | | | |
| **local road improvements (MTS project listing)** evaluate impacts & ensure consistency with MTS goals | | yes | need additional information to |
| Neighborhood Traffic Management | $2.5 million | | |
| Countywide bicycle projects | $75 million | yes | MTS high priority |
| Local Arterial EMS and HAR System | $600,000 | | |
| | | | |
| Intracity Rail Transit | $10 million | | Passenger rail in City of SC |
| | | | |
| Other Regional Projects/Programs | | | |
| Bike to Work Project (Ecology Action) | $620,000 | | |
| Electric Vehicle Recharging Stations | $2 million | | |
| Integrated Transportation Info Center | | | |
| Park and Ride Lot Development | $8 million | | |
| Transit Oriented Development Program | $5 million | | |
| Car sharing Program (SC TMA) | $2.5 million | | |

FINAL

# 2040 Santa Cruz County REGIONAL TRANSPORTATION PLAN

Santa Cruz County
Regional Transportation Commission
FINAL — JUNE 2018

# 2040 Santa Cruz County Regional Transportation Plan

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# 2040 Santa Cruz County Regional Transportation Plan

# Executive Summary

The Santa Cruz County Regional Transportation Commission (herein referred to as the "RTC" or "Commission") periodically completes a Regional Transportation Plan according to state guidelines to guide short- and long-range transportation planning and project implementation for the county. This 2040 Regional Transportation Plan (called the "2040 RTP") is the RTC's comprehensive planning document that provides guidance for transportation policy and projects through the year 2040. The 2040 RTP is based on a sustainability framework using the Sustainable Transportation Analysis and Rating System (STARS) to identify the goals, policies and thus the projects and programs to achieve a more sustainable transportation system. Sustainability is defined as balancing economic, environmental and equity interests. Individual projects listed in the 2040 RTP must still undergo separate design and environmental processes, and can only be implemented as local, state and federal funds become available. This RTP, along with those from Monterey and San Benito Counties, has also been incorporated into a Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) covering the three-county Monterey Bay area that will meet state and federal guidelines.

The following is a summary of each chapter in the 2040 RTP.

## Chapter 1 – Why Sustainability?

The transportation system not only enables us to get around but it is also interlinked with our health and safety, the quality of the built and natural environment, and the economic vitality of our region. The 2040 Santa Cruz County Regional Transportation Plan endeavors to work towards a sustainable transportation system that addresses the challenges that face transportation in Santa Cruz County now and in the future. The challenges discussed in Chapter 1 include:

- System Preservation – Maintenance needs for the existing transportation network are increasing. Roadway, bikeway, sidewalk, bridge and other repairs must be addressed in parallel with capacity and operational enhancements. If ongoing routine maintenance needs are not addressed, the cost of deferred maintenance will grow exponentially, leaving little funding for new projects.
- Safety – The federal transportation act, Fixing America's Surface Transportation Act (FAST) identifies safety as a national goal area and requires each state to set Safety Performance Management Targets in order to achieve a significant reduction in motorized and non-motorized traffic fatalities and serious injuries on all public roads. The Metropolitan Planning Organizations must also establish targets in coordination with the state.
- Congestion – Traffic congestion exists in Santa Cruz County and will not go away in the foreseeable future. Population growth and region-wide jobs to housing imbalances that encourage driving as the mode of choice result in more drivers making more automobile trips.

The frequent traffic jams on Highway 1 are the most obvious example of congestion on county roadways.

- Environmental and Public Health - A sustainable transportation system can play a vital role in the environmental health of Santa Cruz County and the health of its residents. Greenhouse gas emissions (GHG) have global environmental and public health effects, and air pollutants can affect both the environment and public health on a regional scale. The link between limited use of active transportation, such as biking and walking, and adult and childhood obesity is increasingly strengthened through research. Strategies for addressing this concern are being discussed at federal, state and local levels.
- Energy – Global energy demands are predicted to grow by 30% by 2040 as emerging economies increase their energy use comparable to other major energy consuming nations. Transportation relies heavily on fossil fuel which is a finite commodity. It cannot be assumed that fossil fuel will be abundant and inexpensive into the foreseeable future.
- Economy – The economic vitality of a region can be affected by transportation in a number of ways. Improved access is likely to positively affect businesses through faster goods movement and increased tourist activity. Implementation of transportation projects can provide jobs, and the smaller the percentage of household income that goes to transportation, the greater the amount of money that is available to go back into the local economy.
- Funding – Funding for transportation in Santa Cruz County has notably improved in the last couple of years. Measure D, approved by Santa Cruz County voters in 2016, provides approximately $20 million in revenues per year from sales taxes that are dedicated for use on the transportation categories approved by voters. In 2017, the California legislature provided more stable funding for transportation for the first time in nearly 25 years with passage of Senate Bill 1.

The 2040 RTP endeavors to work toward a sustainable transportation system that addresses these challenges and results in safer, healthier and more efficient travel choices that provide improved multimodal access to opportunities such as jobs, education, and healthcare for our residents.

## Chapter 2 – Transportation Network

Santa Cruz County has a rich multi-modal transportation network. The county's existing transportation network comprises a broad range of transportation facilities and modes. These include state highways, local streets and roads, an extensive bus system, a specialized transport system for seniors and people with disabilities, bikeways, sidewalks, an airport and a rail line. The most notable improvements to the highways have been on Highway 1 including Mission St, the Highway 1 and 17 interchange and auxiliary lanes between Soquel Drive and Morrissey Boulevard.

In 2012, the RTC became the owner of the Santa Cruz Branch Rail Line that extends almost 32 miles between Davenport and Watsonville. The RTC purchased the rail corridor on behalf of the community to preserve the corridor for existing and future transportation uses, including freight rail, passenger rail service/transit, and bicycle and pedestrian facilities. The Unified Corridor Investment Study is currently underway to perform an analysis of the options for transportation uses of the rail right-of-way as required by Measure D. The Master Plan and Environmental Impact Report for the Monterey Bay Sanctuary Scenic Trail, a network of multiuse trails with the spine along the rail line, have been completed. Thirteen miles of trails along the rail right of way have been funded in full or in part, with

construction to begin as soon as design, engineering and environmental permitting are completed. The first project is scheduled to be completed in 2018.

Transportation system management and transportation demand management programs are also components of the transportation network. Transportation System Management (TSM) projects incorporate operational improvements that improve traffic flow and safety. Examples include signal synchronization, new turning lanes, striping, auxiliary lanes and detectors for assessing real time traffic conditions. Transportation Demand Management includes strategies that reduce the number of people that are driving alone. These strategies include increasing the number of people carpooling, bicycling, telecommuting and taking transit through programs such as Cruz511 traveler information services.

This multi-modal transportation network is crucial to meeting the travel needs of all county residents, including drivers, non-drivers and commercial traffic.

## Chapter 3 – Travel Patterns

The majority of the population in Santa Cruz County lives and travels within a small area of the county. The areas of the county with higher population density are primarily along the coast (City of Santa Cruz, Capitola, Live Oak, Soquel and Aptos), in the cities of Watsonville and Scotts Valley, and along portions of the San Lorenzo Valley. Although the distances that people travel within Santa Cruz County are not extensive, increasing the diversity of land uses within neighborhoods to improve access to goods and services can result in even greater reductions in trip lengths.

The patterns of travel within Santa Cruz County are very much dependent on the number of people who live, work and visit the county. Population growth in Santa Cruz County between 2000 and 2010 increased by only 3% but future projections indicate that the growth rate will increase to 12% between 2015 and 2040. Similarly, the number of jobs in Santa Cruz County is forecasted to increase by 18% between 2015 and 2040.

Much effort on this 2040 RTP and the 2040 Metropolitan Transportation Plan has been focused on prioritizing projects that will reduce greenhouse gas emissions primarily from a reduction in vehicle miles traveled (VMT). One vehicle traveling one mile equals one “vehicle mile traveled.” The 2011-2012 California Household Travel Survey (CHTS) data results for the state show that there has been a doubling of walk, transit and bike trips compared to data collected in 2000 and a reduction of drive alone trips of approximately 10%. Mode share data for Santa Cruz County from this CHTS data shows that Santa Cruz County residents bike more often than the state average. The American Communities Survey provides mode share data for the “typical mode taken to work” for Santa Cruz County. The data from 2011-2015 shows that Santa Cruz County residents are choosing to ride their bike to work more often than in 2000, but carpool less, and the percent of drive alone trips remains the same.

## Chapter 4 – Vision for 2040

The Santa Cruz County Regional Transportation Commission utilized an independent third party rating system called the Sustainable Transportation Analysis and Rating System (STARS) to develop a sustainability framework for the 2014 RTP. This sustainability framework was used for the 2040 RTP. The goals, policies, performance measures and targets were developed with extensive public and partner input using STARS to form the foundation for a sustainable transportation plan. The measures are shaped

by readily available data and are expected to evolve as new data becomes available. The goals for the 2040 RTP are as follows:

Goal 1: Establish livable communities that improve people's access to jobs, schools, recreation, healthy lifestyles and other regular needs in ways that improve health, reduce pollution and retain money in the local economy.

Goal 2: Reduce transportation related fatalities and injuries for all transportation modes.

Goal 3: Deliver access and safety improvements cost effectively, within available revenues, equitably and responsive to the needs of all users of the transportation system and beneficially for the natural environment.

For the first time, the Santa Cruz County Regional Transportation Plan identified measurable outcomes, called targets that are each linked to a sustainability goal. Incorporating targets into the goals and policies enables the Regional Transportation Commission to assess how well the long range plan will perform over time in advancing the targets. The assessment of performance is provided in Chapter 7.

## Chapter 5 – Financial Plan

Transportation programs and projects in Santa Cruz County are funded from a variety of local, state and federal funding programs. Local sources account for 52% of the transportation revenues, 38% from state and 10% from federal. Based on current and projected revenue sources, approximately $3.75 billion are reasonably anticipated to be available to finance transportation projects in Santa Cruz County through 2040 ($170 million per year). The vast majority of anticipated revenues are committed to specific dedicated uses. Over one third of local, state and federal funds can only be used for transit and paratransit projects and operations. A large proportion of these transit revenues come from our county's dedicated half-cent local sales tax for transit. Airport improvements and highway safety also account for a large portion of the dedicated funds.

In response to ongoing funding shortfalls and the large backlog of maintenance and other projects, Santa Cruz County voters approved Measure D in November 2016, a 30-year half-percent sales tax dedicated to local transportation projects and programs. Measure D provides approximately $20 million per year in stable funding for projects in Santa Cruz County. In 2017, the California legislature passed Senate Bill 1 – The Road Repair and Accountability Act to stabilize transportation funding and help address the diminishing transportation revenues from the per gallon gasoline and diesel tax.

The Regional Transportation Commission (RTC) has discretion over less than 4% of the funds available for transportation projects in the next 22 years (approximately $7 million per year). These funds are from regional shares of the State Transportation Improvement Program (STIP) Surface Transportation Block Grant Program (STBG) and SB 1- Local Partnership Program.

It is important to note that transportation funding can be incredibly unpredictable. State and federal actions can result in elimination of certain funding programs or diversion of transportation funds to the State General Fund, as has happened regularly to transit funds over the past several years. Inevitably, some of the funding sources assumed within the financial projections for this plan will not actually be realized. Even if all of the revenues assumed in this document are realized, projected funds are insufficient to keep up with maintenance, operational, safety, and major improvement needs of the region

discussed in Chapter 6. Therefore, this document identifies additional sources for new funds that could potentially become available. The RTC works with entities locally, statewide, and nationally to seek new transportation revenue sources. These could include new local or state gas taxes, transportation impact fee programs, statewide transportation bonds, special federal funding programs (such as economic stimulus bills), special state legislative budget requests, and new grants.

## Chapter 6 – Transportation Investments

A list of programs, projects and actions needed to operate, maintain, and improve the transportation system in Santa Cruz County has been developed – based on input from the public and sponsoring agencies -- as part of the Action Element of the RTP. The cost of implementing this list of transportation projects in Santa Cruz County is approximately $7 billion, whereas the estimated funds available through 2040 is approximately $3.75 billion – just over half of the estimated need.

Given the significant gap between funding needs for transportation and projected revenues, the projects listed in the RTP must be divided into two groups. Transportation improvements that can be funded with foreseeable transportation revenues between 2018 and 2040 are shown as "Constrained." This group includes projects with dedicated funding, already funded projects to be constructed in the short term, and planned projects that could be constructed anytime within the 2040 RTP's 22-year time-line as projected funds become available. Transportation improvements to be implemented only if new revenues are generated or become available show their funding as "unconstrained." Some projects are identified with both constrained and unconstrained funds, indicating a need for additional funds to complete the entire project, though portions of those projects may be completed using available funding.

In order to determine which projects are prioritized for the constrained list for the 2040 RTP, input was solicited from project sponsors, the public, public interest groups and RTC advisory committees throughout the process in developing the final project list that identifies the projects as either constrained and/or unconstrained.

The within projected funds or constrained project list consists of approximately 220 projects that could be fully implemented and 120 projects that could be partially implemented over the twenty-two year timeframe. These projects and programs address the region's accessibility, economic, safety and environmental sustainability needs over the next 22 years and constitute the 2040 RTP's constrained project list described in Chapter 6 with the full list of projects and programs provided in Appendix E. During the next 22 years, approximately $3.75 billion from federal, state, and local funding sources is projected to be available to finance transportation projects in Santa Cruz County. Over 230 projects are on the unconstrained list, for which additional funds will be needed in order to be implemented.

The 2040 RTP assigns future transportation funds to a range of projects and programs designed to maintain the current transportation system, and improve access, safety and environmental and public health by broadening transportation options. Key proposals, based on available funding, include:

- Maintenance of the existing transportation network including roads, highways, bike lanes, sidewalks, and transit
- Safety and operational improvements to Highways 1, 9, 17, 129 and 152
- Addition of auxiliary lanes on Highway 1 between State Park Drive in Aptos and Soquel Ave
- Bicycle and pedestrian crossings over Highway 1 at Chanticleer and Mar Vista

- Modifications to major arterial roads -- including intersection improvements and bus, pedestrian and bicycle facilities
- Freeway Service Patrol along Highways 1 and 17
- Expanded bus service for high ridership routes to serve University of California Santa Cruz (UCSC), south county and San Jose commuters
- Transit queue jumps and high occupant vehicle signal priority
- Construction of the Monterey Bay Sanctuary Scenic Trail , the Pajaro River Trail, and the San Lorenzo Valley Trail
- Local bicycle and pedestrian projects and programs designed to increase bicycle commuting, and provide safe bicycle and pedestrian routes to schools and key destination areas
- Expansion of specialized transport services in response to projected increases in senior and disabled populations
- Individualized marketing programs to employers to increase carpooling and vanpooling

Development of the RTP project list is a preliminary step towards actual implementation of the projects identified in the 2040 RTP. Prior to the beginning of project construction, a number of steps must be taken which can take from 6 months to 20 years, depending on the particular project's complexity, impacts, level of public interest, funding and environmental requirements, and availability of funds. These steps include: developing a detailed project cost estimate; obtaining local, state and/or federal funds; designing the project; determining the project's environmental impacts; securing right-of-way, if necessary; and throughout the process, incorporating public input.

## Chapter 7 – System Performance

Performance-based planning is a strategic approach that uses key information to help inform investment decisions. The performance of the previous regional transportation plan for Santa Cruz County completed in 2014 was analyzed in detail to determine how well the constrained list of transportation projects and programs advance the goals and targets established for the 2014 RTP and affect the county's future. The analysis that was performed is still largely applicable to the 2040 RTP given the project list for the 2040 RTP has not changed substantially from the 2014 version. The performance measure analysis that was developed for the 2014 RTP can be found in **Appendix D** for reference.

The 2040 RTP focuses the system performance on presenting available data that monitors the performance of the transportation system to date. Data is not available at this time to monitor all of the measures in the 2040 RTP although many of the more fundamental indicators (safety, vehicle miles traveled, greenhouse gas emissions, pavement condition) are presented.

## Chapter 8 – Environmental and Air Quality Review

The California Environmental Quality Act of 1970 (CEQA) requires that the environmental effects of the 2040 RTP be analyzed. This analysis was prepared as a separate program-level Environmental Impact Report (EIR) released along with the 2040 RTP. The EIR, prepared in coordination with the Association of Monterey Bay Area Governments (AMBAG), Transportation Agency for Monterey County (TAMC), and the San Benito County Council of Governments (SBCOG), collectively evaluates the MTP/SCS and the

Regional Transportation Plans for the Monterey Bay region - Santa Cruz, Monterey, and San Benito Counties. The EIR analyzes the potential environmental impacts of the 2040 RTP, including alternative investment scenarios, and identifies potential mitigation measures for impacts of the transportation program for the whole region. The EIR does not analyze impacts of, or mitigations for, individual projects. The respective agency sponsors will conduct a project-specific review, once funding is received and the project is initiated.

Together Santa Cruz, Monterey, and San Benito Counties comprise the North Central Coast Air basin (NCCAB). Many projects in the plan implement the Monterey Bay Unified Air Pollution Control District's (Air District) approved Transportation Control Measures for the region, which are developed to reduce transportation-related emissions by reducing vehicle use or improving traffic flow. The three county region (or NCCAB) is an attainment area for air quality impacts and therefore exempt from the required conformity analysis.

## Chapter 9 – What's Next?

The Santa Cruz County Regional Transportation Plan is a work in progress that will be updated approximately every four years. This chapter identifies a number of considerations that will likely be prominent features of the RTP over the next couple of decades.

Santa Cruz County is susceptible to a wide range of climate change effects. The RTC is aware of the need to undertake efforts to respond to *impacts* of climate change along with the current effort to reduce GHG emissions. Future editions of the RTP may address the impacts of climate change by identifying areas at most risk to sea level rise as well as other additional transportation considerations.

The effects of automated vehicles on future transportation systems are under much debate. Automated vehicles (AVs) are an emerging technology that could bring a number of benefits to the transportation system including increased safety, increased throughput due to driving efficiencies, and improved system management through vehicle data. Conversely, there is also the potential of AVs to drastically increase traffic congestion and the amount of vehicle miles traveled particularly when self-driving vehicles no longer require a person on board. There are many uncertainties associated with AVs including a currently unfolding set of federal and state regulations, resolution of questions around programming ethics, solutions to liability and insurance concerns, potential criminal abuse, and market adoption rates. The RTC will be watching the evolution of this technology for incorporation into future RTPs.

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# CHAPTER 1 Why Sustainability?

## 2040 Regional Transportation Plan

In the state of California, responsibility for transportation planning and coordination is assigned to regional transportation planning agencies. The Santa Cruz County Regional Transportation Commission (referred to as the "Commission" or "RTC") is the designated regional transportation planning agency (RTPA) for Santa Cruz County. The RTC is required to periodically undertake long-range planning efforts, as a way to set the course for meeting the transportation needs of its respective communities over a 20-plus year timeframe. This long-range planning effort is called the Regional Transportation Plan, or RTP. Planning is an important component to project implementation as it provides a forum for assessing the direction of transportation in our county over the next 20 plus years. It positions our community to receive funding for projects that require a well thought out plan, and helps to develop collaboration on projects.

The *2040 Santa Cruz County Regional Transportation Plan* incorporates sustainability principles in all of its elements: transportation goals and policies (policy element – **Chapter 4**), a financial plan for funding transportation projects (financial element – **Chapter 5**), and a program of short and long-range transportation projects (action element – **Chapter 6**).

The RTC coordinates with the Association of Monterey Bay Area Governments (AMBAG) in developing the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) for the tri-county area of Monterey, San Benito and Santa Cruz Counties. AMBAG also develops the population, housing and employment growth projections for the region. The 2040 RTP is consistent with both of these efforts.

## Why Sustainability?

Transportation affects many aspects of our lives both directly and indirectly. The transportation system enables us to get around – to work, to school, to stores and other destinations – but it is also interlinked with our health and safety, the quality of the natural environment, and the economic vitality of our region. The *2040 Regional Transportation Plan* reflects a wide spectrum of sustainability objectives for this long range planning effort. A sustainable transportation system requires a plan that encompasses improvements to access, mobility, the environment, public health, safety, the economy and equity, as well as preservation of our current transportation system, all

within financial constraints. A challenge, no doubt, but a strategy that strives to best serve the residents and visitors of Santa Cruz County.

The California Sustainable Communities and Climate Protection Act of 2008 (SB 375) requires the establishment of regional greenhouse gas emission targets and the 2016 California Senate Bill 32 requires the reduction of greenhouse gas emissions by 40% below 1990 levels by 2030. A much greater emphasis is being placed on transportation to reduce the number of vehicle miles we travel through coordination of transportation investments and land use planning. Considering these sustainability requirements and all applicable state, federal, and regional priorities, the *2040 Santa Cruz County Regional Transportation Plan* identifies infrastructure projects and programs that could be implemented through 2040 based on anticipated transportation revenues.

This chapter discusses a number of challenges that face transportation in Santa Cruz County now and in the future. The 2040 RTP endeavors to address these challenges and result in safer, healthier and more efficient travel choices that provide improved multimodal access to jobs, education, healthcare, and other destinations for our residents and visitors.

## System Preservation

A well-maintained multimodal transportation system of local roads, highways, bridges, buses, bicycle facilities, pedestrian infrastructure and other transportation components is critical to providing a reliable, seamless, interconnected system. Such a system supports the traveling public and the local economy, reduces wear-and-tear on vehicles, and operates efficiently. Unfortunately, much of the local transportation system is aging and in need of major repair. Due to increased demands on the transportation network and unreliable funding, transportation agencies (cities, counties, Caltrans, and transit providers), have not been able to keep up with the increasing backlog of maintenance in recent years. Therefore, local voters approved Measure D in November 2016 and the State Legislature approved Senate Bill 1 (SB 1) – the Road Repair and Accountability Act of 2017 – which will enable cities and counties, Caltrans, and transit agencies to finally address significant maintenance, rehabilitation and safety needs.

On a scale of zero (failed) to 100 (excellent), the average pavement condition index (PCI) of local streets in our county's five jurisdictions has been between 49 and 50 over the last many years hovering around the boundary between "poor" and "at risk". In 2016, the Pavement Condition Index for Santa Cruz County was 50, the eighth worst Pavement Condition Index in the state.[1] Maintenance of rural roadways can be particularly challenging due to their remote location, susceptibility to storm damage, and low traffic volumes relative to more urban roadways. The winter storms of 2016/2017 caused severe damage to numerous

### Santa Cruz County Road Maintenance

- Miles of local roads: 871
- Average Pavement Condition: PCI 50 (out of 100 = poor)
- County has 8th worst PCI rating in CA
- Over $350 million backlog

roadways in the Santa Cruz Mountains which lowered the 2017 average PCI for roadways in unincorporated areas to 39. Insufficient gasoline tax funding to cities and counties has contributed to a backlog of local road maintenance needs in Santa Cruz County that totals over $350 million. Measure D and SB 1 provide approximately $4.5 million and $7 million per year to local cities and the County of Santa Cruz to start addressing at least some of this backlog. **Figure 1.1** shows there is still a disparity between available funds and funds needed for local road pavement maintenance given the backlog of maintenance that has been accumulating.

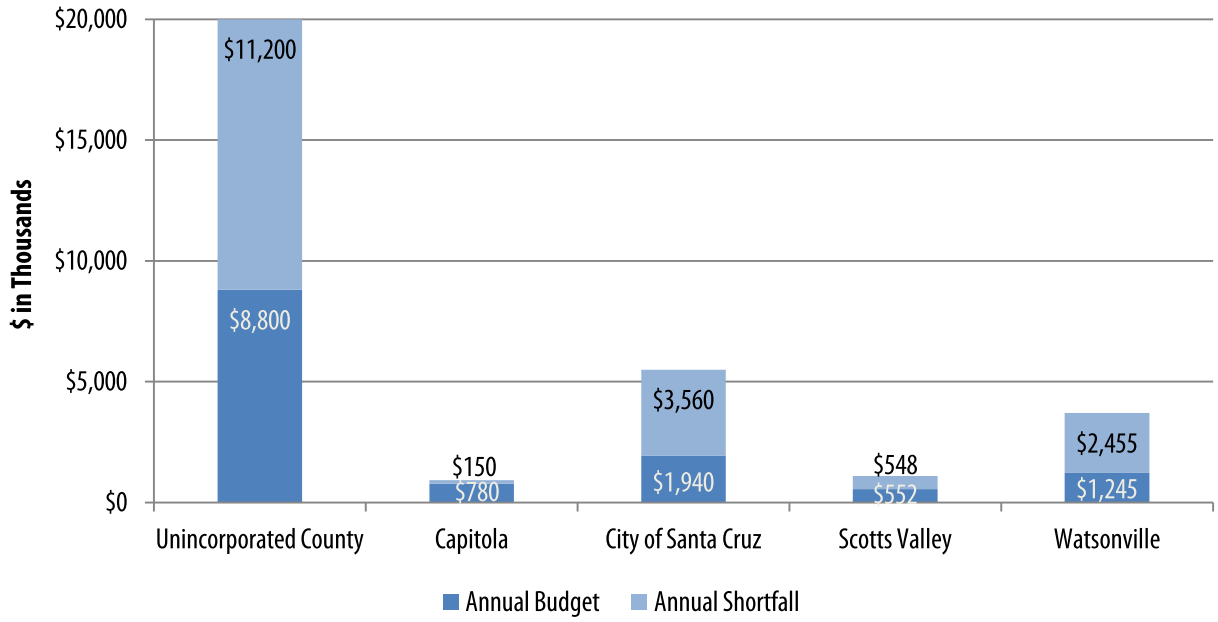


**Figure 1.1 – Local Jurisdiction Annual Pavement Maintenance Budget versus Annual Need**

*Source: California Statewide Local Streets and Roads Needs Assessment (2016) and public works departments*

Caltrans has faced a similar challenge maintaining the state highway system (SHS). As noted in the 10-Year State Highway Operation and Protection Program (SHOPP) Plan,[2] as the roadways and bridges on the SHS age and near the end of their service lives, vehicle and truck traffic have accelerated the deterioration of these assets. Deteriorating highway conditions result in lower operational performance, higher user operating costs (additional vehicle repair costs, increased fuel consumption, increased tire wear, and accelerated vehicle depreciation), and ultimately higher overall long-term costs when needed repairs to the highway are eventually undertaken. In addition, the ever-increasing cost of meeting legal, statutory, and regulatory mandates is a significant contributor to the operating and maintenance needs. Approximately 35% of SB1 revenues are being invested in maintenance and rehabilitation of state highway infrastructure, including pavement, bridges, and culverts.

Maintenance of the transit system is critical to keep existing transit vehicles running and to ensure bus service is reliable. Buses and paratransit vehicles need to be replaced on a regular basis; transit centers require regular upkeep and rehabilitation; bus stops need to be maintained and operations facilities need to be maintained and upgraded. FTA defines the useful life of transit buses as 12 years and 500,000 miles. The Santa Cruz Metropolitan Transit District (METRO) has over 60 fixed-route buses, with an average age of 16 and over 600,000 miles, that need to be replaced or refurbished (2017); and nearly 40 paratransit vans which need to be replaced every 5-10 years.

## Safety

Safety is a significant concern in operating the transportation network. The federal transportation act, Fixing America's Surface Transportation Act (FAST) identifies safety as a national goal area and requires each state to set Safety Performance Management Targets in order to achieve a significant reduction in motorized and non-motorized traffic fatalities and serious injuries on all public roads. The California Department of Transportation (Caltrans) and the Office of Traffic Safety (OTS) has adopted 2018 safety targets in order to meet these requirements. The targets for 2018 include a reduction from 2017 of 7.69% in the number of fatalities and the rate of fatalities (per 100 million VMT), a 1.5% reduction in the number of serious injuries and the rate of serious injuries (per 100 million VMT) and a 10% reduction in the number of non-motorized fatalities and non-motorized severe injuries.[3] These targets are consistent with the California Strategic Highway Safety Plan (SHSP) and the California Strategic Management Plan to reduce fatalities and serious injuries on public roads. The Metropolitan Planning Organizations must also establish targets for these same five measures in coordination with the state.

Primary collision factors as identified by the California Highway Patrol include driving under the influence of alcohol, unsafe speeds, improper turning and more recently distracted driving due to cell phone use. The SHSP has identified various actions that state and local agencies can perform to reduce collisions based on these factors. These include the capital projects on the state highway system funded through the State Highway Operation and Protection Program (SHOPP), added CHP enforcement – especially of vehicle speeds, and local education programs led by a coalition of police departments, health service agencies, and public works.

The safety of those traveling on non-motorized transportation needs to be emphasized. The number of bicyclist and pedestrian injuries and fatalities in our county from 2007 through 2016 are shown in **Figure 1.2**. The California Office of Traffic Safety ranked Santa Cruz County as the worst county in the state for the number of bicyclist collisions in 2014 and 8th highest for the number of pedestrian collisions based on population.[4] Santa Cruz County has a

### 2016 Collision Facts

California

- 3680 Total Fatalities
- 13,017 Total Severe Injuries
- 985 Bike and Pedestrian Fatalities
- 3500 Bike and Pedestrian Severe Injuries
- 26.9% Bicycle and Pedestrian Fatalities and Severe Injuries

Santa Cruz

- 21 Total Fatalities
- 117 Total Severe Injuries
- 1722 Total Fatalities and Injuries
- 18.1% Pedestrian Fatalities and Severe Injuries
- 21.9% Bicycle Fatalities and Severe Injuries
- 11 Motorist Fatalities
- 7 Pedestrian Fatalities
- 3 Bicyclist Fatalities

higher percentage of trips by bicycling and walking than the California state average.[5] Without a better understanding of how many miles people are biking and walking, it is difficult to assess whether the collision rankings for Santa Cruz County are high relative to other regions based on use. Regardless of the rankings, reducing the number of fatalities and injuries for the most vulnerable users of the transportation system is critically important, especially given the multiple benefits of active transportation.

Locally, the Community Traffic Safety Coalition is working to address the traffic safety issues in Santa Cruz County by promoting a "Vision Zero" target for traffic fatalities and serious injuries with an emphasis on non-motorized transportation. The goal of their efforts is for each jurisdiction in Santa Cruz County to adopt a Vision Zero policy and to develop strategies for preventing injuries and deaths among all road users.

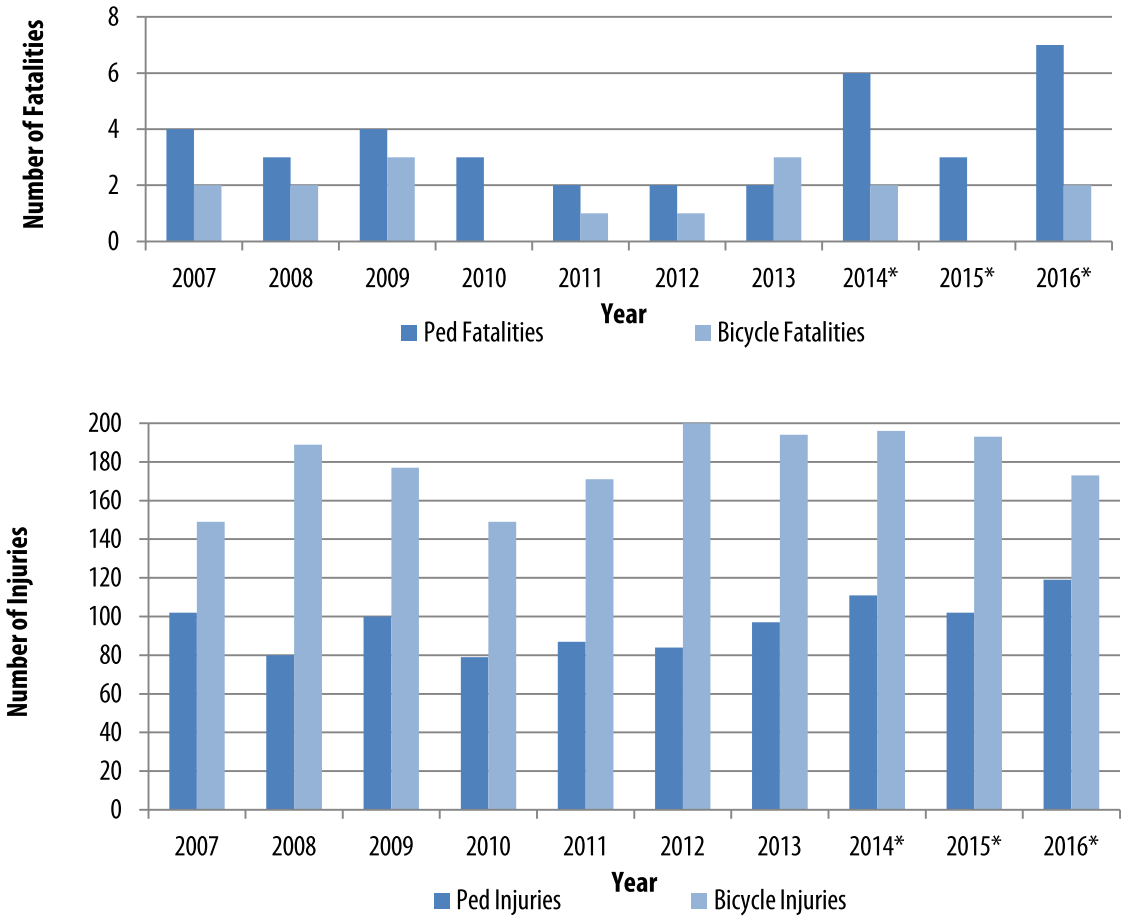


**Figure 1.2 – Santa Cruz County Bicycle and Pedestrian Injuries and Fatalities from 2007 through 2016**

*Source: Statewide Integrated Traffic Records System (SWITRS) via UC Berkeley Transportation Injury Mapping System (TIMS)[6]*

## Congestion

Traffic congestion has become considerably harder to avoid. Congestion nationwide has increased two to threefold over the last 30 years.[7] In Santa Cruz County, segments of Highway 1 and a number of our local roads are notorious for being congested particularly at peak commute hours. Congestion on highways and arterials can encourage cut through auto traffic on neighborhood streets which can degrade the local road system and discourage walking and biking. The economic recession at the end of the last decade reduced congestion slightly in Santa Cruz County[8] but now that the economy has recovered, traffic volumes have increased again to previous highs.

Santa Cruz County residents have suggested many strategies to respond to congestion and reduce how long it takes to get places, but with increased demands on even more limited financial resources, an aging system that is already difficult to maintain, and requirements for reducing greenhouse gas emissions, it is no longer expected that the community can completely eliminate congestion. The region must find ways to operate and utilize our existing highway and transit networks more efficiently and sustainably over the long term.

## Environmental and Public Health

Not only in Santa Cruz County, but all over the world, communities are working to balance the movement of people and goods with environmental and public health priorities. Greenhouse gas emissions have global environmental and public health effects and air pollutants can affect both the environment and public health on a regional scale. The link between limited active transportation, such as biking and walking, and adult and childhood obesity is being strengthened as research and strategies for addressing this concern are being discussed at federal, state and local levels. A sustainable transportation system can play a vital role in the environmental health of Santa Cruz County and the health of its residents.

### Greenhouse Gas Emissions

In 2005, Governor Schwarzenegger issued an Executive Order for the state of California to reduce greenhouse gas emissions from all sectors to 1990 levels by 2020 and to 80% below 1990 levels by 2050. To support these goals, the California legislature passed the California Global Warming Solutions Act of 2006 (Assembly Bill 32) which established a statewide target to reduce greenhouse gas (GHG) levels to 1990 levels by 2020.[9]

**California Global Warming Solutions Act (AB 32)**

- Reduce GHG emissions from all sectors to 1990 levels by 2020

With transportation responsible for approximately 27% of the total GHG emissions nationally[10] and approximately 60% of the total GHG emissions in Santa Cruz County,[11] this bill set in motion a series of events that will change transportation planning for decades to come. A decade later in 2016, California Senate Bill 32 was passed expanding upon AB 32 by requiring the reduction of greenhouse gas emissions by 40% below 1990 levels by 2030.[12]

The three primary approaches for reducing greenhouse gas emissions from transportation are through:

- Improvements in vehicle technology creating greater fuel efficiencies
- Improvements in low carbon fuels
- Reduction in the number of vehicle miles traveled

None of these approaches alone will result in meeting the GHG emission reduction targets. Like other regions, pursuit of all three in combination will be necessary. Clean car standards, such as those set forth in regulations approved by the California Legislature, establish specific requirements for increasing the efficiency of, and reducing greenhouse gas emissions from, new passenger vehicles. The Low Carbon Fuel Standard establishes performance standards for reductions in carbon in transportation fuels that fuel producers and importers must meet each year. These measures are anticipated to result in the greatest reductions statewide.

The third approach, reducing the number of vehicle miles that are traveled (VMT), requires changes to how much we drive. While some reductions in VMT are achievable by changes in individual travel behavior, modifications to land use patterns and the transportation system are also needed to support these changes. Reducing passenger vehicle use is supported through the requirements of the California Sustainable Communities and Climate Protection Act of 2008 (SB 375). The emphasis of this bill is to promote compact, mixed-use commercial and residential infill development and the transportation infrastructure to support it to improve people's ability to meet many of their daily needs through walking, biking and taking transit thereby reducing the per capita number of vehicle miles traveled.

### California Sustainable Communities and Climate Protection Act of 2008 (SB 375)

AMBAG Region Targets (relative to 2005)

- 3% reduction in per capita GHG from passenger vehicle use by 2020
- 6% reduction in per capita GHG from passenger vehicle use by 2035

SB 375 requires each of the state's 18 metropolitan areas to reduce per capita greenhouse gas emissions from cars and light trucks. The law requires that the Association of Monterey Bay Area Governments (AMBAG) as the metropolitan planning organization for the region develop a new element of the Metropolitan Transportation Plan (MTP) called the Sustainable Communities Strategy (SCS). This strategy coordinates land use and transportation

planning to strive to reach the greenhouse gas (GHG) reduction target established for the region by the California Air Resources Board.

For the Monterey Bay region, the California Air Resources Board's proposed new reduction goals (2017) for per capita GHG emissions from passenger vehicle use of 3 percent and 6 percent by 2020 and 2035 respectively relative to 2005 levels. The previous reduction goals for the AMBAG region were 0 percent by 2020 and 5 percent by 2035 for the 2014 MTP/SCS. SB 375 streamlines the California Environmental Quality Act (CEQA) for housing and mixed-use projects that are consistent with the SCS and meet specified criteria, such as proximity to public transportation. The Santa Cruz County 2040 Regional Transportation Plan has been developed to be consistent with the SCS planning effort of the Association of Monterey Bay Area Governments (AMBAG).

Senate Bill 391 required the California Department of Transportation to prepare the 2040 California Transportation Plan[13] (CTP) to demonstrate how GHG emissions can be reduced to 1990 levels by 2020 and 80% below 1990 level by 2050. The CTP provides strategies for GHG reduction and recommendations on how agencies can coordinate planning efforts to achieve critical statewide goals.

## Air Pollutants

Much progress has been made in the reduction of air pollutants from transportation nationwide in the past several decades.[14] Since the U.S. Clean Air Act was enacted in 1970, there has been a downward trend in the six criteria air pollutants (ozone, lead, particulate matter, carbon monoxide, sulfur oxides, and nitrogen oxides). Although substantial improvements have been made, there is still public health concern over the levels of air pollutants from transportation and many regions in California do not meet the National Ambient Air Quality Standards for these pollutants. Respiratory illness, asthma, cardiovascular disease and lung cancer are all associated with increased levels of air pollutants. Santa Cruz County, as part of the North Central Coast Air Basin, has met the National Ambient Air Quality Standards for all criteria pollutants and thus is not subject to Federal Clean Air Act conformity requirements in this plan. Santa Cruz County is on the "cleanest counties" list for low levels of ozone but is also on the list of top 25 counties with the most polluted short term particulate matter (24 hour PM 2.5) as published by the American Lung Association in their State of the Air 2017 report.[15] Particulate matter 2.5 is emitted from fuel vehicles although numerous other sources exist such as dust, sea spray or fires.

## Obesity

A growing body of evidence suggests that the design of our communities influences the likelihood that people will use active transport for their daily travel.[16] The act of walking or biking to school, work, the store, transit or to other places that are a part of our daily routine affect our health. Multiuse trails, bicycle paths, sidewalks, safe street crossings, and availability of public transit are all examples of transportation infrastructure that promote greater physical activity. Combined with increased housing density and mixed land use, people more often choose active forms of transportation which have the potential to lower obesity rates. The relationship between active

transportation and obesity was examined in a study published in 2008 which showed that countries with the highest levels of active transportation had the lowest obesity rates (**Figure 1.3**).[17]

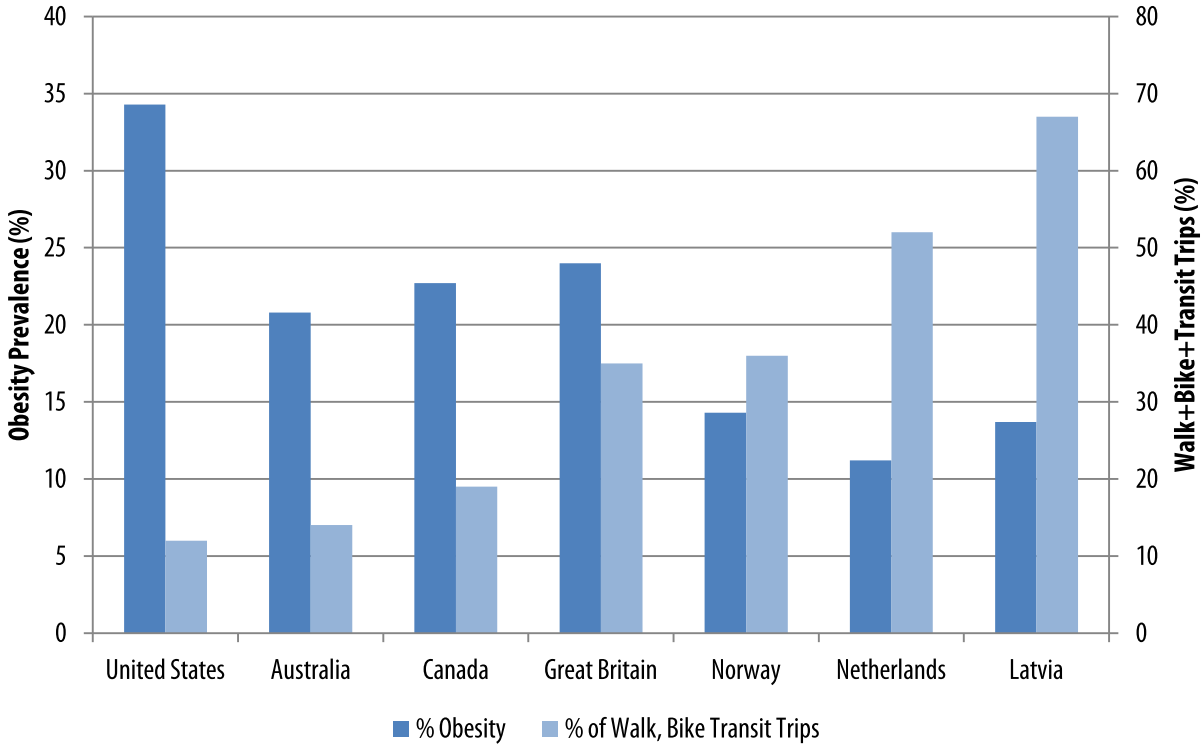


**Figure 1.3 – Obesity Prevalence and Rates of Active Transportation in Countries of Europe, North America, and Australia**

*Source: Journal of Physical Activity and Health*[18]

The percentage of people in the United States that are obese has almost doubled over the last two decades. In 2013-2014, 37.9% of adults and 17.2% of children and adolescents in the United States were obese compared to 22.9% adults and 10.0% children and adolescents in 1990.[19] Assembly Bill 441, championed by local Assemblyman Bill Monning and signed by Governor Brown in September, 2012, acknowledges the link between transportation infrastructure and health of California residents and required the California Transportation Commission to promote health and health equity as part of the updated 2017 Regional Transportation Plan guidelines. The 2040 California Transportation Plan also promotes active transportation through a goal of "fostering livable and healthy communities and promoting social equity."

In Santa Cruz County, the number of adults who are overweight and obese increased from 50% in 2007 to 59% in 2015.[20] In 2003, Santa Cruz County had a higher percentage of overweight children in low income families than more than half of the counties in California.[21] The Community Assessment Project identified obesity as a key issue of concern. In 2015, the percentage of healthy children in Santa Cruz County is greater than the statewide average.[22] Currently, there are a number of efforts in the county that are working to reduce both adult and childhood obesity through promoting a healthy lifestyle that includes bicycling and walking to school, work or other daily needs.

## Economy

Transportation and the economy are linked in a number of ways. Improved access and travel time reliability are likely to positively affect job markets, business delivery markets, freight supply chains, and visitor activity, all allowing businesses in the region to operate more efficiently and maintain their competitiveness. The economic recession that began about 10 years ago was challenging for Santa Cruz County as well as the entire nation. Unemployment rates in Santa Cruz County were up to 12.6% in 2010 from a low of 5.1% in 2000. The economy has mostly recovered with an annual unemployment rate of 6.9% for 2016. But signs of an improved economy include greater use of the transportation system as more people are traveling to work and more goods are being delivered, often resulting in increased levels of congestion and longer travel times. Transportation and the economy are also interlinked as the greater the number of transportation projects implemented, the higher the level of employment there will be for people in this area. Over the next 22 years, this plan proposes to fund $3.7 billion for transportation that will provide direct economic benefits, such as new construction jobs, as well as the indirect benefits of these investments, such as the demand for services and supplies to support the construction projects. And lastly, the economy can also be affected by the percentage of household income that goes towards transportation costs. The smaller the percentage of household costs needed for transportation, the more money there is available to go into the local economy. By reducing the amount spent on fuel through a reduction in vehicle miles traveled, more dollars are on hand for the local economy. The 2040 RTP strives for a more efficient, desirable, and competitive area where businesses can thrive over the long term.

## Energy

Transportation relies heavily on fossil fuels. In 2016, over 71% of petroleum use in the United States was for transportation and over 92% of energy for transportation comes from petroleum.[23] Fossil fuel is a finite commodity and the assumption that fuel will be abundant and inexpensive into the foreseeable future cannot be taken for granted. Global energy demands are predicted to grow by 30% by 2040 as the emerging economies of China, India, Southeast Asia, Africa, and the Middle East continue to increase their use of energy comparable to other major energy consuming nations.[24] Energy efficiency measures based on currently available technological solutions could play a large role in reducing energy needs. Only about a fifth of the energy that is used for transportation is converted into useful energy that moves your vehicle down the road, the rest of the energy is lost to engine and driveline inefficiencies and idling.[25] The potential to improve fuel efficiency with advanced technologies is enormous. Major energy consuming nations have announced new measures for improving energy efficiencies in the automobile including the fuel economy standard of the U.S. but a significant amount of the potential for improved efficiencies still remains untapped.[26]

### 2016 U.S. Energy Facts

- 71% of petroleum used in U.S. is for transportation
- 92% of energy is for transportation in U.S. relies on petroleum

## Transportation Funding

Transportation funding in Santa Cruz County comes from a combination of local, regional, state and federal sources. These include sales taxes, taxes and fees collected at the gasoline pump, vehicle registration fees, and bus rider fares, as described in Chapter 5 and Appendix D.

Measure D, approved by Santa Cruz County voters in 2016, provides approximately $20 million in revenues per year from sales taxes that are dedicated for use on the transportation categories approved by voters and cannot be taken away by the state.

In 2017, the California legislature provided more stable funding for transportation for the first time in nearly 25 years with passage of Senate Bill 1. SB1 was needed because revenues from gasoline taxes have been declining over the last many years for a number of reasons.

- The gas tax had not been indexed to keep up with inflation and thus has lost approximately 38% of its buying power since 1993;[27]
- Cars and trucks overall have become more efficient and use less gasoline than before, thus per gallon gasoline taxes and fees have not matched use of the transportation system;
- State and federal transportation funding distribution formulas favor major metropolitan areas over smaller areas such as Santa Cruz County; and
- As other parts of the state and nation grow at a faster rate than Santa Cruz County, the county's proportional share of limited transportation funds decreases.

## Equity

Transportation planning decisions often have significant equity impacts where equity refers to the fairness with which impacts (benefits and costs) are distributed. Transportation expenditures require significant public resources which can favor some people over others especially given the cost of transportation represents a major share of most household expenditures. The quality of available transportation affects people's economic and social opportunities. Title VI of the federal Civil Rights Act of 1964, Section 11135 of the California Government Code, and Executive Order 12898 on

Environmental Justice require planning agencies to be sensitive to how all residents, particularly disadvantaged communities, may be impacted by possible transportation changes identified in the RTP. The various "costs" associated with transportation include congestion delay, risk of injury, pollution, and undesirable land use impacts. The 2040 RTP has been developed to address the transportation needs of the entire community, and attempts to ensure that no one community enjoys more of the benefits or bears more of the burdens of transportation investments than any other.

## Public Input is a Critical Component

One of the RTC's primary goals is to foster broad public discussion about transportation issues in the community. This serves to deepen public understanding about the complexity of transportation issues and assists the public in providing informed input to the 2040 RTP. Public input is also important in order to ensure that the RTP accurately reflects the transportation issues that are of highest concern to the residents of Santa Cruz County. The RTC works to engage the public in an informed dialogue and to solicit input from a broad cross-section of the population. Public input is solicited at key stages of the plan development through email, newspaper, social media, RTC website and RTC meetings. Notifications about public hearings are provided through similar means. RTC Advisory Committees are kept informed of the development of the RTP and their input is sought at project milestones. . Consistent with federal requirements (23 CFR 450.316 and 23 CFR 450.322) and the Public Participation Plan for the Monterey Bay region, input from the public and various state, federal and local entities is solicited. **Figure 1.4** outlines the required procedures and methods for public participation based on state and federal laws. Refer to **Appendix A** for details on the public participation process including the timeline when input was solicited. See **Appendix B** for the roles and responsibilities of the Regional Transportation Commission and its partner agencies.

### Public Participation Procedures

- Define Purpose & Identify Stakeholders
- Consultation & Coordination with other Agencies
- Consultation with Interested Parties (Boards of Directors and Advisory Committees)
- Public Notice, Public Hearings, Comment Periods (per Brown Act)
- Use of Media & Informational Materials, and Visualization Techniques
- Encourage Bilingual Participation
- Respond to Public Input
- Distribution of Final Documents

**Figure 1.4 – Public Participation Procedures Based on State and Federal Laws**

*Source: AMBAG Public Participation Plan*[28]

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# CHAPTER 2 Transportation Network

## Setting

Santa Cruz County is one of 58 counties in the state of California, and one of the 15 counties bordering the Pacific coastline. Santa Cruz County is on the northern tip of the Monterey Bay and is 65 miles south of San Francisco, 35 miles north of Monterey, and 35 miles southwest of the Silicon Valley. The county's location is both a spectacular natural phenomenon and a limiting factor. The meeting of the redwoods and the sea is a powerful attraction which significantly affects the demand for housing, water, transportation and other infrastructure. The population of Santa Cruz County in 2017 was 276,603 according to the California Department of Finance estimates and the total area of the county is approximately 607 square miles with a land area of 445 square miles.

## Transportation System

Santa Cruz County's transportation network includes facilities for private automobiles, transit, bicycles, pedestrians, specialized transportation for seniors and people with physical or mental disabilities, transport of goods and services, and emergency vehicles. Santa Cruz County's main transportation corridors and facilities (**Figure 2.1**) are limited by the area's physical barriers of mountains and the sea. Population settlement patterns are primarily centered along highways, major arterials, and the Santa Cruz Branch rail line. The backbone of the transportation system is the 1,137 total miles of roadway in the county. In the urban areas of the county, arterial roads, including major state highways, make up 14 percent of the roadway miles but carry over 72 percent of the vehicle miles traveled (VMT).[1]

Santa Cruz Metropolitan Transit District (METRO) buses serve approximately 400 miles of roads throughout the county and cover the majority of roads designated as arterial and collector routes.[2] There are 223 miles of bicycle lanes and bicycle paths which generally follow primary transportation corridors. Sidewalks and other pedestrian facilities are also an important part of the transportation network.

# State Highways

There are seven state highways in Santa Cruz County – State Routes (SR) 1, 9, 17, 35, 129, 152 and 236 (**Figure 2.1**). Highways 1 and 17 have segments that are fully grade separated freeways. Caltrans manages the state highway system, and implements highway maintenance and safety projects. Because the cost of ongoing highway maintenance and operations, including safety projects, exceed the amount of funds available to Caltrans through the State Highway Operation and Protection Program (SHOPP), any additional highway projects, such as adding new travel lanes, new auxiliary lanes, or operational improvements, must be funded from other sources. This is challenging for our county because highway projects can be relatively expensive, especially compared to the region's share of funds. Additionally, truck and automobile traffic volumes are lower than in many areas of the state or nation, which can make it difficult to compete for state and federal funds. Santa Cruz County's local Measure D sales tax measure, passed in 2016, allocates a portion of the funds to three sets of auxiliary lanes on Highway 1 between Soquel Ave and State Park Drive as discussed below. Measure D funds provide a much needed local source of funds that could more readily leverage additional funds from state and federal sources. Along all highways except for SR 236, the RTC oversees a system of 75 call boxes that connect the user to an operator who will contact services needed (e.g. a tow service, or a relative/friend to assist you). Operation and maintenance of the Call Box Program is funded from a $1 vehicle registration fee collected by the Department of Motor Vehicles. The RTC also manages the Freeway Service Patrol Program which operates roving tow trucks on both Highways 1 and 17 primarily during peak commute or visitor periods to provide quick fixes or tows for stranded vehicles. Descriptions of each of the Santa Cruz County highways are provided below. For more information about the State Highway System within Santa Cruz County, see the Caltrans Transportation Concept Reports that can be accessed on the Caltrans District 5 website (http://www.dot.ca.gov/hq/tpp/corridor-mobility/d5-page.html).

## Highway 1 Corridor

Highway 1 is the key thoroughfare running through the most heavily populated areas of the county. Between Watsonville and the City of Santa Cruz, it is a separated freeway with at least two lanes in each direction, with a few auxiliary lanes that connect on-ramps with the next off-ramps. Highway 1 has the highest average daily traffic volumes (number of vehicles) of all local streets and highways, connects the region with other coastal areas to the north and south, and is roughly parallel to Highway 101 for the middle stretch of the state. Highway 1 is also the county's premier access route to the coast. The rural sections of State Route Highway 1 in the coastal zone are scenic two-lane roads pursuant to California Coastal Act Section 30254. Over the past two decades a number of major capital projects have taken place on Highway 1 in the urban areas in addition to operational projects to improve access and traffic flow.

## Past Highway 1 Projects

The **Highway 1 Mission Street** project, finished in 2004 at a cost of $10.5 million, provided several left turn lanes and two continuous lanes for the length of this main street-type stretch of the corridor through the west side of the City of Santa Cruz. This project helped to alleviate some of the traffic congestion along Mission Street Highway 1 which is exacerbated by its proximity to the University of California, Santa Cruz and the lack of alternative parallel routes. Additions such as lighting, pedestrian crossings, and undergrounding of utilities cost an additional $3.6 million. This project included extensive community input.

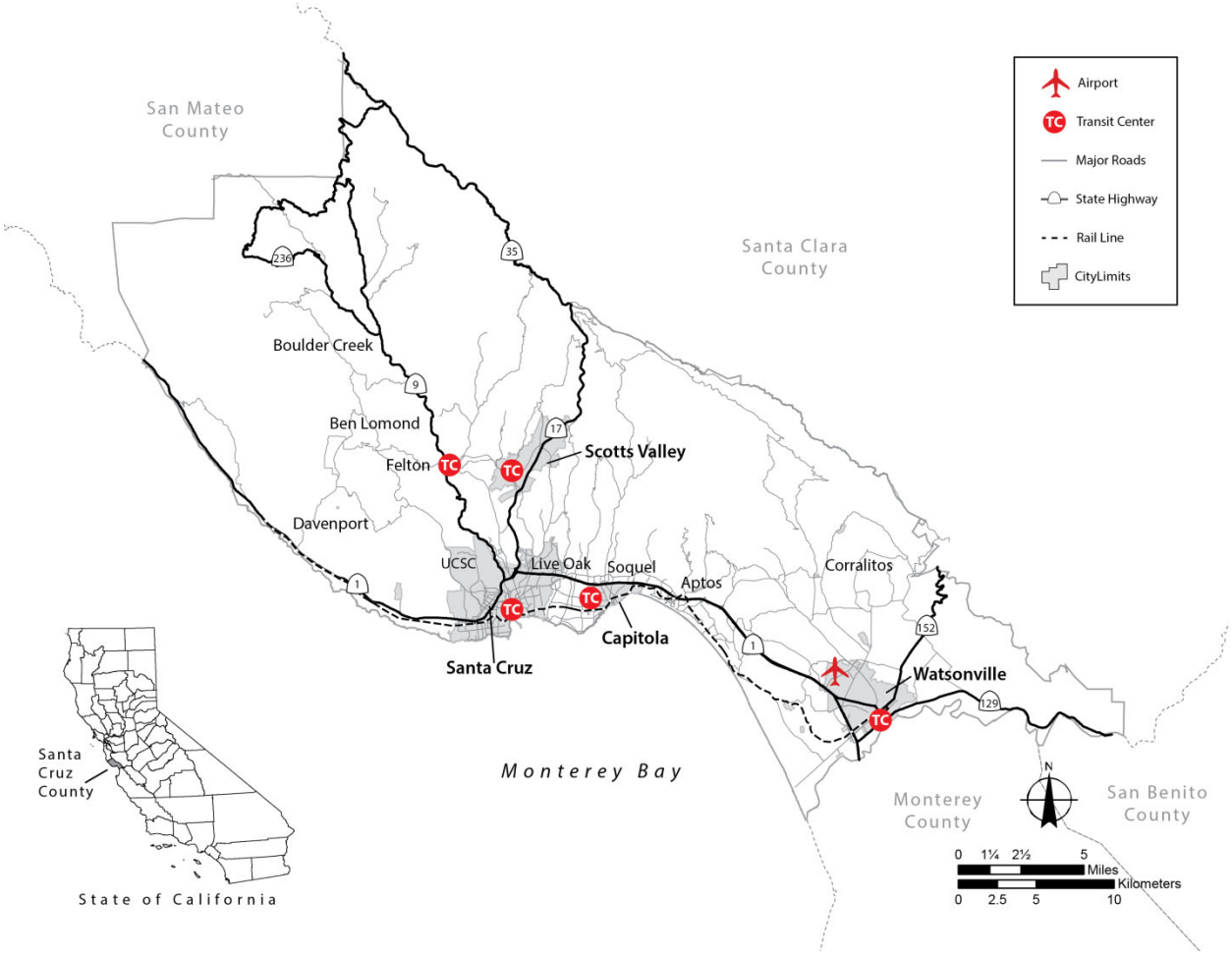



**Figure 2.1 – Santa Cruz County Primary Transportation Network**

*Source: Santa Cruz County Regional Transportation Commission*

The **Highway 1/17 Interchange Merge Lanes** project was a major project along the Highway 1 corridor. This project, completed in 2008 at a cost of $51 million, added merging lanes and sound walls between the junction of Highway 1/17 and the Morrissey Boulevard interchange. Auxiliary lanes in each direction provide longer and safer merging areas; installation of sound walls improves the quality of life for adjacent neighborhoods; and the reconstructed bridges provide improvements to the adjacent riparian corridors. The landscaping portion of the project, completed in 2010, included planting native trees and shrubs, and vines to cover the soundwalls, and installation of an irrigation system to help establish the

plants. Northbound Hwy 1 coming off the fishhook onto Highway 17 was widened in 2016 to accommodate another merge lane for improvements to safety.

In 2012 and 2013, the RTC managed the construction of the **Highway 1 Soquel/Morrissey Auxiliary Lanes** project which adds approximately one mile of auxiliary lanes, in both the northbound and southbound directions, between Soquel Avenue and Morrissey Boulevard. The La Fonda Avenue Bridge was rebuilt to make it wide enough for the new auxiliary lanes (and potentially HOV lanes in the future) and also to improve sidewalks and bicycle lanes across the bridge. The purpose of the project was to improve traffic flow by extending merging areas, shorten the bottleneck, and reduce vehicle delay on the corridor.

Funding for this project was awarded by the California Transportation Commission via a competitive process using Proposition 1B Corridor Mobility Improvement Account (CMIA) bond funds (approved by state voters in 2006) and the region's share of State Transportation Improvement Program (STIP) funds.

## Highway 1 Corridor Improvement Project

Since the mid-1980s the RTC and Caltrans have analyzed options to reduce congestion, improve traffic flow, and increase carrying capacity and throughput in the Highway 1 corridor between Watsonville and the City of Santa Cruz. In 2003, the RTC approved use of state and federal funds to initiate preliminary design and environmental review for Highway 1 High Occupancy Vehicle (HOV) lanes between Morrissey Boulevard in Santa Cruz and San Andreas Road/Larkin Valley Road in Aptos.

The project has been divided into two components:

- Tier I - A long term, program level analysis for the future of the Highway 1 corridor between Santa Cruz and Aptos. The Tier I concept for the corridor could be built over time through a series of smaller incremental projects (referred to as Tier II projects).
- Tier II - Project level analysis of a smaller incremental project within the Tier I corridor which would move forward based on available funding. Each of the Tier II projects would have independent utility and benefit to the public and Highway 1 operations.

Three scenarios are being evaluated as part of the Tier I program level environmental analysis to identify the long term vision for the Corridor:

**The High Occupancy Vehicle (HOV) Lane Alternative** – adds a bus and carpool lane in both the north and southbound direction for the nine mile corridor; includes auxiliary lanes (connecting on-ramps with the next off-ramps) between most interchanges and metering lights on the on-ramps

**The Transportation System Management (TSM) Alternative** – includes auxiliary lanes (connecting on-ramps with the next off-ramps) between most interchanges and metering lights on the on-ramps

**The No Build Alternative**

The current Tier II project under environmental review includes north and southbound auxiliary lanes between 41st Avenue and Soquel Drive and a bike/pedestrian overcrossing of Highway 1 at Chanticleer Avenue.

The draft Tier 1 (program level) Highway 1 Corridor Investment program environmental analysis, plus a Tier 2 (detailed) environmental analysis for the 41st Avenue/Soquel Drive Auxiliary Lanes Project and Chanticleer Ave pedestrian/bicycle overcrossing was released for public review in 2015. Over 900 comments were received for which responses are required as part of the final environmental document. In review of the comments received and the changes in regulatory guidelines and requirements, the project team is updating sections of the report. The Highway 1 Tier I/Tier II Environmental Impact Report/Environmental Assessment is scheduled to be finalized in late 2018 or early 2019.

Existing federal, state, or local funding does not cover the cost to operate, maintain, and improve the existing transportation system. Measure D, a ½-cent, 30-year sales tax measure passed in November 2016 by over 2/3 of Santa Cruz County voters. Measure D can supplement historic funding sources to improve the quality of our transportation infrastructure and services in the county.

The Highway Corridors portion of Measure D provides approximately $150 million for highway corridors over the 30 year life of the measure for the following projects:

- auxiliary lanes between:
    - Soquel Drive and 41st Avenue
    - Bay Ave/Porter St and Park Avenue
    - Park Avenue and State Park Drive
- 2 new bicycle and pedestrian bridges over Highway 1
    - In Live Oak at Chanticleer Avenue
    - In Seacliff/Aptos at Mar Vista Drive
- ongoing safety and operational services including Freeway Service Patrol, Safe on 17, and Cruz511

## Highway 17 Corridor

Highway 17 traverses the Santa Cruz Mountains with 2 lanes in each direction, connecting the county with Silicon Valley and the rest of the San Francisco Bay Area. Because Highway 17 straddles both Santa Cruz and Santa Clara Counties, duties such as maintenance, enforcement, transit, safety improvements, and public education are shared by entities on both sides of the summit of the Santa Cruz Mountains. Due to the steep terrain, curves, and high numbers of traffic incidents, a Safe on 17 Task Force was formed in 1998. Components of the Safe on 17 program include additional enforcement by California Highway Patrol to help enforce posted speed limits, construction projects by Caltrans to improve operational efficiency, and a public information and education campaign. Additionally, call boxes and changeable message signs were installed, and the Freeway Service Patrol (FSP) service was initiated.

An Access Management Plan was conducted for State Route 17 by Caltrans in partnership with Santa Cruz County and RTC. The plan identified issues and imbalances on the SR 17 corridor between Granite Creek Road in Scotts Valley and Summit Road at the Santa Cruz/Santa Clara County line through stakeholder engagement. Short and long term access management strategies were identified to address access, mobility and safety needs to help preserve Highway 17 as an efficient interregional corridor.

## Highway 9

Highway 9 is a mountainous road connecting Santa Cruz to towns in the San Lorenzo Valley as well as providing another route over the Santa Cruz Mountains to Saratoga and Los Gatos in Santa Clara County. Through San Lorenzo Valley, the highway acts as a main street for the communities of Felton, Ben Lomond, and Boulder Creek. A complete streets plan was prepared by RTC in partnership with Caltrans and County of Santa Cruz for Highway 9 and connecting county roads through San Lorenzo Valley (SLV) that identifies and prioritizes implementation of the most critical and cost effective transportation projects. This plan focuses on safety for pedestrians, bicyclists and motorists; access to schools, businesses, and bus stops; traffic operations, pavement conditions, drainage and other needs in this travel corridor. Projects have been prioritized that can be implemented in the short and mid-term to address transportation challenges on the corridor. Measure D, which was approved by voters in November 2016, includes $10 million specifically earmarked for high priority transportation projects along the Highway 9 corridor. Plans for reducing congestion through the Highway 1 and Highway 9 intersection, just south of the Mission Street segment of Highway 1, are currently under development by the City of Santa Cruz.

## Highways 236 and 35

Highway 236 is a total of 18 miles and makes a loop connecting Highway 9 in Boulder Creek to Big Basin Redwoods State Park. A significant portion of the highway is one lane in each direction and passes through densely forested areas. Highway 35, often referred to as “Skyline Boulevard” is a two-lane road running mostly along the ridge of the Santa Cruz Mountains weaving between Santa Cruz County and Santa Clara County. Because of its scenic views and winding roadway, Highway 35 sees substantial recreational motoring and bicycling use. The winter storms of 2016/2017 washed out a section of Highway 35 near Highway 9 that made the highway impassable. It is unknown when this roadway will be repaired.

## Highways 129 and 152

Highways 129 and 152, doubling as main streets through the City of Watsonville, connect south Santa Cruz County with neighboring counties, Highway 101 and the Central Valley to the east. On the western edge, Highway 152 begins at Highway 1 and is named Main Street through the City of Watsonville, then heads up and over the Hecker Pass and county line to Gilroy in Santa Clara County and beyond. The City of Watsonville is discussing with Caltrans options to provide context-sensitive design to enhance “walkability” and the main street character of the roadway, while maintaining operational efficiencies in the corridor. Highway 129 traverses the southern portion of the City of Watsonville and connects with Monterey County near Aromas, providing an important link to Highway 101 near San Juan Bautista. Highway 129 is heavily used for goods movement, particularly for agricultural products as this is the link from Santa Cruz County to Highway 101, a major goods-movement corridor. Caltrans has made numerous improvements to Highway 129 in recent years, including curve realignments, turnouts, additional signage, improved striping and an increased number of roadway reflectors.

## Local City and County Street Network

Local streets and roads -- including nearly 900 miles of roads, bridges, curbs and gutters, sidewalks, access ramps, bicycle lanes, stop signs and traffic signals -- are critical components of the region's transportation system. The majority of travel, whether by car, bicycle, bus or foot, is done on local streets and roads. From the moment we open our front door to drive, bike, walk, or bus to work, school, the store, medical facilities or other destinations, we are dependent upon our local streets and roads. Increasingly, local streets and roads reflect 'Complete Streets' that focus on the movement of people, including non-drivers of all ages and abilities, and the variety of travel modes they may use.

The cities of Capitola, Santa Cruz, Scotts Valley and Watsonville and the County of Santa Cruz are responsible for maintaining and improving this multimodal network in Santa Cruz County. However, with such a large network and limited revenues, local jurisdictions are challenged to maintain, reduce congestion through, and add pedestrian and bicycle facilities to the multimodal local street and road network. Each of the five local jurisdiction public works departments rates the condition of their roadways using a Pavement Condition Index (PCI) to better understand the condition of their jurisdiction's road system and prioritize improvement projects. A PCI of 100 is in premium condition, and the optimum score is 70 or greater. The cost to rebuild roadways with lower PCI scores increases exponentially. **Figure 2.2** shows the average PCI for each jurisdiction.

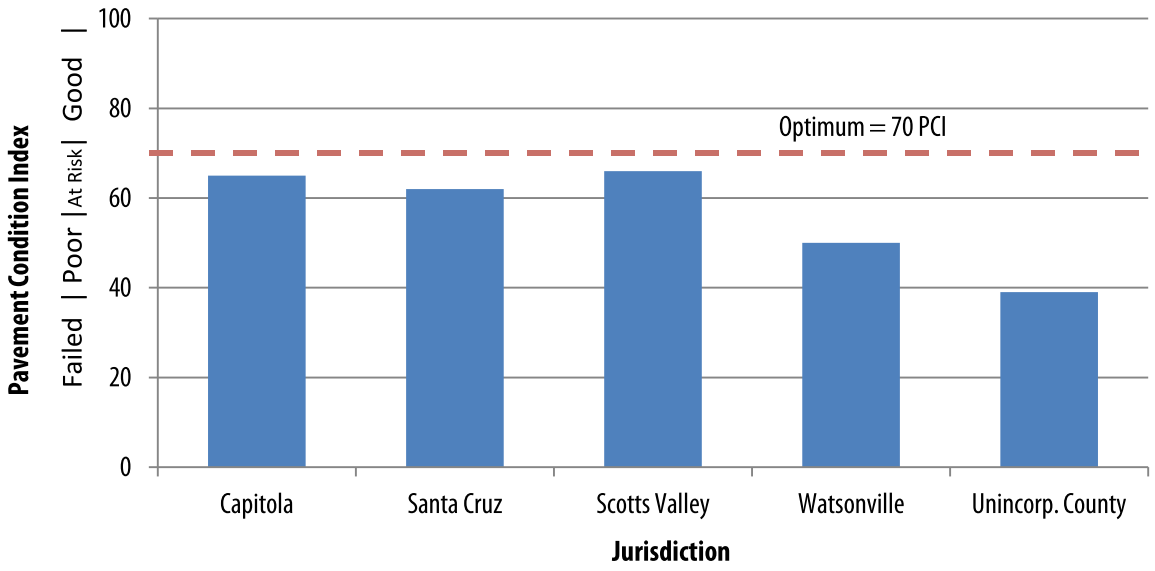



**Figure 2.2 – Average Pavement Condition for Local Jurisdictions**

*Source: Public Works Departments of Santa Cruz County, City of Santa Cruz, Watsonville, Scotts Valley, Capitola. Data collected from 2017.*

# Transit

Public transit is operated locally by the Santa Cruz Metropolitan Transit District (METRO). Three main types of services provided by METRO are local fixed-route bus service, Highway 17 Express Bus service and ParaCruz services (**Figure 2.3**). METRO operates 26 fixed bus routes on approximately 400 miles of roads. Roadways through the more urban areas where frequency of service is 15 minutes or less is shown in **Figure 2.3**. METRO operates four transit centers in the Santa Cruz County area, including the Santa Cruz METRO Center in Downtown Santa Cruz, the Capitola Mall Transit Center, the Watsonville Transit Center, and the Cavallaro Transit Center in Scotts Valley (**Figure 2.1**).

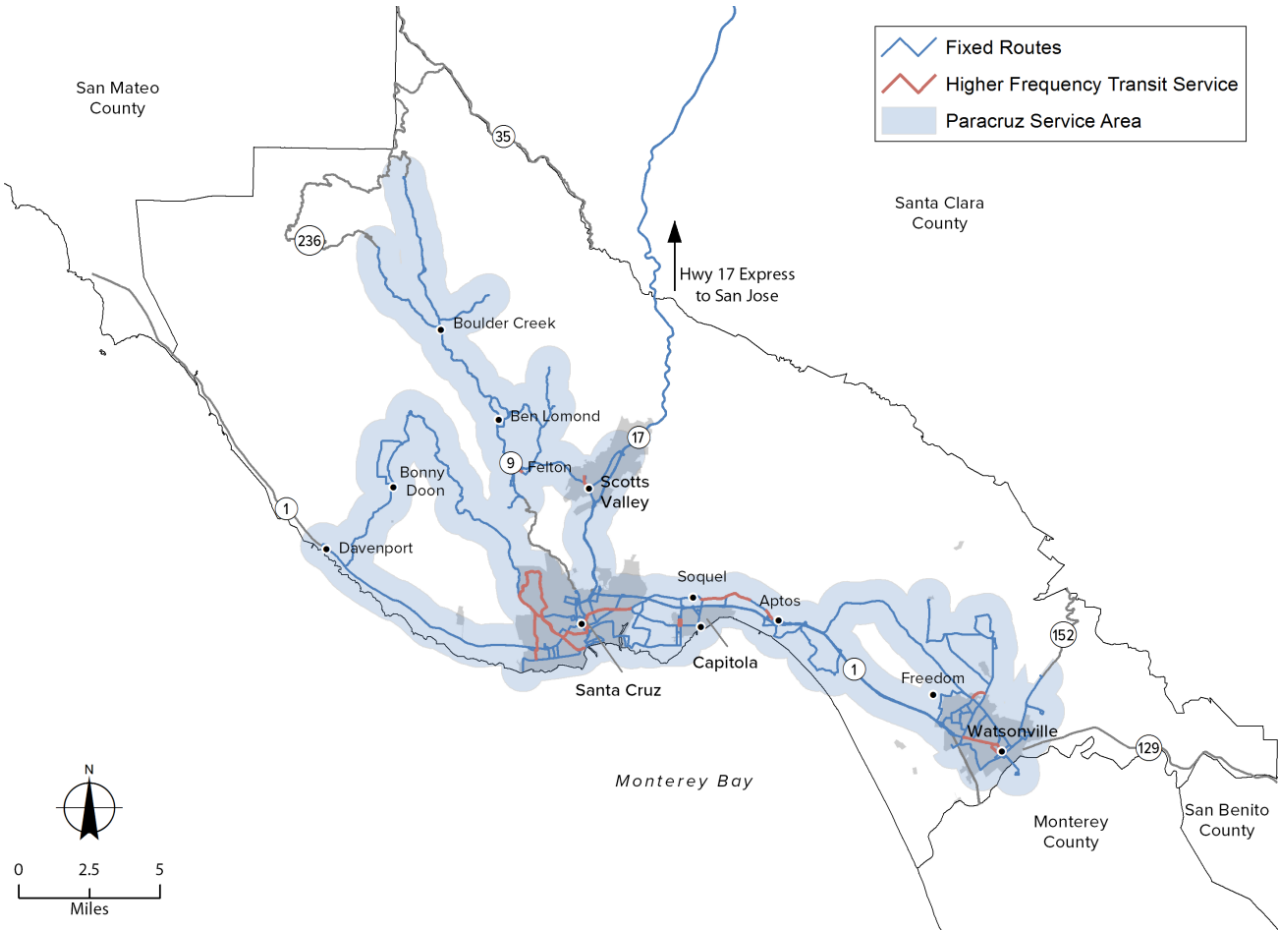



**Figure 2.3 – Transit Service Provided by Santa Cruz Metropolitan Transit District (METRO)**

*Source: Santa Cruz County Regional Transportation Commission and Santa Cruz Metropolitan Transit District, 2018*

Trip planning for METRO's fixed route system is available through Google Transit and METRO's Customer Service Department. METRO has a fare card system which allows prepayment of bus fares to speed boarding times and increase customer convenience. The 'Cruz Pass' card can store one of the many different time period passes offered by METRO such as one-day and 31-day passes for express or local buses. The 'Cruz Cash' card can store a monetary value and be used for different ride types at the time of boarding. Funding for METRO is provided by fares, two local sales taxes (including funds from Measure D), Transportation Development Act (TDA) funds and various state and federal dollars. This

funding mix for local public transit is similar to that of other public transit systems across the state and the nation.

Santa Cruz County is also connected to Monterey County by bus service provided by Monterey-Salinas Transit (MST) and to other parts of the state by Greyhound interregional bus services. The Highway 17 Express Bus – which is operated jointly by METRO, Amtrak and the Santa Clara Valley Transportation Authority (VTA) – provides a connection to the San Jose train station which serves the southern part of the San Francisco Bay Area and regional passenger train services (see rail section for details).

## Specialized Transportation

Many seniors and people living with disabilities need specialized transportation services to get around Santa Cruz County. This might include lifts or ramps for wheelchairs in vehicles, drivers with special training, or vehicles that kneel or are equipped with other accessible features. The RTC produces a Guide for Specialized Transportation Services that is regularly updated. Included is information about eligibility, schedule, service area, and fee information for over 30 transportation providers or agencies in Santa Cruz County.

The Americans with Disabilities Act (ADA) mandates that complementary paratransit service be provided for people unable to use the fixed route transit due to physical, cognitive and/or psychiatric disabilities. In our region, the ADA-mandated service is ParaCruz and is provided by Santa Cruz Metropolitan Transit District (METRO). METRO ParaCruz provides service to any destination within Santa Cruz County that is within three-quarters (¾) of a mile of an operating bus route. This service is a shared ride service arranged in advance. The fare is $4 in 2017 (twice the adult fixed route cash fare, as allowed by law).

Another main provider is Community Bridges Lift Line. This non-profit provides or contracts a range of services including local and out-of-county medical transportation, senior center/meal site delivery, bed-to-bed medical, veterans medical transportation and taxi scrip. As the area's designated Consolidated Transportation Services Agency, Community Bridges has a responsibility to work toward consolidating and coordinating specialized transportation services to avoid inefficient and duplicative social service transportation programs. Many of the rides provided by Lift Line are to individuals who are unable to afford ParaCruz or because their origin and/or destination are outside the ParaCruz service area.

### Other Providers

Although Metro ParaCruz and Lift Line are the two primary providers of specialized transportation services in the county, other service providers also exist. Non-profit or private for-profit entities, such as the Volunteer Center, Veterans Services, local taxi companies, and First Transit operate specialized transportation services. Each particular service program fills a unique niche for, or offers discounted services to, seniors and people with disabilities.

### Identifying Needs

To gain a better understanding about potential deficiencies, the RTC conducts a regular process to solicit input about unmet specialized transportation needs in the community. Social service entities, non-profits, local transportation providers, community organizations and human service advocates, as well as members of the public identify gaps and needs in human service transportation. Input from all these and other sources is incorporated into the development of the RTC Unmet Needs List and federally-mandated Monterey Bay Region Coordinated Public Transit-Human Services Transportation Plan. The most recent version of the Coordinated Plan was finalized in 2013. The plan incorporates these identified needs and presents innovative implementation strategies for closing the gaps and improving the management of mobility services. These strategies help prioritize available funding. The Coordinated Public Transit - Human Services Transportation Plan, which is an element of the Metropolitan Transportation Plan prepared by AMBAG, is available online at www.ambag.org.

## Rail

### Local Corridor

On October 12, 2012, after more than ten years of extensive due diligence and negotiations, the RTC became the owner of the Santa Cruz Branch Rail Line, thereby placing this cross-county transportation corridor into public hands. The RTC purchased the rail corridor on behalf of the community to preserve the corridor for existing and future transportation uses, including freight rail, passenger rail service/transit, and bicycle and pedestrian facilities. The passage of Measure D requires an analysis to determine the future potential use to better serve Santa Cruz County residents and visitors. The Unified Corridor Investment Study is currently underway to perform an analysis of the options for transportation uses of the rail right-of-way.

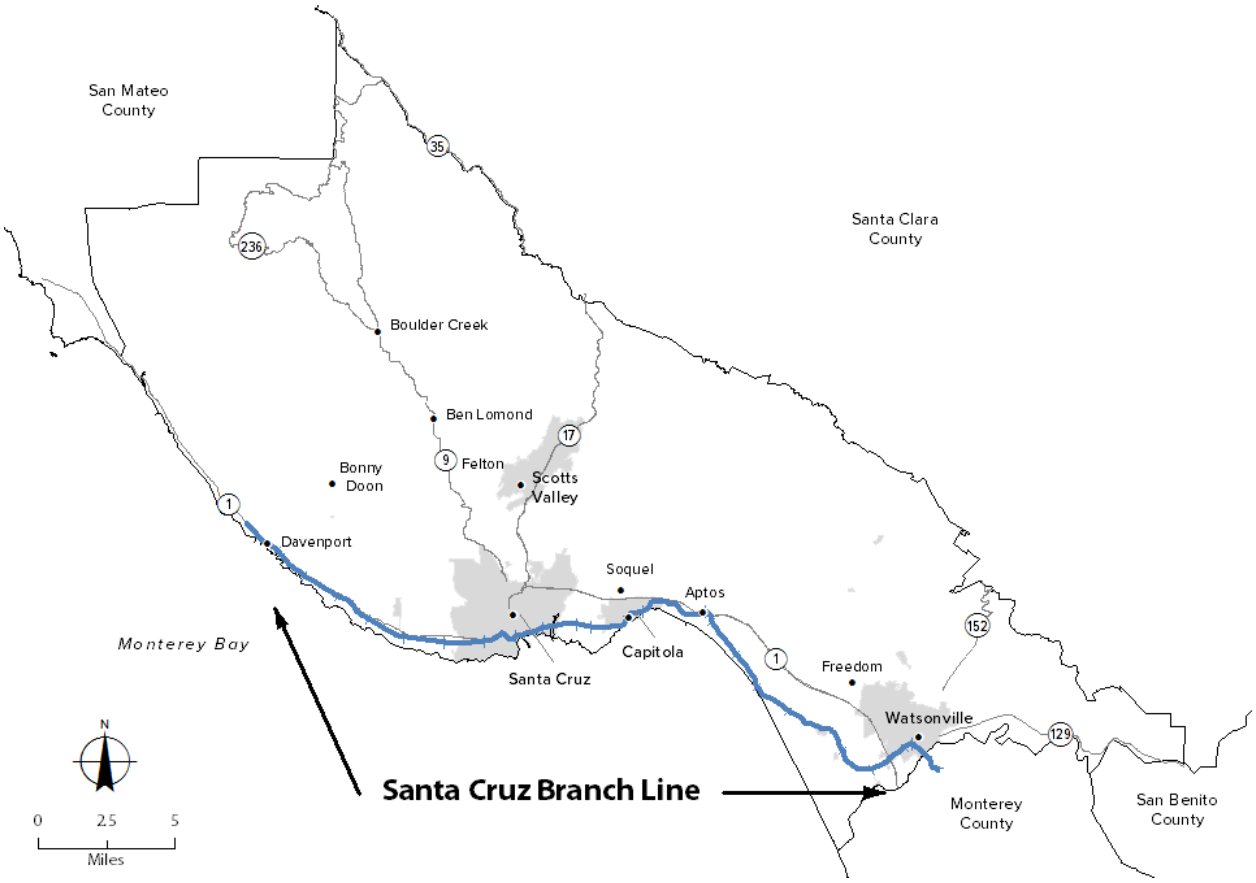



**Figure 2.4 – Santa Cruz Branch Rail Line**

*Source: Santa Cruz County Regional Transportation Commission*

This 135-year old transportation corridor parallels Highway 1, extending almost 32 miles from just south of the county line near Watsonville, to Davenport in north Santa Cruz County (**Figure 2.4**). The right-of-way is generally 50 to 60 feet wide with 37 bridges and trestles, including major crossings of the Pajaro River, Highway 1, Soquel Creek, the Santa Cruz Yacht Harbor and the San Lorenzo River. Adjacent land uses include residential, commercial, industrial, agricultural, and park land/open space. The corridor links major activity centers as it traverses downtown Watsonville, Aptos Village, Capitola Village and the Santa Cruz Beach area near downtown Santa Cruz. Also adjacent to the corridor are many parks and recreational facilities, including: Manresa State Beach, Seacliff State Beach, New Brighton State Park, Simpkins Swim Center, Santa Cruz Yacht Harbor, Natural Bridges State Park and Wilder Ranch State Park. The rail corridor enhances public access to the Monterey Bay National Marine Sanctuary at several key locations consistent with the CA Coastal Act objectives.

On May 17, 2012, the RTC selected Iowa Pacific Holdings as the new operator for the Branch Line. The company, operating freight and excursion passenger service on the Santa Cruz Branch Rail Line under the name Santa Cruz & Monterey Bay Railway (SC&MB), is responsible for operation and general maintenance of the track and rail equipment.

Currently freight service operates from the western boundary of the City of Watsonville along West Beach Street east to the town of Pajaro connecting to the Union Pacific main line. Goods shipped on the rail line in 2017 include construction materials, agricultural products, and raw materials for biofuel production. Freight growth is projected to double in the next 20 years, representing a more significant increase than population growth. [3] Shipping goods on the rail network is more efficient, cost effective and emits one-third less greenhouse gas (GHG) than trucks.[4] One gallon of diesel fuel can move one ton of freight 480 miles by rail.[5]

As part of the purchase agreement between the RTC and the previous property owner, Union Pacific, funding was set aside to upgrade a number of structures on the line. The La Selva Beach trestle was the most extensive of the four bridges upgraded with those funds. The upgrades to the four bridges were completed in 2015. Also in 2015, the RTC completed a report to assess the feasibility of rail transit using the Santa Cruz Branch Rail Line to expand access and mobility, enhance the environment and support economic vitality. The study analyzed a range of public transportation service scenarios and how well each scenario advances community goals and objectives. The project provided capital and operating cost estimates and potential sources of funding. Public input was solicited throughout the project development. The final report was completed in 2015.

The Felton Branch Rail Line owned by Roaring Camp Railroads connects to the Santa Cruz Branch Rail Line near the Santa Cruz Wharf and extends up the San Lorenzo Valley to Felton. Roaring Camp Railroads operates excursion and seasonal passenger rail service between Felton and Santa Cruz during the summer and during the end of the year holidays and also provides freight rail service to the San Lorenzo Valley area when needed.

## 2018 California State Rail Plan

The 2018 California State Rail Plan[6] establishes a statewide vision describing a future integrated rail system that provides a faster, more frequent and connected service for moving both people and goods. A statewide rail system offers a viable alternative to driving for both local and long distance trips for all populations, including those who lack access to or cannot afford automobiles, and for people who choose not to drive. The Rail Plan vision provides a framework for realizing the full potential of our existing rail network while reducing greenhouse gas emissions and helping to reduce highway congestion. As shown in **Figure 2.5**, the Santa Cruz Branch Rail Line links to existing and proposed new passenger rail services on the state rail corridor – extending from San Diego to states north of California. The 2022 regional goals of the plan include a station at Pajaro/Watsonville and an analysis of opportunities to improve connections between Santa Cruz, Monterey and the High Speed Rail Line at Gilroy. The mid-term 2027 goals include implementation planning for connecting Santa Cruz and Monterey to the statewide rail network at Gilroy and establishment of hourly service by 2040, if recommended by the 2022 study.

The Transportation Agency for Monterey County is actively pursuing rail service that includes local service as well as greater regional access. Regional service would entail an extension of the Capitol Corridor train system from Sacramento through the San Francisco Bay Area, to Salinas with a stop at Pajaro Station and Castroville. Local light rail service would connect the cities of Seaside and Monterey to Castroville for connections to Pajaro Station and the San Francisco Bay Area and beyond.

**Figure 2.5 – Regional Rail Network Surrounding Santa Cruz County**

*Source: Santa Cruz County Regional Transportation Commission*

*Photo Credit: Howard Cohen*

There are four existing passenger rail services accessible by traveling to neighboring counties. Amtrak provides interstate and cross country train connections with daily service on the Coast Starlight between Vancouver, WA and San Diego, CA with stops in San Jose and Salinas. Caltrain provides commuter service to cities along the peninsula between San Francisco and San Jose with an extension to Gilroy. The Altamont Corridor Express (ACE) provides weekday service between Stockton and San Jose. The Capitol Corridor provides daily service between San Jose and Sacramento/Auburn. The closest access point for all four trains is the San Jose Diridon Station, which can be reached using the Highway 17 Express Bus. For south county residents, Caltrain's Gilroy or Amtrak's Salinas station may be equally close.

A new Amtrak train between northern and southern California called the Coast Daylight is also in the planning phases. The current proposal includes one round trip per day in each direction, with a station stop in Pajaro.

## High Speed Rail Plans

Construction of the first segment of high-speed rail is well underway. The construction of Phase 1 began in 2015 and will connect the San Francisco Bay Area to the Los Angeles Basin through the Central Valley. The project is funded in part by Proposition 1A, a bond measure passed by California voters in 2008. According to the State, "California high-speed rail will connect the mega-regions of the state, contribute to economic development and a cleaner environment, create jobs and preserve agricultural and protected lands. By 2029, the system will run from San Francisco to the Los Angeles basin in under three hours at speeds capable of over 200 miles per hour. The system will eventually extend to Sacramento and San Diego, totaling 800 miles with up to 24 stations."[7]

The closest stations for Santa Cruz County residents will be San Jose or Gilroy. Once high speed rail service is completed, transit connectivity to these stations will be essential in order for Santa Cruz County residents to fully benefit from this new rail system. High Speed Rail will provide important transportation alternatives for travel between San Francisco and Los Angeles.

**Figure 2.6 – Proposed California High Speed Rail Line**

*Source: California High Speed Rail Authority*

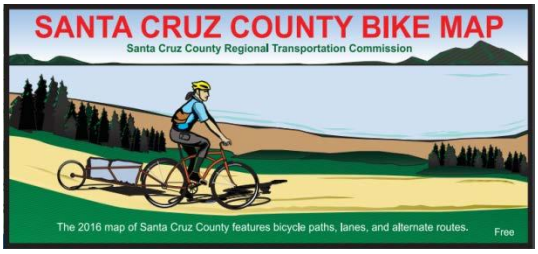
# Active Transportation

## Bike Network

The region has an extensive network of bike lanes and paths for commuters and recreational riders. Currently, Santa Cruz County boasts 223 miles of bikeways: 196 miles of bike lanes and 27 centerline miles of separated paths. Bike lanes can be found on most arterials and collector roads and there are an increasing number of separated bike paths and bikeways on low traffic volume neighborhood streets. Bicycle parking, including bicycle racks and lockers, are located throughout the county.

The area has an active bicycling community which promotes the provision of dedicated bicycle facilities on a variety of road way types to accommodate the varied ability and comfort levels of people in our community. The RTC has a Bicycle Advisory Committee which reviews RTC-funded bicycle projects and programs and advises the RTC and other entities on bicycle related issues.

**Bicycle Resources and Programs.** There are numerous resources and programs that educate people about bicycling and encourage them to bike in Santa Cruz County. One of the most popular outreach materials produced by the RTC is the Bicycle Map featuring bicycle paths, lanes, and alternate routes throughout the county. This map is available in a printed or electronic format from the RTC's website. The Bicycle Map contains information on bicycling resources and rules of the road in both English and Spanish.




In addition, there are several ongoing events promoting bicycling and bicycle safety. The RTC has been a primary funder of Ecology Action's Bicycle to Work/School events, which are held twice a year. The events include activities at schools, coffee shops and other sites around the county and draw about 13,000 participants per year. Open Streets events - which temporarily divert automobile traffic and open entire roadways for people to bike, walk, skate in a safe and festive environment –have been occurring annually in a number of locations throughout the county.

The Community Traffic Safety Coalition, partially funded by the RTC, provides ongoing bicycle safety classes, outreach and education programs countywide. Ecology Action's bicycle safety programs geared toward elementary school and pre-school children such as Boltage, "Bicycle Traffic School," and BikeSmart are also funded in part by the RTC.

## Pedestrian Facilities

Whether walking to the bus stop, from a parking spot into work, or home from school, everyone is a pedestrian for some portion of their trip. The existing pedestrian network consists of sidewalks built by developers in conjunction with construction projects, private property owners, and by local jurisdictions as part of roadway projects. Ways in which local jurisdictions work towards expanding the pedestrian network is by constructing sidewalks and curb cuts in conjunction with new and redeveloped streets, considering pedestrian access in new designs, filling gaps in the sidewalk network, and working closely with the public to identify where existing pedestrian facilities need attention. In some areas, local jurisdictions are implementing projects to slow vehicular traffic and create more attractive pedestrian facilities. In recent years, more emphasis is being placed on the benefits of "walkability." Sidewalks and pedestrian-friendly amenities – such as wide sidewalks, crosswalks, curb cuts, landscaping/buffers and benches – are seen as beneficial additions which make communities friendly and livable.

Despite a more recent focus on the community and personal, economic and health benefits of pedestrian travel, extensive gaps and other deficiencies in the pedestrian network still exist. The condition of a sidewalk can constitute a barrier, particularly if there are cracks, lifts, vegetation or other obstructions. Universal access standards are focused on the ease of access for pedestrian facilities, particularly for people with mobility impairments.

Additionally, property owners, not the cities and county, are responsible for maintaining sidewalks in front of their properties and are often unaware or slow to make needed repairs. Currently a significant portion of the county's pedestrian facilities are not mapped. As additional information about the existing pedestrian network is available, agencies will be able to increase the quality of these facilities, particularly near activity centers.

## Identifying Needs

**Bicycling.** In addition to several major bicycle projects identified individually in the Regional Transportation Plan (RTP), several local jurisdictions have developed Bicycle Plans or Active

Transportation Plans to guide implementation of local policies and funding to support bikeway development, maintenance and support facilities. Members of the general public, RTC's Bicycle Committee, the City of Santa Cruz's Transportation Commission, the Community Traffic Safety Coalition, and other entities continue to assist local jurisdictions with prioritizing and promoting local bicycle programs and facilities.

**Pedestrian.** A number of groups are working collaboratively to improve the pedestrian network. The goal of the RTC's Elderly & Disabled Transportation Advisory Committee's Pedestrian Safety Work Group is to "ensure safe and accessible pedestrian travel and access throughout the county for the benefit of all residents." The Work Group has been actively engaged in the following:

- analyzing pedestrian facilities around priority origin and destination locations,
- assisting in the identification/implementation of improvements to encourage greater transit use and ensure safe/accessible pedestrian travel throughout the region, and
- conducting an outreach campaign to encourage private property owners to maintain the condition of sidewalks adjacent to their property, as required by California law.

The group also focuses on improving pedestrian safety through educating the public about the rules and typical behaviors relevant to pedestrians, bicyclists and motorists. The group has produced brochures titled "What Pedestrians Want Motorists to Know & What Motorists Want Pedestrians to Know" and "What Pedestrians and Bicyclists Want Each Other to Know."

The Community Traffic Safety Coalition enlists volunteers to complete an annual Pedestrian Safety Observation Survey. The purpose of the study is to track key pedestrian and motorist behaviors that contribute to increased risk of pedestrian injury and fatality. Over 2,800 pedestrians were observed in the 2015 survey. Observations were made at 18high traffic pedestrian crossings throughout the county.

**Bicycling/Pedestrian.** An online interactive Hazard Report on the RTC's website provides a forum for bicyclists and pedestrians to report deficiencies in the network. Individuals can use this form to report hazards that may inhibit bike or pedestrian travel – such as rough pavement, vegetation, drainage issues, traffic signal problems, gaps in the system, and construction obstacles. Completing the form alerts local jurisdictions or the appropriate property owner of the issue.

Entities such as local jurisdictions, the Community Traffic Safety Coalition and Ecology Action are working on improving Safe Routes to School in response to the high numbers of parents driving their children to school. The Safe Routes to School Program brings together parents and traffic engineers at individual school sites to develop infrastructure and traffic flow improvements, and recommend routes for walking and biking. In recent years, this program has developed maps indicating safe routes to school for several local elementary schools.

Caltrans is also actively planning for a multi-modal transportation network to guide the development of non-motorized transportation facilities. In 2017, the first California State Bicycle and Pedestrian Plan, *Toward an Active California* was completed (http://www.dot.ca.gov/activecalifornia/theplan.html). This report lays out an ambitious plan to achieve statewide goals to double walking and triple bicycling trips by 2020.

## Bicycle and Pedestrian Projects Underway

**Monterey Bay Sanctuary Scenic Trail Network (MBSST).** In late 2013, the RTC approved the Final Master Plan for the Monterey Bay Sanctuary Scenic Trail Network (MBSST). Master Plans for the trail in both Santa Cruz and Monterey Counties identify how a bicycle and pedestrian pathway will eventually arc the Monterey Bay coastline providing non-motorized coastal access for walkers, joggers, cyclists, people with mobility impairments, families, locals, and visitors. In Santa Cruz County, the 50 mile network can be constructed in segments as funding becomes available. The spine of the trail network in Santa Cruz County will run within the 32-mile rail right-of-way (**Figure 2.7**). Trail spurs provide a braided network with coastal access connections to schools, retail centers, residences and other destinations. Sections of the MBSST Network may be designated as part of the California Coastal Trail (CCT). The CCT is a network of public trails that will extend the entire 1200-mile length of the California Coast and currently is more than half complete. Thirteen miles of projects along the rail right-of-way have been funded in full or in part with construction to begin as soon as design, engineering and environmental permitting are completed. These projects include the north coast from Davenport to Wilder Ranch; the west side of Santa Cruz from Natural Bridges Dr to the Santa Cruz Wharf; the City of Watsonville from Lee Rd to Walker St, and from the Santa Cruz Boardwalk to 17th Ave. The first project on the west side of Santa Cruz is scheduled to be completed in 2018.

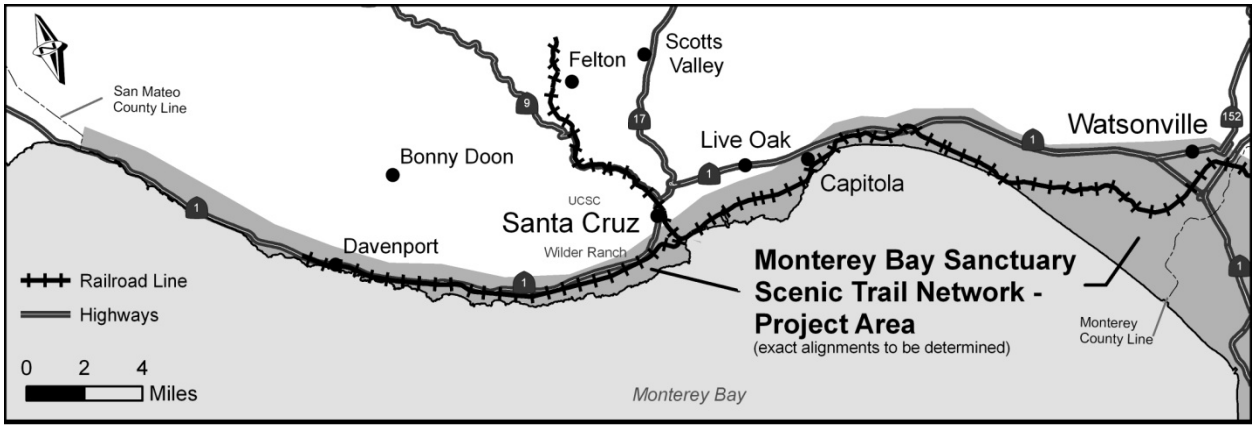



**Figure 2.7 – Monterey Bay Sanctuary Scenic Trail Network Map**

*Source: Santa Cruz County Regional Transportation Commission*

**Wayfinding Signage.** A county-wide bicycle route and way-finding signage program is under development with funds secured by the RTC. This program will be implemented in coordination with the Monterey Bay Sanctuary Scenic Trail Network, as well as the California Coastal Trail, Pacific Coast Route and Caltrans sign requirements.

**Other.** Bicycling and walking is also facilitated by Safe Routes to School efforts, the UCSC Bicycle Trailer which provides a ride up the hill to campus, and local jurisdiction's increasing incorporation of Complete Streets principals in an effort to balance and encourage all modes of transportation.

## Transportation Demand Management

Transportation Demand Management is a general term for the use of strategies that result in the more efficient use of transportation resources.[8] These strategies are designed to increase the number of people using sustainable transportation options such as carpooling, bicycling, walking, telecommuting and taking transit. Since 1979, the RTC has worked with partner agencies to implement TDM strategies at a local level as well as at the regional level. Partner agencies include local jurisdictions and non-profits such as Ecology Action and Community Bridges. Regional strategies include traveler information services, carpool/vanpool matching and incentives, employer coordination, and marketing campaigns.

Historically, the RTC has provided commuter assistance and carpool matching in person, on the phone or through third party websites. More recently some of these services and resources were migrated to the RTC website. However, as smart phone ownership increases and more apps providing people with travel resources become available, the expectation is that travel data and assistance be available in real time. To meet this demand the RTC launched a new program Cruz511 in 2015.

Cruz511 is a free traveler information service for up-to-the minute traffic, transit, bicycle and pedestrian information in Santa Cruz County via a mobile-responsive website. It was developed with the mission to provide comprehensive, accurate, reliable and useful multi-modal travel information to meet the needs of Santa Cruz County travelers. For those without online access, RTC still provides a traveler help desk for personalized assistance by email or phone.

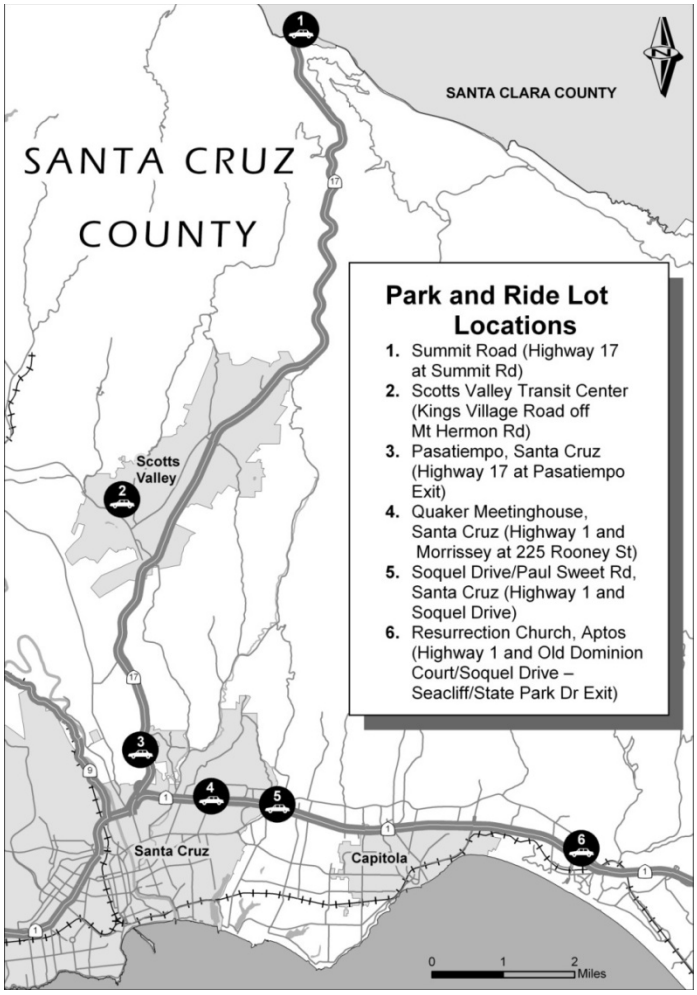



**Figure 2.8 – Park and Ride Lots Serving Santa Cruz County**

*Source: Santa Cruz County Regional Transportation Commission*

In keeping with the trend towards people directly accessing information online, the Cruz511 website currently provides more than 50 pages of content-rich resources about using the local transportation network. Among the resources available is a map providing travelers with real-time traffic, construction closures, traffic camera images, and incident feeds. Cruz511 will continue to implement more contemporary easy to use resources to encourage people to use sustainable transportation.

### Park and Ride

Park and Ride lots are strategically located pick up spots where commuters can park their cars during the work or school day to meet a carpool, vanpool, or bus ride. There are six Park and Ride lots that serve Santa Cruz county commuters (**Figure 2.8**), and many more in surrounding counties. Most are located along highways or near transit centers. Parking is free for public use during specified hours, but no overnight parking is allowed. Local park and ride facilities are owned by public agencies or are shared-use lots by agreement with churches. The Cruz511 website has a user guide for additional information.

## Transportation System Management

Transportation System Management (TSM) is a strategy of implementing operational projects that can enhance the efficiency of the existing transportation system. Generally, TSM techniques are designed to improve traffic flow and air quality, as well as enhance system accessibility and safety. Often, the costs associated with TSM strategies are lower in cost than constructing new facilities. Examples include intersection and signal improvements (e.g. signal synchronization, HOV queue jumps and signal priority, turning lanes), incident management, auxiliary lanes and ramp metering.

*Photo Credit: Tom Ralston*

## Intelligent Transportation Systems

Santa Cruz County's transportation system runs more efficiently and safely due to a variety of Traffic Operation System (TOS) components. Caltrans installs, operates and maintains these systems and works in cooperation with California Highway Patrol and the RTC to assure they are being used to the greatest benefit. Components include the following:

- **Changeable Message Signs (CMS)** - displays messages about roadway conditions (incidents, delays)
- **Dynamic Curve Warning Signs** - broadcasts driver speeds and cautions drivers about safe speeds
- **Closed Circuit TV (CCTV) Cameras** - displays live traffic conditions online to public and Caltrans TMC
- **Traffic Monitoring Stations** - obtains information about traffic speeds and counts
- **Traffic Management Centers (TMC)** - operators at the Oakland TMC and San Luis Obispo TMC control and operate the individual TOS components
- **QuickMap** - displays real-time traffic speeds, construction zones, incidents reported to the CHP, CMS messages and CCTV images

The Traffic Operations System, which extends along Highway 1 and Highway 17, is used to detect and verify traffic incidents and disseminate traffic information to motorists so they may adjust their travel plans accordingly. This system is critical to traffic flow, since single-incident disruptions, such as crashes or construction projects, are responsible for a good portion of all freeway traffic jams. Better information and communication can improve the county's major commute thoroughfares in an economical way.

Intelligent Transportation Systems (ITS), such as the components of the Traffic Operations System, are developed using a standardized architecture. In response to increased federal emphasis on ITS, the Central Coast ITS Strategic Deployment Plan was developed in 2000 through a multi-agency partnership of Central Coast government agencies including the RTC. The Regional ITS Architecture was later developed to ensure that any intelligent transportation system element implemented in the Central Coast considered all possible links to other aspects of the transportation network, whether the connection between these elements were based on the data they required or the data that they dispersed.

For example, information disseminated through a Changeable Message Sign is directly dependent on the roadway condition data collected by the California Highway Patrol, Caltrans or others. As such, ITS Architecture ensures that investments maximize all existing technological resources and build on existing investments. This RTP is consistent with the Regional ITS Architecture to the maximum extent practicable. The 2014 RTP includes funding for continued coordination with Caltrans and the CHP on the Traffic Operations Systems for Santa Cruz County.

## Aviation

The Watsonville Municipal Airport, developed in 1947, serves business and recreational users, and is the only public use airport in Santa Cruz County. The facility serves single and twin engine aircraft and helicopters, as well as turboprop and turbine-powered business jets. Approximately 45 percent of all

general aviation activities for the Monterey Bay Area are served by the Watsonville Airport. The double-runway airport occupies 277 acres, plus has an additional 53 acres of land designated as runway protection zone. There is a helipad and fueling facilities on site. The Watsonville Municipal Airport is owned by the City of Watsonville and is a self sustaining "enterprise operation" with a staff of thirteen full time employees.[9] The airport is home to approximately 330 aircraft and over 60,000 flight operations per year. According to the Watsonville Municipal Airport annual aviation operations count, runway operations (landings and take offs) will increase to 100,000 by the year 2025, most of which will be general aviation. There are 218 hangars and 80 tie-downs on the property to store aircraft. Other structures are primarily for maintenance, flight training, and sales.

The airport serves as the airport base for several agricultural growers that distribute fruits, berries, and vegetables. In addition to use by private citizens and businesses, the airport is also used for law enforcement (County Sheriff, California Highway Patrol, Coast Guard, and California Fish and Wildlife), medical evacuation, fire suppression and flight instruction. The Regional Airports Economic Impact Study completed by AMBAG in 2006 showed that the Watsonville Airport had a total economic impact of over $650 million dollars annually for the region.

There are also three private airstrips within the county, located in Bonny Doon, at the Monterey Bay Academy, and Las Trancas/ Big Creek (the latter two operate for private uses amounting to fewer than 10 trips per month). Large passenger airports serving the region are located in San Jose, Monterey, Oakland and San Francisco. Civil aviation helipads maintained for helicopter use include those at Watsonville Community Hospital and Dominican Hospital. There is also a helicopter pad next to Highway 17 in the Santa Cruz Mountains summit area.

## Notes for Chapter 2

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[2] "Santa Cruz Metropolitan Transit District Operating Financials and Statistics FY 2010-2013 (through Oct. 2012)," Santa Cruz METRO, accessed January 2014, http://www.scmtd.com/images/department/planning/transitfactsheet%2012-13.pdf.

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[7] "California High-Speed Rail Authority," State of California, accessed October 2017, http://www.hsr.ca.gov.

[8] "Online TDM Encyclopedia," Victoria Transport Policy Institute (2017), http://www.vtpi.org/tdm/.

[9] Rayvon Williams, City of Watsonville Airport Manager, personal communications, October 10, 2017.

# CHAPTER 3 Travel Patterns

In planning for the future, an understanding of existing and projected travel patterns is necessary to determine what transportation investments are needed to meet the challenges and opportunities that face Santa Cruz County through 2040. Many factors influence the patterns of where, how much, and how we travel. The amount and distribution of traffic on highways, local roads, bicycle lanes, sidewalks, and buses can fluctuate based on population, the economy, location of jobs and services, travel choices, fuel prices, and other factors.

## Population

The patterns of travel within Santa Cruz County are impacted by the number of people who live, work and visit the county. **Figure 3.1** shows the historical trend in population for Santa Cruz County since 1950 as well as the forecast for 2020 through 2040 developed by AMBAG. Currently home to more than a quarter-million people, the population is expected to increase by 12% between 2015 and 2040.

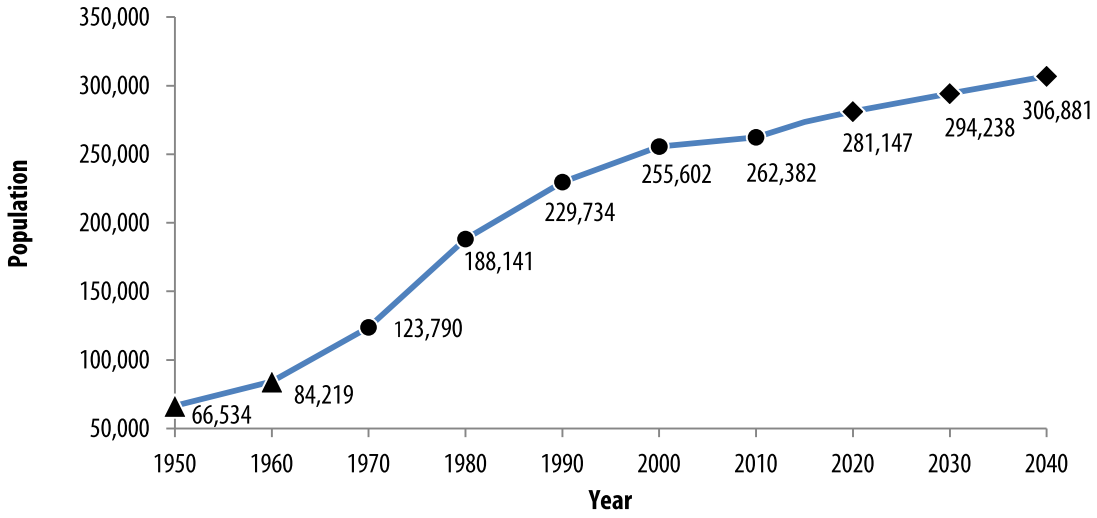



**Figure 3.1 – Historical and Projected Santa Cruz County Population**

*Source: CA Department of Finance (▲), U.S. Census Bureau (●), AMBAG Projections (♦)*

The growth rates in the five jurisdictions in Santa Cruz County have varied substantially over the last ten to twenty years (**Figure 3.2**). Growth between 2010 and 2017 has occurred primarily in the City of Santa Cruz (8.5%) and in the unincorporated areas of Santa Cruz County (**Figure 3.2).**

| Jurisdiction | 1990 | 2000 | 2010 | 2017* | % Change (2010-2017) |
|---|---|---|---|---|---|
| Capitola | 10,171 | 10,033 | 9,918 | 10,162 | 2.5% |
| Santa Cruz | 49,711 | 54,593 | 59,946 | 65,070 | 8.5% |
| Scotts Valley | 8,667 | 11,385 | 11,580 | 12,163 | 5.0% |
| Watsonville | 31,099 | 44,265 | 51,199 | 53,015 | 3.5% |
| Unincorporated | 130,086 | 135,326 | 129,739 | 136,193 | 5.0% |
| **Santa Cruz County Total** | **229,734** | **255,602** | **262,382** | **276,603** | **5.42%** |

**Figure 3.2 – Population Data for Santa Cruz County by Jurisdiction**

*Source: U.S. Census Bureau, *2017 data are estimates from Department of Finance*[1]

The location of where people live in Santa Cruz County is shown in **Figure 3.3**. This population density map illustrates how the population is clustered primarily along the coast between the City of Santa Cruz and Aptos and in Watsonville, Scotts Valley and the San Lorenzo Valley. A large percentage of people in Santa Cruz County live in urban areas, making it easier to promote shorter trips and active transportation options for reducing congestion and GHG emissions.

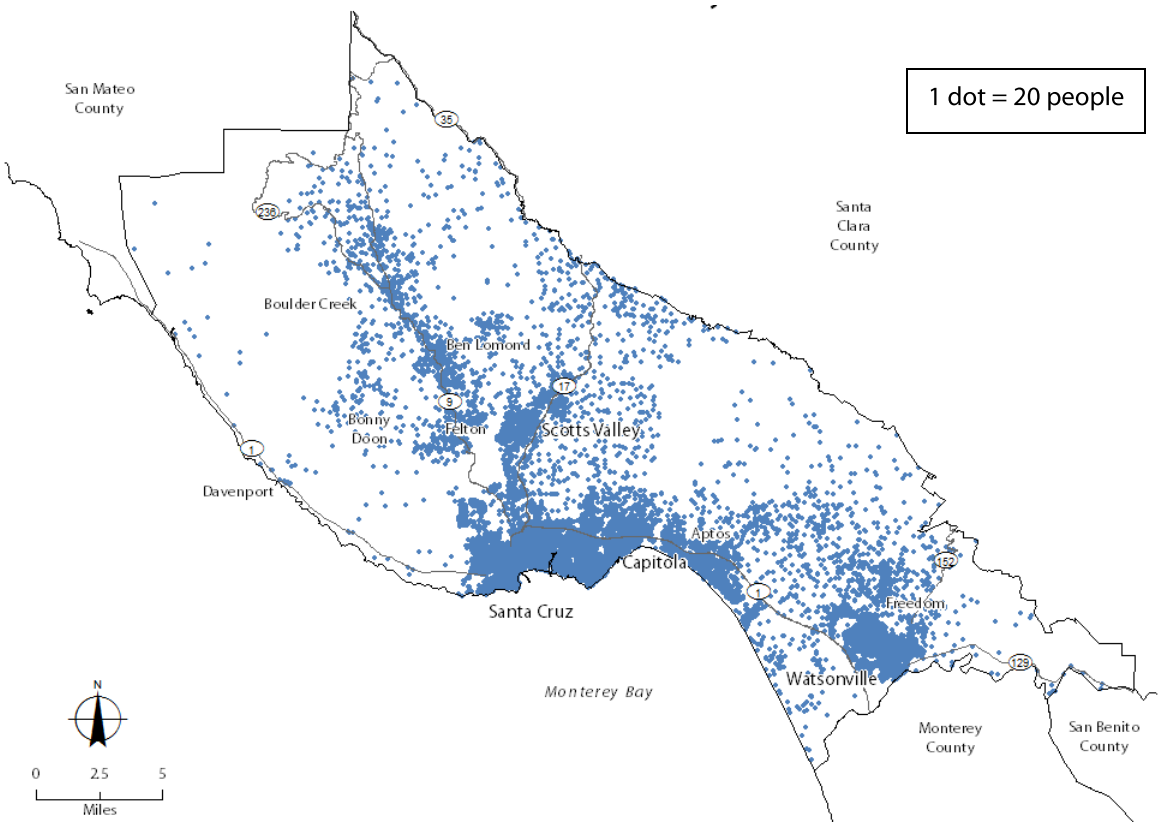



**Figure 3.3 – 2010 Population Density Map**

*Source: U.S. Census Bureau*

## Employment Opportunities

Employment opportunities are another factor influencing travel patterns. Higher employment rates often means greater traffic volumes as more people are traveling to work, and vice versa, higher unemployment rates often mean less traffic volumes. The number of jobs in Santa Cruz County over the last 20 years was highest in 2000, with unemployment rates as low as 5.1%. With the economic downturn of 2007/2008, jobs dropped significantly in 2010 and unemployment rates reached 13.3% (**Figure 3.4**, **Figure 3.5**). In 2016, the unemployment rate decreased to 6.9%.[2] The City of Watsonville currently has the highest unemployment rates in the county at 8.9% (**Figure 3.5**). Between 2015 and 2040, the number of jobs is forecast to increase by 18%, higher than the increase in population of 12% over this same timeframe. The locations of existing employment centers within the county are mapped in **Figure 3.6**.

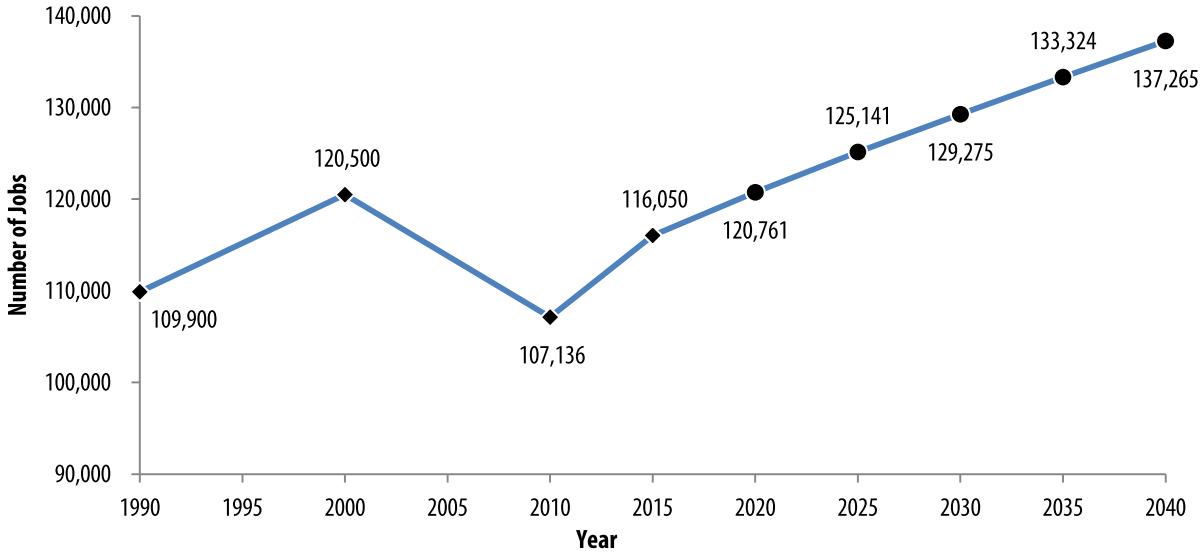



**Figure 3.4 – Historical and Projected Number of Jobs in Santa Cruz County**

*Source: AMBAG Historical (♦), AMBAG Projections (●)*

| Jurisdiction | 2000 | 2002 | 2004 | 2006 | 2008 | 2010 | 2012 | 2014 | 2016 |
|---|---|---|---|---|---|---|---|---|---|
| | % | % | % | % | % | % | % | % | % |
| Capitola | 2.5 | 3.6 | 3.4 | 3.1 | 4.1 | 10.7 | 9.5 | 7 | 5.5 |
| City of Santa Cruz | 4.2 | 6.1 | 5.8 | 4.6 | 6.1 | 11.9 | 10.6 | 7.8 | 6.1 |
| Scotts Valley | 2.2 | 3.2 | 3.1 | 2.6 | 3.5 | 12.2 | 10.8 | 8 | 6.3 |
| Watsonville | 11.5 | 16.1 | 15.4 | 12.6 | 16 | 16.8 | 15 | 11.2 | 8.9 |
| **Santa Cruz County** | 5.1 | 7.3 | 7 | 5.6 | 7.4 | 13.3 | 11.8 | 8.8 | 6.9 |

**Figure 3.5 – Unemployment Rates by Jurisdiction within Santa Cruz County**

*Source: California Employment Development Department*[3]

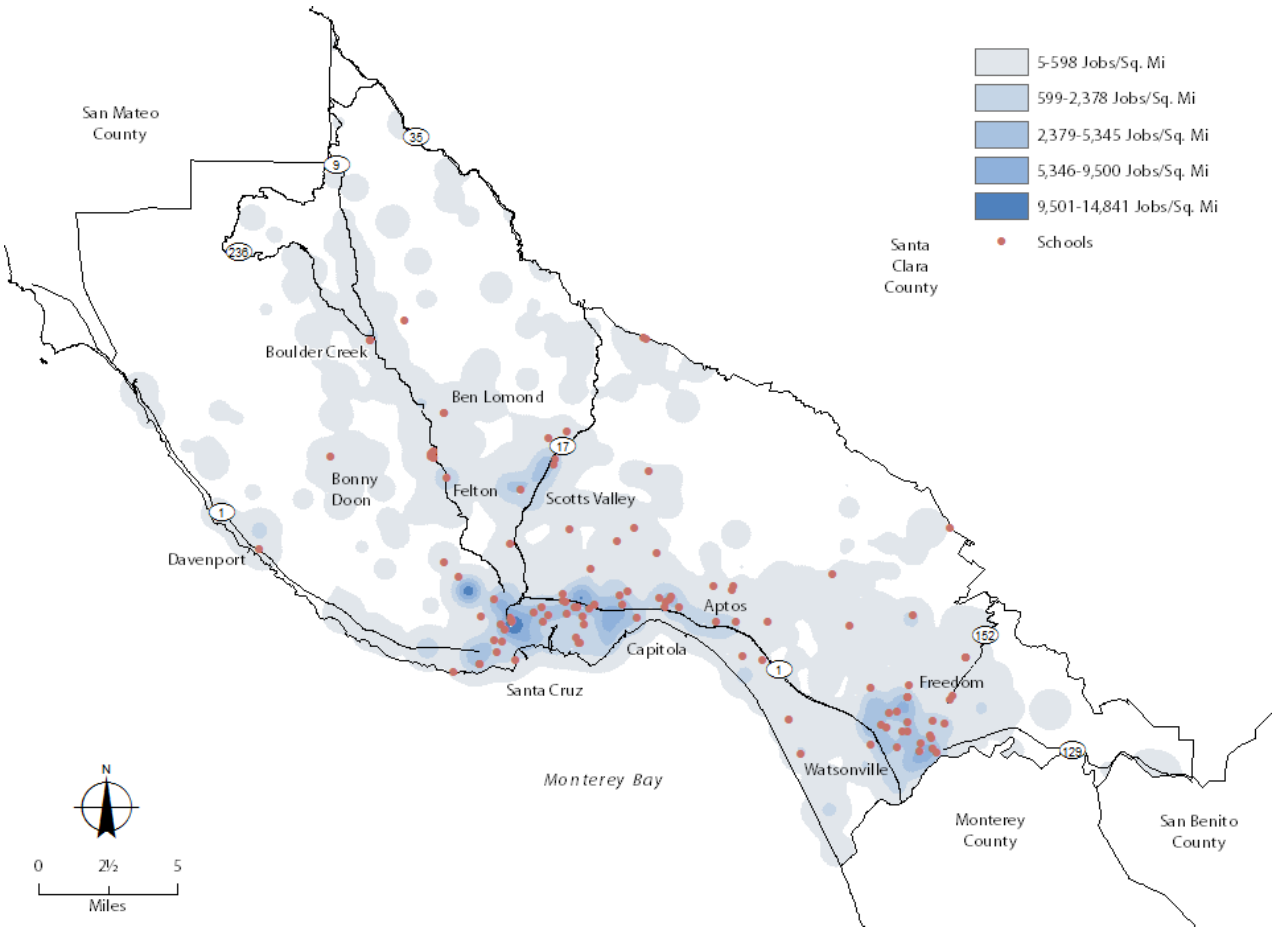



**Figure 3.6 – Job Destinations in Santa Cruz County**

*Source: U.S Census Bureau (On the Map), Center for Economic Studies*[4]

## Where Are We Traveling?

Eighty percent of the population of Santa Cruz County lives in approximately 20% of the area of the county (**Figure 3.3**). Trips are made between people's homes (**Figure 3.3**) and where they work (**Figure 3.6**), go to school, shop, socialize and recreate. Many residents living in the southern portion or more remote corners of the county travel to job centers located in the central portions of the county near urban developments, such as downtown Santa Cruz. Increasing the diversity of land uses within neighborhoods to improve access to goods and services can reduce the length of trips which increases the opportunities for bicycling and walking, and makes it more convenient to reach transit stops.

The 2009 National Household Travel Survey (NHTS) analyzed the person miles of travel by trip purpose. The results show that on average, for persons 5 years or older including travelers and non-travelers, person miles of travel are divided into approximately 30% for work and school, 30% for family errands, 30% for social and recreational purposes, and the remainder for other types of travel[5]. Data on commute patterns of work trips into and out of Santa Cruz County are available from the U.S. Census Bureau, American Community Survey as discussed below.

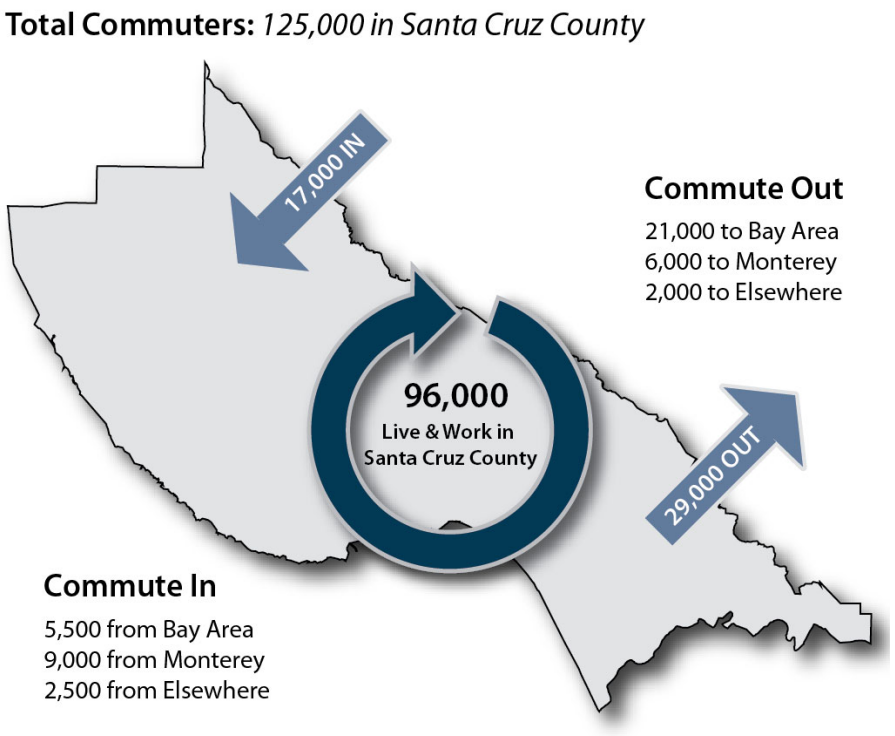



**Figure 3.7 – Commute Patterns**

*Source: American Community Survey 5-year summary data*

While the majority of work trips in Santa Cruz County are within the county boundaries (77%), about 17% of Santa Cruz County commuters travel to San Francisco Bay Area counties and about 5% to Monterey County.

**Figure** 3.8 shows the commute patterns between Santa Cruz, Monterey, San Benito, and Santa Clara Counties from 1980 to 2010. Bay Area commuters reside in Santa Cruz County in order to live in a coastal environment and endure the commute to take advantage of the greater diversity of jobs "over the hill."

Of the total number of people employed in our county, 15% live in other counties; 8% from Monterey and 5% from the San Francisco Bay Area. The survey data shows that between 2000 and the 2009-2013 average, there are 21% less people commuting to the Bay Area and the only significant increase in workers leaving Santa Cruz County to work elsewhere is into Monterey County. The 2009-2013 data represents the commute flows during the Great Recession of 2008-2012. When more recent data becomes available that represents commute flows between 2014 and 2018, there will likely be a greater percentage of workers commuting to the Bay Area. Regardless of timing, the majority of Santa Cruz County work trips stay within Santa Cruz County, job locations within Santa Cruz County become a significant factor impacting traffic volumes and congestion within our county borders (**Figure 3.6**).

| County of Residence | County of Work | Total Commuters 1980* | Total Commuters 1990* | Total Commuters 2000* | Total Commuters 2009-13 (Avg)** | % Change 2000 to 2009-13 | % of All Commuters 2009-13 |
|---|---|---|---|---|---|---|---|
| Santa Cruz | Santa Cruz | 65,000 | 89,628 | 93,084 | 96,296 | 3.45% | 77.36% |
| Santa Cruz | Monterey | | 3,650 | 5,164 | 5,995 | 16.09% | 4.82% |
| Santa Cruz | San Benito | | 322 | 622 | 659 | 5.95% | 0.53% |
| Santa Cruz | Bay Area | 14,662 | 20,596 | 26,243 | 20,790 | -20.78% | 16.70% |
| Santa Cruz | *San Mateo* | 808 | 1,373 | 2,010 | 1,273 | -36.67% | 1.02% |
| Santa Cruz | *Santa Clara* | 12,919 | 17,693 | 21,540 | 17,280 | -19.78% | 13.88% |
| Santa Cruz | *Alameda* | 445 | 712 | 1,419 | 1,118 | -21.21% | 0.90% |
| Santa Cruz | Elsewhere | 1,966 | 1,715 | 993 | 734 | -26.08% | 0.59% |
| **Santa Cruz** | **Total** | **81,628** | **115,911** | **126,106** | **124,474** | **-1.29%** | **100.00%** |

| County of Residence | County of Work | Total Commuters 1980* | Total Commuters 1990* | Total Commuters 2000* | Total Commuters 2009-13 (Avg)** | % Change 2000 to 2009-13 | % of All Commuters 2009-13 |
|---|---|---|---|---|---|---|---|
| Santa Cruz | Santa Cruz | 65,000 | 89,628 | 93,084 | 96,296 | 3.45% | 84.95% |
| Monterey | Santa Cruz | | 6,821 | 7,601 | 9,178 | 20.75% | 8.10% |
| San Benito | Santa Cruz | | 623 | 714 | 848 | 18.77% | 0.75% |
| Bay Area | Santa Cruz | 1,669 | 4,455 | 4,738 | 5,452 | 15.07% | 4.81% |
| *San Mateo* | Santa Cruz | 133 | 393 | 214 | 332 | 55.14% | 0.29% |
| *Santa Clara* | Santa Cruz | 1,214 | 3,505 | 3,463 | 4,045 | 16.81% | 3.57% |
| *Alameda* | Santa Cruz | 100 | 322 | 462 | 606 | 31.17% | 0.53% |
| Elsewhere | Santa Cruz | 2,000 | 1,147 | 1,259 | 1,588 | 26.13% | 1.40% |
| **Total** | **Santa Cruz** | **68,669** | **102,674** | **107,396** | **113,362** | **5.56%** | **100.00%** |

**Figure 3.8 – Commute Patterns Into and Out of Santa Cruz County**

*Source: Census Transportation Planning Products, Federal Highway Administration*
**U.S. Census Bureau, Census long form data*
***U.S. Census Bureau, American Community Survey 5-year summary data*

## High Use Routes

**Highways.** Daily commuters often complain about the high level of congestion on state highways. Over 50% of the miles driven in Santa Cruz County are on state highways[6]. Average annual daily traffic volumes on state highways in Santa Cruz County are shown in **Figure 3.9**.

Of the six state highways in Santa Cruz County, Highway 1 has the highest average daily traffic as it is the primary travel route in the region (**Figure 3.9**). Between the City of Santa Cruz and Aptos and sometimes further south, Highway 1 is frequently congested at peak travel times with peak periods stretched longer into the morning and evening hours. Traffic also peaks in the middle of the day as people run errands or pick up their children from school. On the most congested segments of Highway 1,

in the vicinity of the Bay Avenue/Porter Street interchange, weekday traffic volumes are 97,000 (**Figure 3.9**). High traffic volumes on Highway 1 translate into longer travel times on both Highway 1 and parallel arterial routes (i.e. Soquel Drive and Capitola Road). It is no surprise that Highway 1 has been the focal point for much of the discussion and frustration about traffic congestion in the county. The RTC assisted Caltrans when they developed a Highway 1 Corridor System Management Plan (CSMP) and several projects from the CSMP have been included in the Action Element of this RTP (**Chapter 6**).
The decrease in traffic volumes on Highway 1 (**Figure 3.9**) since 2005 is likely not due to decreased demand but due to the increased level of congestion on the highway. As the traffic flow slows during peak periods, the daily traffic volumes on the highway decrease as motorists use arterials to try to find a faster route.

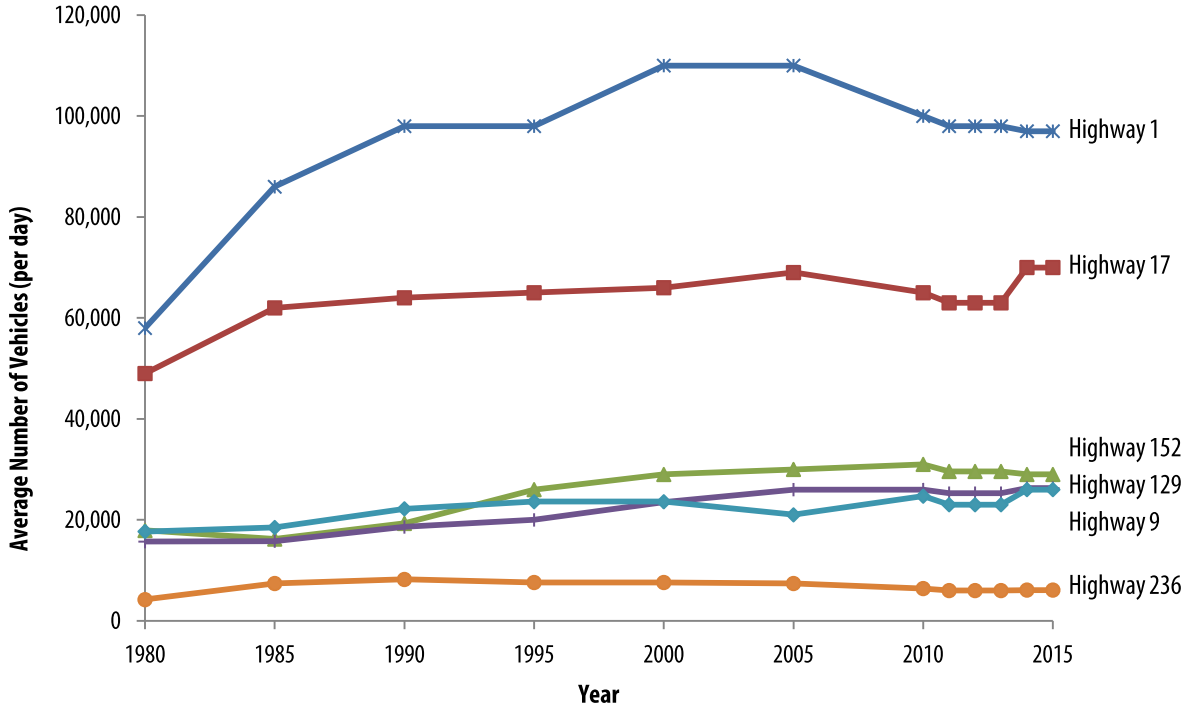



**Figure 3.9 – Average Daily Traffic Volumes at Most Traveled Segments on State Highways in Santa Cruz County**

*Source: Caltrans Traffic Data Branch*

Traffic flow on Highway 17 has increased over the last few years. Congestion on Highway 17 is primarily in the northbound direction during the morning peak and in the southbound direction during the evening peak as it serves over 20,000 commuters going "over the hill" to jobs in the Bay Area. Congestion on Highway 17 resulting from collisions on this windy, mountainous highway, with limited access points can hold up traffic for long periods of time given the challenge of accessing and clearing incidents and detouring vehicles to other roads. Highways 9, 129, 152, and 236, although not as heavily traveled as Highways 1 and 17, have also seen increasing traffic volumes since 1980 with slight leveling off since 2005 (**Figure 3.9**).

**Arterials.** Despite high traffic volumes on state highways in Santa Cruz County, the majority of travel occurs on the arterials, collectors and local streets and roads. **Figure 3.10** provides average daily traffic volumes for automobiles on two, four and six lane arterials in the county. The only 6 lane arterial in the

county, 41st Ave in Capitola, has the largest volume at 40,000 vehicles per day. Mission Street and Mt Herman Road, both 4 lane arterials, follow close behind with approximately 34,000 to 37,000 vehicles per day. The Soquel corridor, a 2 to 4 lane arterial that serves as an alternate route between the City of Santa Cruz and Aptos, has a traffic volume that varies between 12,000 and 31,000 vehicles per day depending on the location. Freedom Blvd, used as an alternate to Highway 1 between Watsonville and Aptos and provides primary access to the community of Corralitos, has approximately 27,000 vehicles per day. The "beach route" between the City of Santa Cruz and Capitola (Murray Street, East Cliff Drive and Portola Drive) attracts approximately 10,000 to 20,000 vehicles/day.

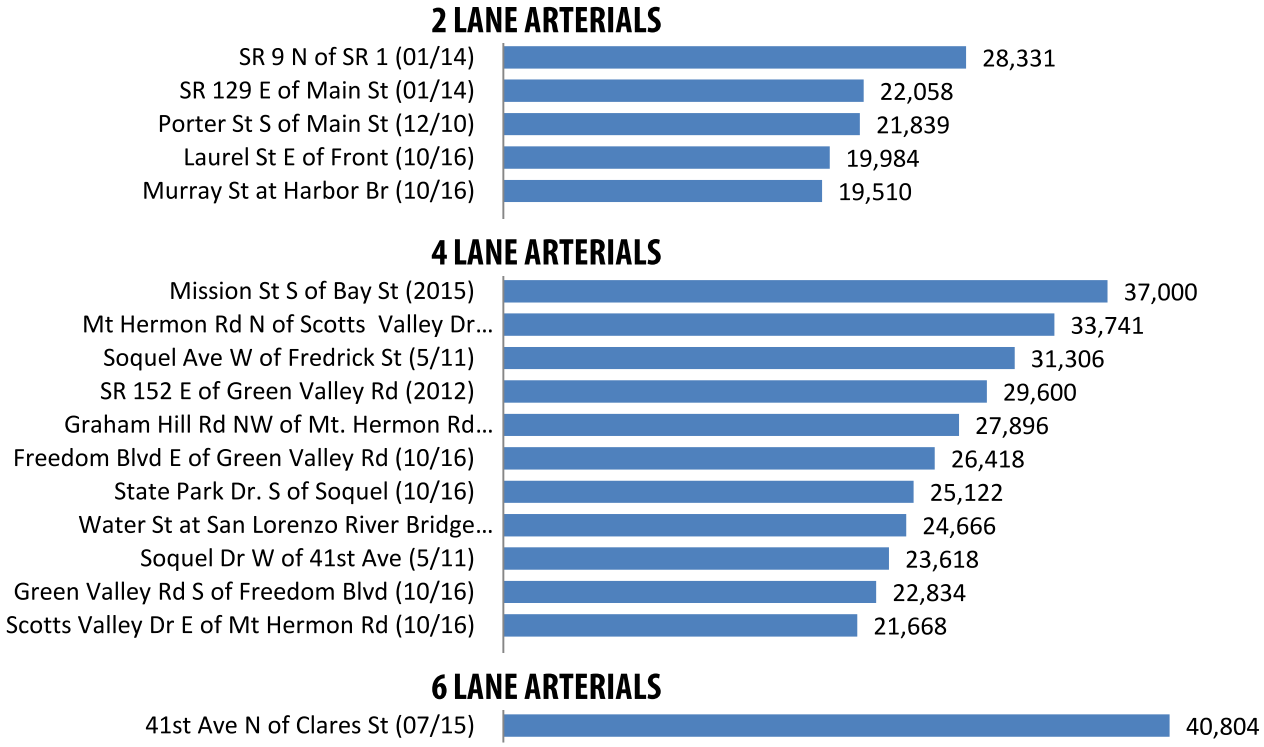



**Figure 3.10 – Local ADT: Average Daily Traffic Volumes on Selected Local Roadways**

*Source: Santa Cruz County Regional Transportation Commission, Caltrans Traffic Data Branch*

**Transit.** Santa Cruz METRO operates transit service on 26 fixed-route bus lines and provides over 5 million trips per year. METRO primarily serves Santa Cruz County but also operates regional service to San Jose. Numerous routes experience heavy ridership including routes serving the UCSC campus (Routes 10, 15, 16, 19), routes to San Lorenzo Valley (Route 35/35A), mainline routes between Santa Cruz and Watsonville (Routes 71, 69A and 69W, and 91), and the Highway 17 Express. **Figure 3.11** shows overall average ridership by route data for METRO transit service during the school year (although it does not distinguish where on the route passengers boarded or disembarked). UCSC boardings (approximately 10,000 riders per weekday) comprise approximately 50% of the ridership when school is

in session. As a result, these routes tend to be the most frequent and have the longest running spans of service in the system. Route 71, 69A and 69W between Watsonville and Santa Cruz have approximately 3,500 boardings per weekday, Route 35/35A between Santa Cruz and San Lorenzo Valley has approximately 1,000 boardings per weekday and the Highway 17 Express has approximately 900 boardings per weekday.

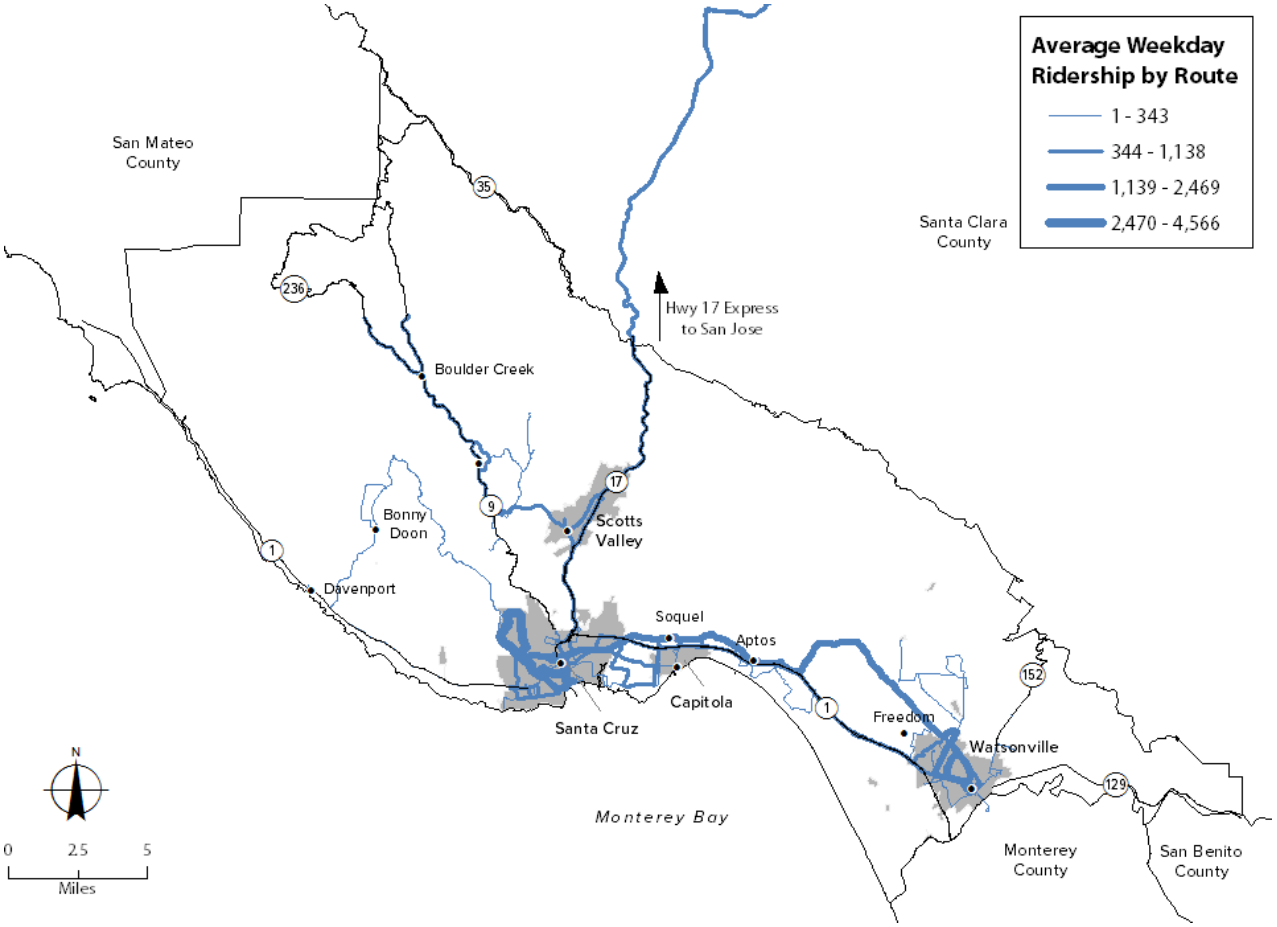



**Figure 3.11 – METRO Weekday School Year Average Ridership by Route**

*Source: Santa Cruz Metropolitan Transit District, FY2017*

The annual ridership for the system was at a high in 2008 at 6 million and has decreased to approximately 5 million over the last few years (**Figure 3.12**). As a result of the changing economic conditions that reduced revenue, METRO reduced service in 2010 and 2011 and again in 2016, in addition to raising fares. The level of transit service (number, frequency, and areas covered by buses), fuel prices, unemployment rates, traffic congestion, and accessibility of transit stops for pedestrians can influence ridership levels. Ridership decreased after the service reduction in September, 2016 but severe weather conditions in January and February of 2017 may have also affected annual ridership for this service year.

An on-board survey of METRO passengers was conducted between June 3 and 5, 2013. When survey participants were asked the purpose of their trip, the most common reason reported was travel to or from work (39%), followed by travel to or from a college or university (24%), personal business (16%), shopping (11 %), K-12 schools (8%), recreation/social (6%), medical (5%), and trips to or from an airport (0.5%). Responses for "other" accounted for 5% of the total.

Consistent with the Americans with Disabilities Act of 1990 (ADA), Santa Cruz METRO also operates paratransit service (METRO ParaCruz) for people that are unable to use the fixed route bus system due to disabilities. ParaCruz serves destinations within Santa Cruz County that are within three-quarter (¾) miles of an operating bus route. ParaCruz has provided greater than 90,000 rides per year over the last few years, however annual ridership also decreased (to 75,000) in 2016 due to service cuts. Many ParaCruz riders travel to locations that provide medical care.

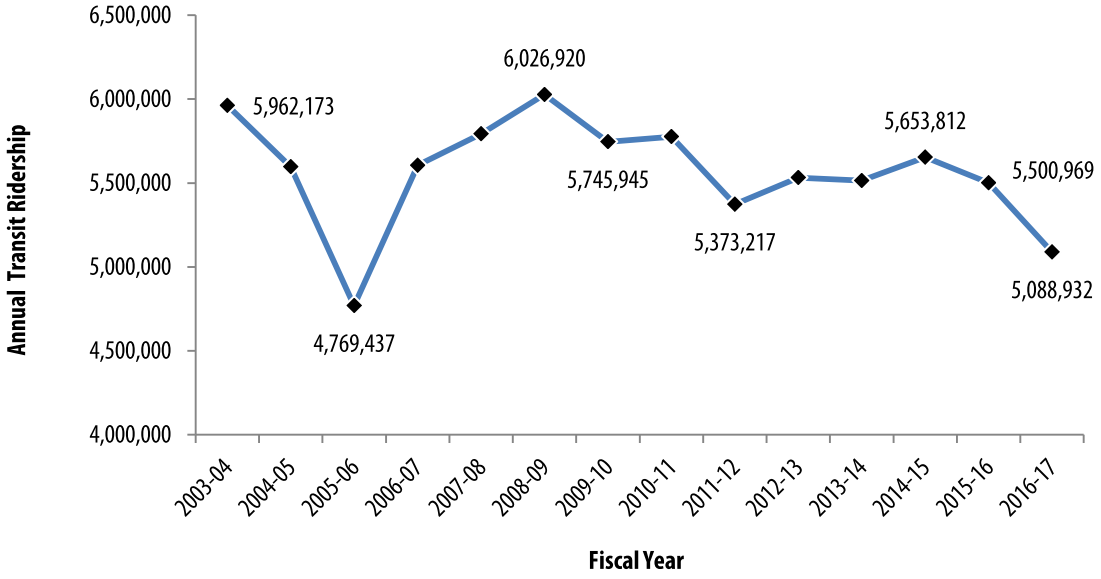



**Figure 3.12 – Total Transit Ridership for Santa Cruz County Fixed Route Service**

*Source: Santa Cruz Metropolitan Transit District. [Note: Levels dropped in FY05/06 as no service was provided in October 2005 due to a labor strike. In Fall 2016, Service was reduced due to budget constraints.*

## How Much Are We Traveling?

The California Household Travel Survey collected in 2010-2012 estimated that on average each person in California takes 3.6 trips per day.[7] The purpose of these trips is primarily to go to work, school, shop, and socialize/recreate. According to the five year summary of the American Communities Survey from 2011-2015, the average travel time for traveling to work in Santa Cruz County was 26 minutes.[8] This time is an 8% decrease in travel time to work compared to data collected in 2000. A decrease in average travel time to work can be indicative of either a reduction in congestion, workers living closer to where they work, or choosing a less congested time to travel.

### Vehicle Miles Traveled

A common measurement for how much travel is occurring in a region is the number of "vehicle miles traveled" (VMT). One vehicle (regardless of the number of passengers) traveling one mile constitutes one "vehicle mile". Vehicle miles traveled can be estimated on a daily per capita basis or daily for the whole region. The number of vehicle miles traveled is used in calculating greenhouse gas emissions (GHG) from transportation.

SB 375 requirements for the AMBAG region, require GHG per capita to be reduced by a minimum of 1% by 2020 and 6% by 2035 relative to 2005 levels. Much effort on this 2040 RTP and the 2040 AMBAG Metropolitan Transportation Plan –Sustainable Communities Strategy has been focused on prioritizing projects that will reduce GHG emissions primarily through a reduction in VMT. The AMBAG regional travel demand model estimates the amount of VMT based on population and traffic counts throughout the region. See Chapter 7 for a more detailed discussion on historical and projected vehicle miles traveled for Santa Cruz County.

## Visitors

Santa Cruz County is a popular tourist destination that attracts many visitors to its scenic beaches, many county and state parks, and popular events such as the Santa Cruz County Fair, Capitola Art and Wine Festival, Wharf to Wharf running race, and Watsonville's Airshow. The number of tourists to Santa Cruz County, especially in the summer and on weekends, contributes significantly to the number of cars on our roadways. The Santa Cruz Conference and Visitors Council estimates that there are approximately 3 million tourists per year to Santa Cruz County. The Boardwalk in the City of Santa Cruz attracts a large percentage of these visitors. The University of California Santa Cruz, with a population of 17,000 students, also brings numerous visitors especially during spring graduation and when the new school year begins in the fall. Daily traffic volumes on Highway 17 at Laurel Curve on a weekend in the summer are about 80,000 vehicles per day, higher than typical weekday commutes. Highway 1 traffic volumes on summer weekends, in the vicinity of Soquel Avenue interchange, average approximately 95,000 vehicles per day, similar volumes to typical weekday commutes.

## Goods Movement

Another source of traffic volumes on our roadways is goods movement. Nearly all commodities sold in stores or used in local manufacturing in Santa Cruz County arrive on roads by truck. Similarly, most products that are produced in Santa Cruz County are shipped out by truck. The top freight dependent industries by gross regional product from studies performed in 2009 are retail trade ($835 million), agriculture ($491m), construction ($420m), and manufacturing ($534m).[9] The 2016 Crop Report for Santa Cruz County shows that the agricultural gross regional product has increased to $637 million, up from $491 million in 2009. When looking at freight volumes, sand and gravel products are the largest commodity group in the county at 35% of the total, or 9.2 million tons. Agricultural goods are the second largest commodity by volume, estimated at 2.5 million

tons in 2007. [10] Trucks are the preferred mode for time-sensitive agricultural products, including fresh produce and other agricultural commodities.[11] There are many refrigeration (coolers) and packing facilities for agricultural products in and around Watsonville, which has substantial freight traffic for farm products. Granite Rock operates a quarry in Santa Cruz and ships large quantities of sand by truck. Logging products are shipped in the county, but no up to date data on volume is currently available. The majority (59%) of the commodities based on weight flow outbound from Santa Cruz County, with internal flows at 1.5% and shipments inbound to Santa Cruz County from other counties at 39.5%.[12]

The primary truck route for the Central Coast region is Highway 101. The key routes that connect Santa Cruz County with the rest of the Central Coast region's freight network are Highways 1, 17, and 129. Truck traffic contributes to congestion during rush hours. Highway 129 truck traffic can be as high as 12% of overall traffic or 2,384 trucks daily. On Highways 1, 17, and 152 truck traffic ranges from 3 to 4% of overall traffic with a high on Highway 1 of 3,760 trucks daily (**Figure 3.13**). Truck volumes on Highways 129 and 152 have been increasing over the last decade, likely due to increased goods movement from agriculture in the Watsonville area. The demand for more goods into our county will likely increase as population continues to grow. Even small numbers of trucks relative to overall traffic can create traffic jams on some roads, especially in mountainous areas where the differences in speed between trucks and cars are even greater.

| Santa Cruz County Highway | 2015 Daily Truck Volume* | % of Total Traffic Volume |
|---|---|---|
| Highway 1 | 3760 | 3.4% |
| Highway 9 | 1820 | 6.2% |
| Highway 17 | 1720 | 2.7% |
| Highway 129 | 2384 | 11.8% |
| Highway 152 | 952 | 3.5% |

* Truck volumes are from locations with highest counts on highway.

**Figure 3.13 – 2015 Daily Truck Volumes on Highways in Santa Cruz County**

*Source: Caltrans Traffic Data Branch*

As the majority of goods shipped into and out of the county are carried by trucks, congestion is a key challenge for freight-dependent industries. It is important that these industries are able to thrive in the region as they are critical in terms of jobs and contribution to the regional economy. Local and regional governments can continue to help the goods movement industries thrive by supporting freight and transportation projects that improve the efficiency of goods movement to major destinations and intermodal facilities. This includes maintenance of key roadways, improved travel time reliability on highways and arterials, improving safety on key routes and increasing options for shipping freight by rail.

Although in 2012 Santa Cruz County relied on trucks for 77% of the County's total freight volume, the Santa Cruz Branch Rail Line is also used for freight service. Commodities shipped by rail in 2012 accounted for about 4.9% of the County's freight by weight and 2.4% by value.[13] Prior to the closure of the Cemex cement plant in 2009, cement and coal were shipped by rail to and from the cement plant in Davenport each year. Currently, the rail line is used for freight service from Watsonville south connecting to the Union Pacific main line in Pajaro. Upward pricing pressure on the trucking industry due to rising fuel costs, congestion, additional wear and tear on roads caused by trucks, as well as safety and environmental concerns, have prompted the region's freight and transportation stakeholders to look for alternatives for transporting goods. The rail system is one of the main options available. The 2013 California State Rail Plan stresses the importance of short line railroads, including the Santa Cruz Branch Line, Santa Maria-Valley Rail, and Monterey Bay Railway Company, and the potential for rail freight to integrate with other freight modes and with passenger rail, lowering energy use and pollution, maintaining global competitiveness, and aiding in developing livable and vibrant communities.[14]

*Photo Credit: Howard Cohen*

Prioritizing traffic flow improvement projects on Highways 1, 17 and 129, the main routes that connect to Highway 101, as well as freight rail service that connects to the rest of California and beyond will provide the greatest benefit to goods movement in Santa Cruz County.

Air freight in 2012 accounted for negligible tonnage, but 3% of freight value in Santa Cruz County, since this mode tends to reflect the time-sensitive or higher value, but lower weight shipments made by air.[15] One example is the flower industry that often ships via air cargo due to time-sensitivity. The Watsonville Airport serves many growers; however, the primary cargo airports for Santa Cruz County are Monterey, San Jose and San Francisco.

AMBAG completed the U.S. 101 Central Coast California Freight study in 2016 to identify short-term and long-term strategies to improve freight mobility and transportation operations along US 101 from San Benito County through Santa Barbara County. The US 101 corridor supports the economic vitality of the Central Coast area as a major goods movement corridor. The report recommends upgrading the rail on the Santa Cruz Branch Line to Federal Rail Administration Class 2 rail, allowing freight train speeds of up to 25 mph on sections in Santa Cruz County in order to improve freight connectivity to other regions in California and nationwide.[16]

## How Are We Getting Around?

The California Household Travel Survey that was conducted between 2010 and 2012 indicates that the mode share for transit, bike and walk trips throughout California approximately doubled from survey results taken in 2000, with a decline of auto trips by 10% (**Figure 3.14**). In 2011-2012, automobile trips accounted for 77% of all trips throughout California, approximately 18% of all trips were non-motorized and 4% of reported trips were made by public transit (**Figure 3.14**). The mode share for all trips in Santa Cruz County collected by the 2011-2012 CHTS is presented in **Figure 3.15**. This data shows an increase in the bike mode share but less walk and transit mode share in Santa Cruz County compared to statewide. National studies show that nearly 70% of the millennial population (ages 18-34) is using multiple travel options several times or more per week.[17] This flexible concept of mobility, combined with a well-designed multi-modal transportation network, could set a new direction for transportation.

| Mode | 2000 Mode Share | 2010-2012 Mode Share |
|---|---|---|
| Auto | 86.7% | 76.9% |
| Transit | 2.2% | 4.4% |
| Walk | 8.4% | 16.6% |
| Bike | 0.8% | 1.5% |

**Figure 3.14 – Mode Share for All Trips in California**

*Source: California Household Travel Survey*

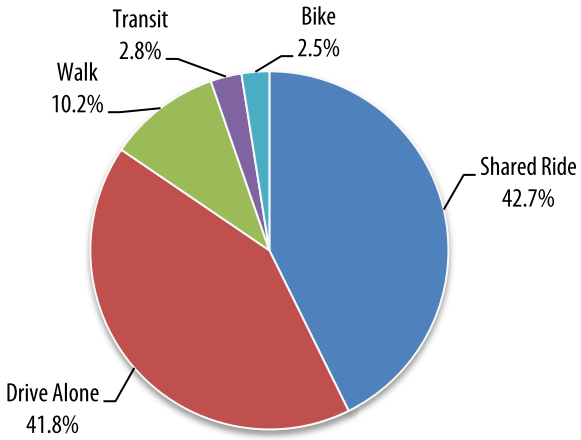



**Figure 3.15 – Mode Share for All Trips in Santa Cruz County**

*Source: 2011-2012 California Household Travel Survey*

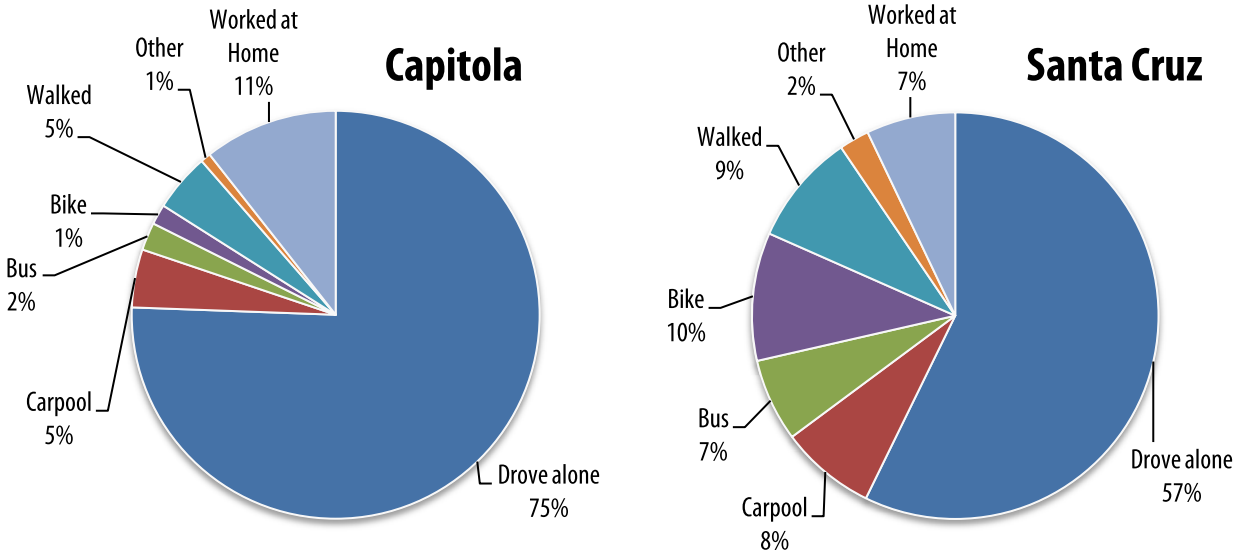
While the above mode split data are representative of all trips, the American Community Survey (ACS) provides a comparison of the ways Santa Cruz County residents get to work (**Figure 3.16**). The convenience of driving alone still attracts the majority of people and the percent of people driving by themselves to work has not changed significantly since 2000 (**Figure 3.16**). Even though the majority of work trips are made by people driving an automobile, people also travel to work by transit, carpool, vanpool, bicycle, and by foot. The chance to get some exercise, be productive while carpooling or taking transit, concerns about the environment and/or the opportunity to save some money are all stated reasons to consider alternatives to driving alone. There has been an increase in the number of people biking to work and working from home but the number of people carpooling to work in Santa Cruz County has declined since 2000. The difference between reported results for travel by mode for all trips in Santa Cruz County and only work trips in Santa Cruz County may be explained by an increase in active transportation trips for non-work purposes such as shopping, social, and recreation trips. Non-work trips may be shorter and more readily amenable to a shift from auto to biking and walking. Higher gasoline prices, a weak economy and changing generational preferences may also result in less driving according to a 2013 study by the U.S. Public Interest Research Group and Frontier Group[18].

| Mode to Work | CTPP2000 | | 2011-2015 ACS | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| **Total Workers** | 126,105 | 100.0 | 128,145 | 100.0 |
| Drove alone | 87,690 | 69.5 | 89,590 | 69.9 |
| 2-person Carpool | 13,205 | 10.5 | 9,083 | 7.1 |
| 3-or-more-person Carpool | 4,705 | 3.7 | 2,896 | 2.3 |
| Public Transportation | 4,105 | 3.3 | 3,717 | 2.9 |
| Bike | 2,585 | 2.0 | 4,812 | 3.8 |
| Walked | 5,600 | 4.4 | 4,996 | 3.9 |
| Taxi, Motorcycle and Other means | 1,470 | 1.2 | 3,655 | 2.9 |
| Worked at Home | 6,745 | 5.3 | 9,396 | 7.3 |

**Figure 3.16 – Mode Share for Work Trips in Santa Cruz County**

*Source: U.S. Census Bureau, American Community Survey*

The 2011-2015 American Community Survey (5-year estimate) indicates that there is a significant difference between the way residents of the four cities in Santa Cruz County travel to work (**Figure 3.17**). Residents of Watsonville used carpooling more often than the other cities as an alternative to driving alone whereas residents of the City of Santa Cruz used a mix of different transportation alternatives. City of Santa Cruz has the least number of drive alone trips likely due to the land use that includes proximity of jobs to housing, high bus use by UCSC students, extensive bicycle lane network, and other transportation infrastructure that is in place. Capitola and Scotts Valley have the greatest number of residents working from home but also the greatest percentage of drive alone trips. This mode share data shows people's travel preferences are influenced by the type of land use and transportation facilities that are available in their community. This information is valuable for assessing how the number of trips driving alone could be reduced further in each of the cities.



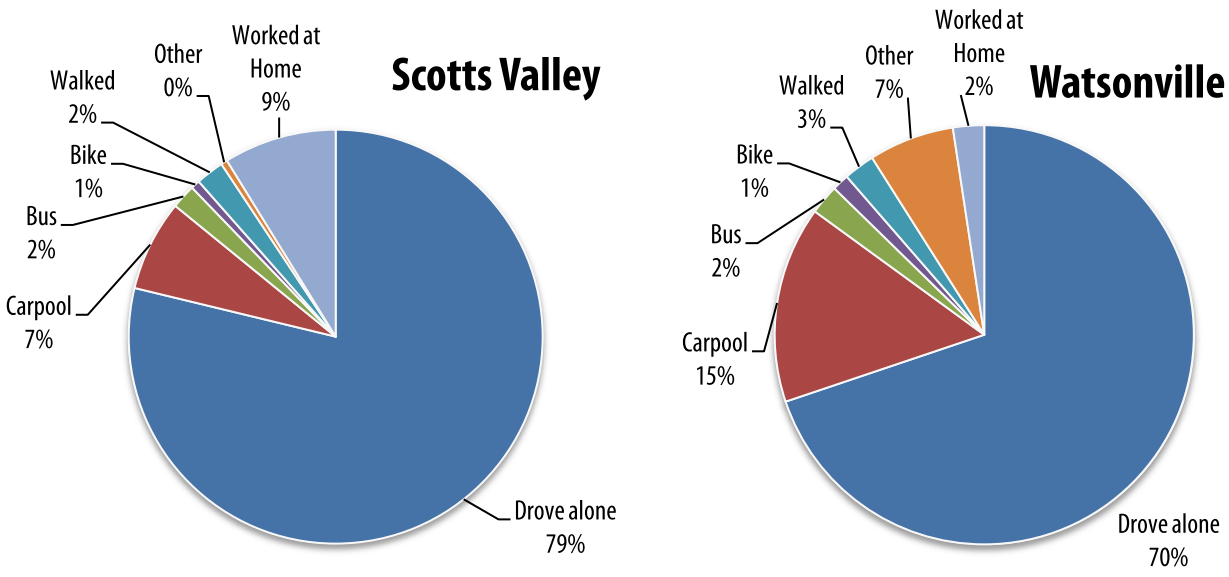



**Figure 3.17 – Mode Share for Work Trips by City of Residence**
*Source: 2011-2015 American Community Survey*

## Bicycle Use

Bicycle count surveys have been conducted at approximately 40 locations countywide by the Community Traffic Safety Coalition during peak travel periods (4:00 pm to 6:00 pm) since 2003. Results of these counts show the greatest number of bicyclists in the City of Santa Cruz and mid-County including Capitola. Based on the data collected at these locations, there was a decrease in bicycle ridership in Santa Cruz County in 2014 through 2016. (**Figure 3.18**).

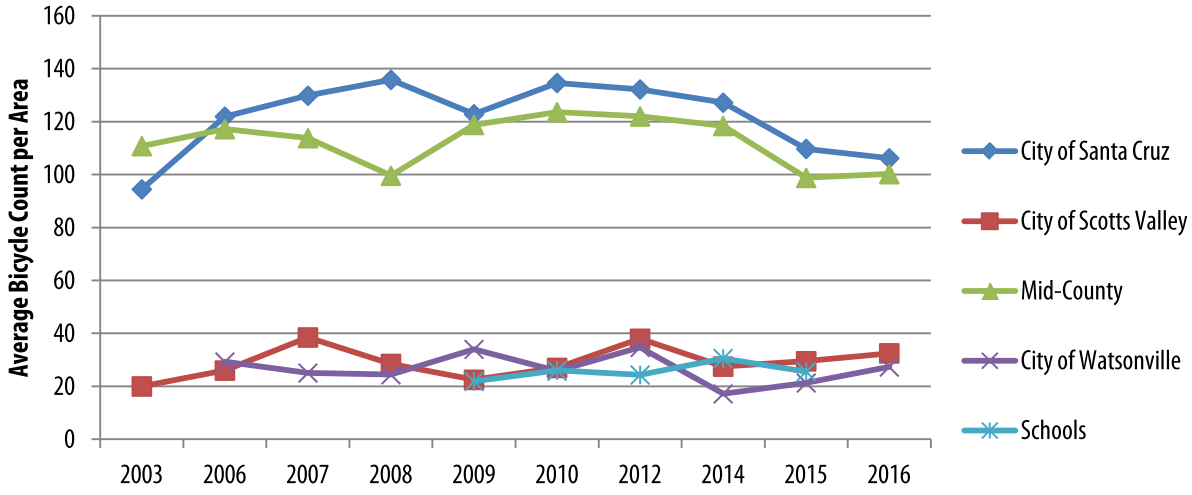
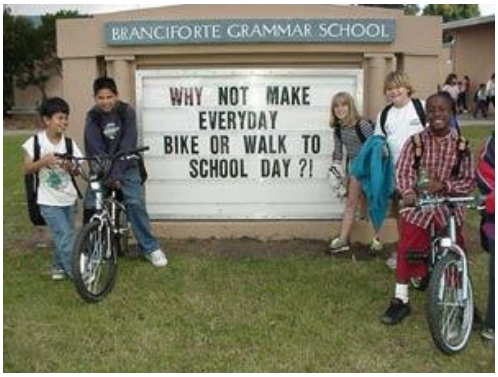



**Figure 3.18 – Countywide Bicycle Counts from 2003-2016**
*[Note: Counts were taken for 2 hours at all locations except schools where counts were taken for 1 hour.]*
*Source: Data collected by Community Traffic Safety Coalition*

## School Trips

Due to safety concerns and urban sprawl, most parents drive their children to school. According to the Surface Transportation Policy Project, two-thirds of the country's children walked or biked to school 30 years ago; now, less than 10% do so. This phenomenon has led to a sharp increase in short-distance trips made by car, evidenced by the traffic surrounding elementary and secondary schools at the beginning and end of the school day. By some estimates, 20 to 25% of rush-hour traffic on local roads and streets can be attributed to school commutes. Travel to the University of California and community college campuses also impact peak period traffic.




## Less Trips

Not only are people changing how they get around, there are also a number of reasons why people are traveling less altogether. Technological advances, including laptop computers, remote connectivity, wireless networks, cell phones and other mobile devices have made it possible for individuals to work in locations other than traditional worksites. The American Communities Survey from 2011-2015 estimated that 7.3% of employees residing in Santa Cruz County work at home, either part or all of the time, up from 5.3% in 2000 (**Figure 3.16**). Avoiding traffic congestion, gas prices, and/or environmental concerns can also be motivators to decide to shop closer to home or plan ahead by linking a few errands together that are close by to avoid extra trips.

## Transportation Equity

Investments in transportation determine the choices that are available for how we travel. Low-income people, people with disabilities, seniors, youth and minorities can often be disproportionately limited by the transportation choices available to them. The cost of car ownership or inability to drive, underinvestment in public transportation, and a lack of pedestrian and bicycle-accessible thoroughfares can isolate transportation disadvantaged people from jobs, services and medical care.

Within the county, there is substantial variation in age and income. **Figure 3.19** shows the areas in Santa Cruz County with the greatest populations of transportation disadvantaged people due to race and income. **Figure 3.20** shows the distribution of youth and senior populations in Santa Cruz County. Nearly one-third of Santa Cruz County residents—notably children, the elderly and disabled, and low-income individuals and families who cannot afford a car—do not drive a personal vehicle (**Figure 3.21**). For people who do not drive a personal vehicle, access to convenient transit service and safe routes to walk or ride a bike are a life line.

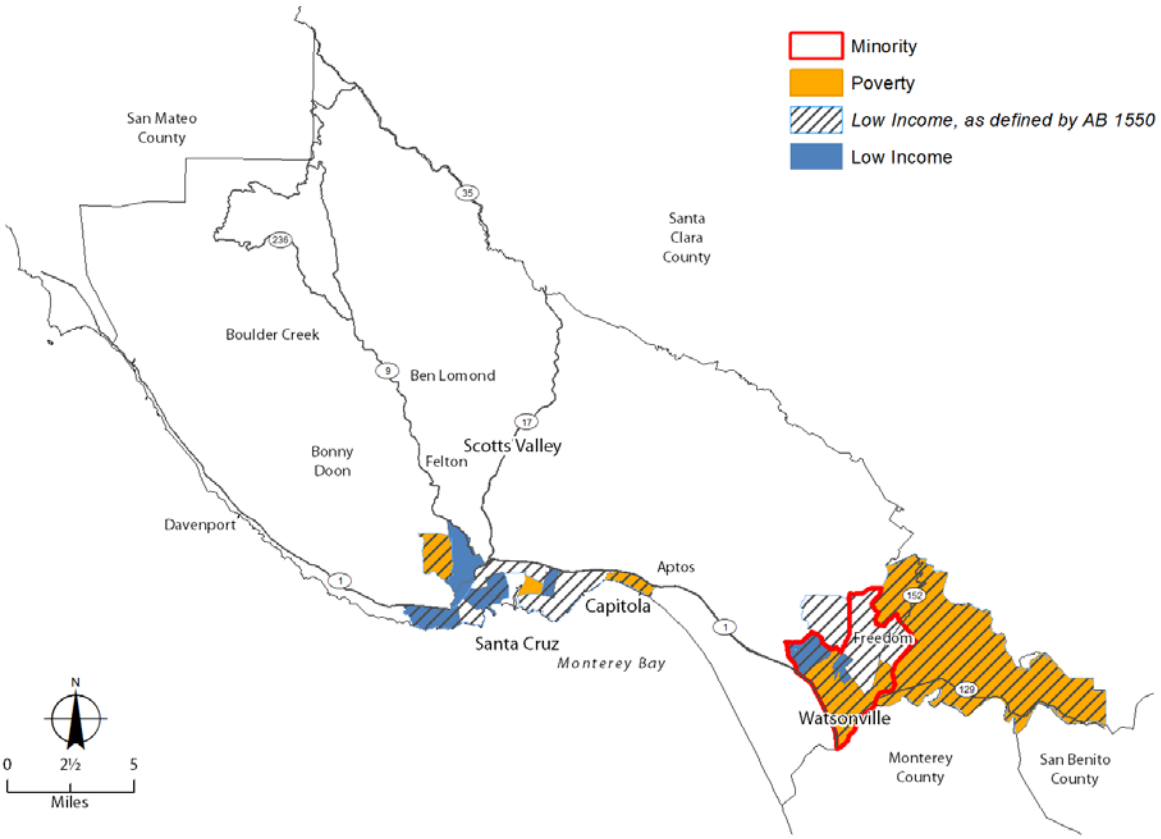



**Figure 3.19 – Minority, Low Income and Poverty Areas in Santa Cruz County**

*Note: These areas meet the regional definition of Disadvantaged Community or DAC, which includes areas with higher concentrations of residents that are low or very low income and minority-based. Minority areas are defined as census tracts where greater than 65% of the total population is non-white; low income areas are defined as census tracts where greater than 65% of households are low income or where incomes are at or below the low income threshold designated by the California Department of Housing and Community Development's income limits under AB1550; and poverty areas are defined as census tracts where greater than 20% of households are categorized as poverty.*
*Source: U.S. Census Bureau, AMBAG; Assembly Bill 1550*

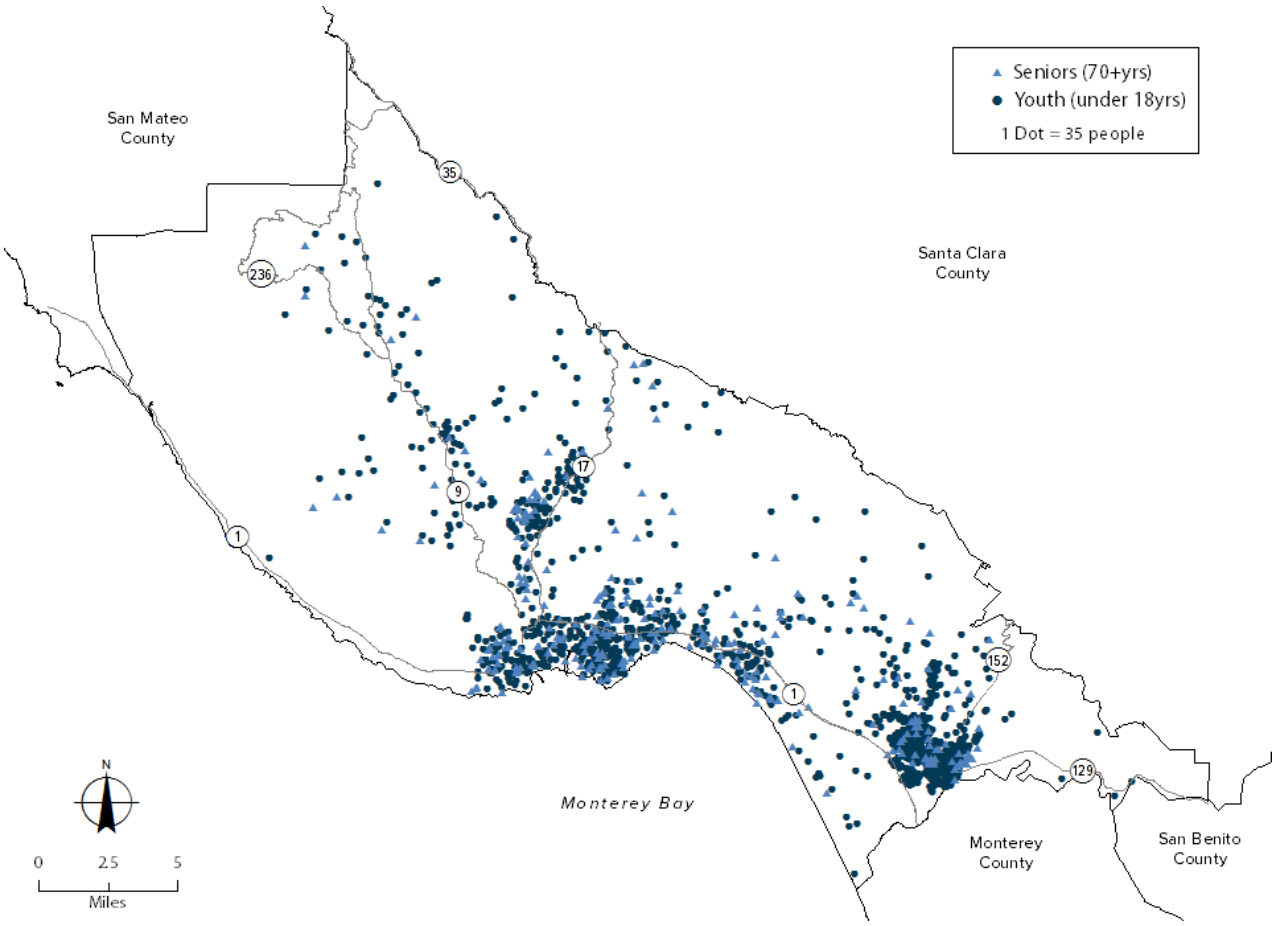



**Figure 3.20 – Distribution of Senior and Youth Populations in Santa Cruz County**

*Source: U.S. Census Bureau, 2010 Census*

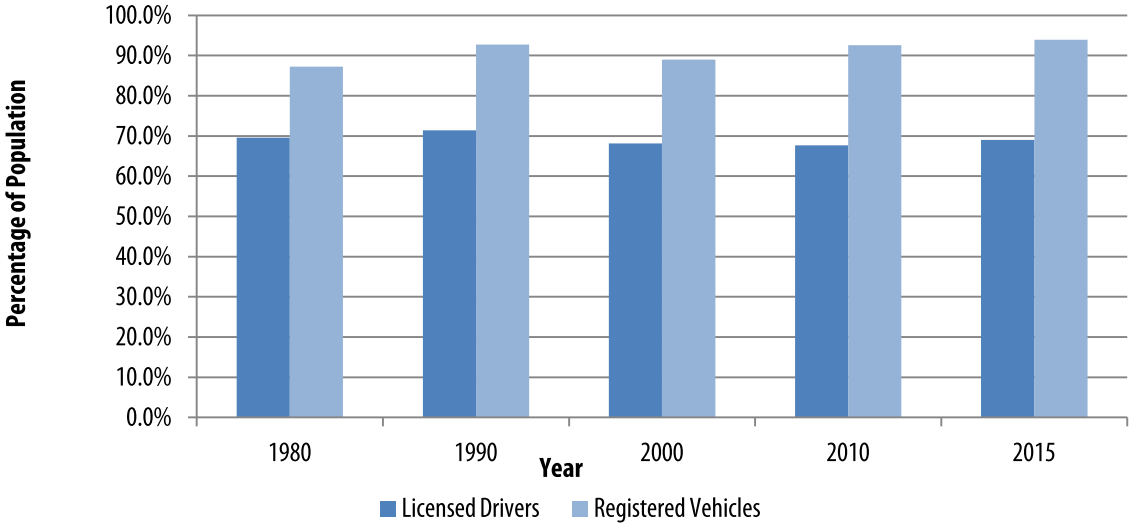



**Figure 3.21 – Historical Trends in Licensed Drivers and Registered Vehicles in Santa Cruz County**

*Source: Department of Motor Vehicles and Census*

Variations in growth rates between age groups are distinct in Santa Cruz County. While the Association of Monterey Bay Area Governments (AMBAG) currently projects a total population increase of 12% between 2015 and 2040, there is only a0.3% increase in the population under 70 and those 70 and older are expected to grow by 138% through 2040 (**Figure 3.22**). Seniors age 70 and over make up about 8.6% of the population today and will make up about 18% of the population by 2040. This demographic shift will impact both the economy and local transportation needs of our community.

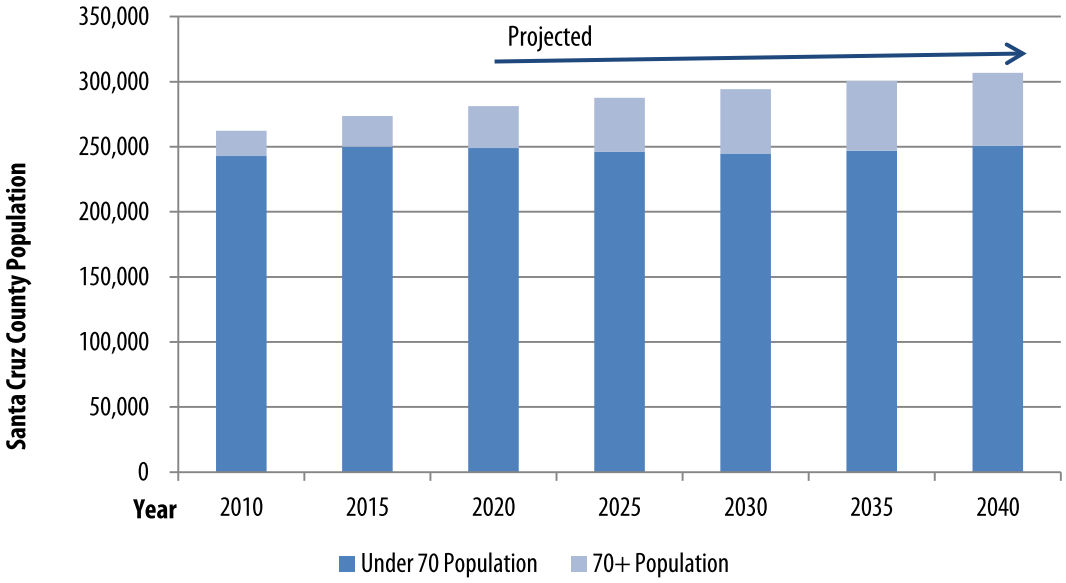



**Figure 3.22 – Population Projections for Seniors Age 70 and Over**

*Source: AMBAG*

As a result of this projected growth in the senior population, Santa Cruz County could potentially experience a greater demand for mobility of aging and disabled adults. Expecting to continue driving well into their later years, many older adults will not anticipate life without a car. Furthermore, it has been well documented that many older adults will retire in or migrate to low density suburban areas, characterized by single family homes, that are poorly served by public transit or lack adequate pedestrian facilities. Older adults no longer able to drive could face severe mobility deficiencies such as isolation, lack of access to social or medical needs, and increased risk of accidents. Survey results taken at five senior dining centers in Santa Cruz County indicate that the majority of respondents (43%) drive themselves as their primary form of transportation.[19] Next to driving, the most common means of transportation is bus use at 16 percent, followed by getting a ride with friends/family and walking. While the automobile was the most common means of transportation among respondents, approximately 41 percent of respondents reported using the bus at least once in the past month.

According to the American Community Survey 2011-2015 5 year summary, over 9% of the total population in Santa Cruz County has one or more disabilities. Of this population, 63% are seniors (defined as persons over the age of 65 years). This is particularly important considering that the number of seniors, age 70 or greater, residing in the county is expected to grow significantly by 2035 as the "Baby Boomer" population ages and seniors are living longer (**Figure 3.22**). This projected increase in the senior population could increase the number of individuals with disabilities in Santa Cruz County.

Providing for the needs of transportation disadvantaged individuals due to age, income, race, disability or limited English proficiency is a crucial part of the 2040 RTP. According to the Surface Transportation Policy Project's *Beyond Gridlock* report (2000), unless we provide more alternative transportation facilities and services, "the next generations of California parents may well see their time spent behind the wheel continue to rise as they play chauffeur to both their kids and their own parents."

## Notes for Chapter 3

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[2] "Industry Employment & Labor Force - by Month," California Employment Development Department, Labor Market Information Division (LMI), http://www.labormarketinfo.edd.ca.gov/data/employment-by-industry.html

[3] "Unemployment Rates (Labor Force)," State of California, Employment Development Department, accessed October 2017, http://www.labormarketinfo.edd.ca.gov/cgi/dataanalysis/labForceReport.asp?menuchoice=LABFORCE

[4] "OnTheMap, Area Profile Analysis in 2015 by All Jobs" U.S. Census Bureau, Center for Economic Studies, accessed October 2017, http://onthemap.ces.census.gov.

[5] A. Santos, N. McGuckin, H.Y. Nakamoto, D. Gray, and S. Liss, "Summary of Travel Trends, 2009 National Household Travel Survey," U.S. Department of Transportation, Federal Highway Administration (June 2011), http://nhts.ornl.gov/2009/pub/stt.pdf.

[6] California Department of Transportation, Highway Performance Monitoring System, "2015 California Public Roads Data", http://dot.ca.gov/hq/tsip/hpms/datalibrary.php

[7] NuStats Research Solutions, "2010-2012 California Household Travel Survey Final Report, Version 1.0," California Department of Transportation (2013), http://www.dot.ca.gov/hq/tsip/otfa/tab/documents/chts_finalreport/FinalReport.pdf.

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[9] "Santa Cruz County 2016 Crop Report," County of Santa Cruz, Office of the Agricultural Commissioner, http://ucanr.org/sites/Farm_Management/files/132235.pdf.

[10] "US 101 Central Coast California Freight Study Final Report", Association of Monterey Bay Area Governments (2016). http://ambag.org/programs/freight/1_Finished_Final_AMBAG_US101CCCFrtStudy_FinalReportCombined_REV.pdf

[11] Cambridge Systematics, "Central Coast California Commercial Flows Study," Association of Monterey Bay Area Governments (2012).

[12] See note 11 above.

[13] See note 11 above

[14] See note 11 above

[15] See note 11 above.

[16] See note 11 above

[17] "Millennials and Mobility: Understanding the Millennial Mindset," American Public Transportation Association (2013), http://www.apta.com/resources/reportsandpublications/Documents/APTA-Millennials-and-Mobility.pdf.

[18] Tony Dutzik and Phineas Baxandall, "A New Direction: Our Changing Relationship with Driving and the Implications for America's Future," U.S. PIRG Education Fund, and Frontier Group (Spring 2013), http://www.uspirg.org/sites/pirg/files/reports/A%20New%20Direction%20vUS.pdf.

[19] Karena Pushnik and David Pape, "A Bus Use Survey Of Aging and Disabled Adults Living In Santa Cruz County," Santa Cruz County Regional Transportation Commission (January 2013).

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# CHAPTER 4 Vision for 2040

## Goals and Policies

The Santa Cruz County Regional Transportation Plan (2040 RTP), through its goals and policies, sets forth a foundation for expanding options for residents and visitors to access their daily needs in a way that is safe, equitable, protects the environment and promotes investment in the local economy. This is advanced by designing and implementing a transportation system that serves our diverse travel needs and embraces the principle that transportation is intertwined with environmental, economic and social concerns.

As discussed in **Chapter 1**, driven by financial limitations, environmental concern, and demographic trends, the RTC voluntarily has adopted a sustainability framework for the RTP that is based on the triple bottom line definition of sustainability. The triple bottom line concept of sustainability can be seen in every aspect of the 2040 Regional Transportation Plan starting with the goals (**Figure 4.1**) and policies (**Figure 4.2**). Systematically integrating sustainable principles into the 2040 RTP allows the RTC and the public to evaluate how well the long term plan upholds and maintains progress towards generating safe, equitable, and cost-effective access to daily needs, while at the same time generating economic benefits and protecting the environment.

## Why Do Policies Matter?

Success in advancing goals relies upon policies that provide direction to the public and decision makers about what course of action will be required to realize the greatest benefit by 2040. The policies established for the 2040 RTP support outcomes, rather than specific projects or modes. The policies (**Figure 4.2**) are designed to focus future investments on the best-performing strategies which generate the desired results and work within financial constraints. They are broad enough to adapt to changing conditions and take advantage of new opportunities, and are not too specific to confine investments to one project or project type.

| | | |
|---|---|---|
| **GOAL 1** | **Establish livable communities that improve people's access to jobs, schools, recreation, healthy lifestyles and other regular needs in ways that improve health, reduce pollution and retain money in the local economy.** | There is a strong relationship between achieving access, health, and economic benefits and climate and energy goals. For example, more carpool, transit and bicycle trips reduce fuel consumption, retain money in the local economy, and reduce congestion. |
| **GOAL 2** | **Reduce transportation related fatalities and injuries for all transportation modes.** | Safety is a desired outcome of many transportation investments and operations. Invest in projects/programs that will help to reduce pedestrian, bicyclist and motor vehicle fatalities and injuries. |
| **GOAL 3** | **Deliver access and safety improvements cost effectively, within available revenues, equitable and responsive to the needs of all users of the transportation system and beneficially for the natural environment.** | The manner in which access and safety outcomes referenced in Goal 1 and Goal 2 are delivered can impact cost-effectiveness, distribution of benefits amongst population groups, and ecological function. |

**Figure 4.1 – Goals of the 2040 Regional Transportation Plan**
*Source: Santa Cruz County Regional Transportation Commission*

| ***Sustainability Policies*** | ***Outcomes Advanced*** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ***People*** | | | | ***Prosperity*** | | ***Planet*** | |
| | ***Access & Mobility*** | ***Health*** | ***Safety*** | ***Equity*** | ***Economic Benefit*** | ***Cost Effectiveness*** | ***Climate & Energy*** | ***Ecological Function*** |
| *Transportation System Management:* Implement Transportation System Management (TSM) programs and projects on major roadways across Santa Cruz County that increase the efficiency of the existing transportation system. | ✓ | | | | ✓ | ✓ | ✓ | |
| *Transportation Demand Management:* Expand demand management programs that decrease the number of vehicle miles traveled and result in mode shift. | ✓ | ✓ | | | ✓ | | ✓ | |

| Sustainability Policies | Outcomes Advanced | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | People | | | | Prosperity | | Planet | |
| | Access & Mobility | Health | Safety | Equity | Economic Benefit | Cost Effectiveness | Climate & Energy | Ecological Function |
| *Transportation Infrastructure:* | | | | | | | | |
| Improve multimodal access to and within key destinations. | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| Ensure network connectivity by closing gaps in the bicycle, pedestrian and transit networks. | ✓ | ✓ | ✓ | | ✓ | | ✓ | |
| Design systems to reduce the potential for conflict between bicyclists, pedestrians, and vehicles. | ✓ | | ✓ | ✓ | ✓ | | | |
| *Land Use:* Support land use decisions that locate new facilities close to existing services, particularly those that service transportation disadvantaged populations. | ✓ | | | ✓ | | ✓ | | ✓ |
| *Safety:* | | | | | | | | |
| Prioritize funding for safety projects and programs that will reduce fatal or injury collisions. | | | ✓ | | | | | |
| Encourage projects that improve safety for youth, vulnerable users and transportation disadvantaged. | | | ✓ | ✓ | | | | |
| *Emergency Services:* Support projects that provide access to emergency services. | ✓ | | ✓ | | ✓ | | | |
| *Cost Effectiveness & System Maintenance:* Maintain and operate the existing transportation system cost-effectively and in a manner that adapts the current transportation system to maximize existing investments. | ✓ | | ✓ | | | ✓ | | |
| *Coordination:* Improve coordination between agencies in a manner that improves efficiencies, and reduces duplication (e.g. paratransit and transit; road repairs; signal synchronization; TDM programs). | | | | | | ✓ | | |

| Sustainability Policies | Outcomes Advanced | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | People | | | | Prosperity | | Planet | |
| | Access & Mobility | Health | Safety | Equity | Economic Benefit | Cost Effectiveness | Climate & Energy | Ecological Function |
| *System Financing:* Support new or increased taxes and fees that reflect the cost to operate and maintain the transportation system. | | | | | | ✓ | | |
| *Equity:* Demonstrate that planned investments will reduce disparities in safety and access for transportation disadvantaged populations. | ✓ | | ✓ | ✓ | | | | |
| *Ecological Function:* Deliver transportation investments in a way that increases tree canopy, where appropriate, improves habitat and water quality and enhances sensitive areas. | | | | | | | | ✓ |
| *Public Engagement:* Solicit broad public input on all aspects of regional and local transportation plans, projects and funding actions. | | | | ✓ | | | | |

**Figure 4.2 – Policies of the 2040 Regional Transportation Plan and Outcomes they Advance**
*Source: Santa Cruz County Regional Transportation Commission*

## Sustainable Rating System

Sustainable Transportation Analysis & Rating System

For the 2014 RTP, the RTC utilized a rating system called the Sustainable Transportation Analysis Rating System (STARS), which provides an integrated set of performance measures to support development of a sustainable transportation plan. Developed by the North American Sustainable Transportation Council (STC), the STARS framework for integrating sustainability served as a model for the RTC to better align policies with desired community outcomes. A key component of the STARS system is identifying primary performance measures that achieve many sustainability objectives. These measures are referred to as "heavy-lifters;" and often address multiple aspects of the Triple Bottom Line. The goals, policies and targets included in the 2040 Regional Transportation Plan are based on the 2014 RTP goals, policies and targets and have only been updated where necessary based on new information. These goals and polices are consistent with state and federal transportation

planning policies, guidelines and requirements including SB 375 required Sustainable Communities Strategy, Complete Streets, and the Smart Mobility Framework developed by Caltrans.

# Key Considerations

## GHG Emissions, Senate Bill 375 and Senate Bill 32

One of the key considerations in developing the goals, policies and targets was to address greenhouse gas emissions. The California Sustainable Communities and Climate Protection Act of 2008 (SB 375) requires each of the state's 18 metropolitan areas to reduce per capita greenhouse gas emissions from cars and light trucks. AMBAG is responsible for developing a Sustainable Communities Strategy (SCS) as part of the Metropolitan Transportation Plan that coordinates land use and transportation planning to reach the greenhouse gas (GHG) reduction target established for the tri-county region. The goals, policies and targets that were developed for the Santa Cruz County Regional Transportation Plan strive to reduce GHG emissions from transportation and are consistent with the AMBAG Sustainable Communities Strategy and the goals of Senate Bill 375.

In 2016, Senate Bill 32 was passed that requires greenhouse gas emissions statewide to be reduced to forty percent below the 1990 levels by 2030. This GHG emission reduction requirement is for all sectors. The percent reduction from transportation can come from a reduction in vehicle miles traveled as well as improvements in vehicle technology like electric and hybrid vehicles, and improvements in fuel standards that reduce the level of carbon in fuel.

## GHG Emissions and California Transportation Plan

Senate Bill 391 (SB 391, 2009) requires the California Department of Transportation to prepare the California Transportation Plan to demonstrate how GHG emissions from transportation will be reduced to 1990 levels by 2020 and 80% below 1990 levels by 2050 as described in AB 32 and Executive Order S-03-05. The bill requires the plan to identify the statewide integrated transportation system needed to achieve these results and to demonstrate how the major metropolitan areas, rural areas, and state agencies can coordinate planning efforts to achieve critical statewide goals. The *2040 California Transportation Plan* was developed in 2015 and is required to be updated every 5 years. The 2040 RTP is consistent with the 2040 California Transportation Plan.

## National Transportation Performance Measures

In 2012, the national transportation reauthorization bill, Moving Ahead for Progress in the 21st Century (MAP-21) was signed into law. MAP-21 required the Federal Highway Administration (FHWA) to establish transportation performance measures that make progress toward the following national goals:

- Safety—to achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- Infrastructure condition—to maintain the highway infrastructure asset system in a state of good repair.
- Congestion reduction—to achieve a significant reduction in congestion on the National Highway System (NHS).

- System reliability—to improve the efficiency of the surface transportation system.
- Freight movement and economic vitality—to improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
- Environmental sustainability—to enhance the performance of the transportation system while protecting and enhancing the natural environment.
- Reduced project delivery delays—to reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

MAP-21 also required each State and Metropolitan Planning Organizations to set performance targets for these measures. The FAST Act, the successor federal act, continues MAP-21's performance management approach, within which States invest resources in projects that collectively will make progress toward national goals. The goals, policies, targets and project list established for the 2040 RTP are consistent with the national performance measures.

The safety target was the first performance measure to go into effect. Caltrans, in cooperation with the Office of Traffic Safety, has adopted 5 safety targets for the 2018 calendar year to monitor the number and rate of fatalities and injuries including separate targets for non-motorized travel. MPOs can decide to either use the same safety targets as the state or establish their own. Targets are established annually. Additional performance measure targets that the State will be required to meet will be established in the near future.

The FAST Act requires that if the State has failed to meet (or to make significant progress toward meeting) its performance targets, the State must describe in its next performance report to FHWA the actions it will take to achieve these targets. State DOTs and MPOs will be expected to use the information and data generated as a result of the performance management regulations to inform their transportation planning and programming decisions.

## Complete Streets

Another key policy consideration in the 2040 Regional Transportation Plan is planning for complete streets. The California Complete Streets Act of 2008 requires cities and counties to identify how the needs

of all users of the transportation system will be accommodated in the circulation element of their general plan. This includes pedestrians, transit riders, bicyclists, and motorists, regardless of ages and abilities. With the goal of creating roadways that safely and comfortably provide for all users, creating a network of complete streets will make progress towards every one of the 2040 Regional Transportation Plan goals. Complete Streets are equitable, healthy, cost-effective, good for environment, and improve access to goods and services. The RTC, in collaboration with AMBAG, TAMC, and SBCOG, published a Monterey Bay Area Complete Streets Guidebook in 2013. The guidebook provides resources to local jurisdictions for developing streets in the Monterey Bay Area that meet the needs of all users, including non-drivers of all ages and abilities, and help reduce greenhouse gas emissions by encouraging bicycle, pedestrian and transit usage. Items from the checklist that is included in the guidebook are integrated into RTC grant applications as a means to assist local agencies in integrating complete streets components into projects.

Threading complete streets throughout the goals and policies creates a shift in planning primarily for cars to increasing focus on the movement of people using all modes. One way of looking at it is: if people are the lifeblood of a community, then streets are its veins and arteries. From the complete streets perspective, streets not only serve the traditional role of connecting people to important destinations quickly, but they can serve as destination themselves, as places to walk with friends, ride a bicycle, view public art or enjoy social interactions.

## Health and Assembly Bill 441

Health and health equity concerns have also been incorporated into the goals, policies and targets of the 2040 Regional Transportation Plan. Assembly Bill 441, championed by local Assemblyman Bill Monning and signed by Governor Brown in September 2012, acknowledges that California and the nation are facing unprecedented levels of chronic disease, which now accounts for approximately 73 percent of all deaths in California[1] and 75 percent of all United States health care expenditures[2]. The health of California's population is largely determined by the environments in which people live. These environments, including the transportation infrastructure, shape the choices that people make every day. Assembly Bill 441 requires the California Transportation Commission (CTC) to promote health and health equity as part of the Regional Transportation Plan guidelines. In the 2017 revision of the RTP guidelines, the CTC provided a summary of the policies, practices, or projects that have been employed by metropolitan planning organizations that promote health and health equity.

## Social Equity and Environmental Justice

The inclusion of the entire range of community interests in the development of the RTP is a key element in the process and is required by both federal and state law. Providing more transportation and mobility choices such as increased transit, bicycle, and pedestrian facilities, increases opportunities for all segments of the population at all income levels. Each region is required by federal regulation and state law to plan for and implement transportation system improvements that will benefit all residents. Title VI of the federal Civil Rights Act of 1964, Section 11135 of the California Government Code, and Executive Order 12898 on Environmental Justice require planning agencies to be sensitive to how all residents, particularly low-income communities and communities of color, may be impacted by possible

transportation and land use changes identified in the RTP. Existing federal regulations require the RTC to ensure that any planned regional transportation improvements do not have a disproportionate adverse impact on low income or other under-represented groups, and that minority and low-income populations receive equal benefits, on an equally timely basis, as other populations. Caltrans, as part of the statewide transportation plan, includes a policy to "Integrate health and social equity in transportation planning and decision making." Social equity factors considered in development of the 2040 RTP include transportation affordability and access to transportation. The 2040 RTP has been developed to address the transportation needs of the entire community, and attempts to ensure that no one community bears more of the benefits or burdens of transportation investments than any other. RTP sustainability policies and targets include specific measures focused on the needs of people who are "transportation disadvantaged[3]" due to income, age, race, disability or of limited English proficiency. In accordance with Title 23 CFR Part 450.316(a)(1)(vii) the RTC has worked with the Association of Monterey Bay Area Governments (AMBAG) to develop a public participation plan which describes explicit procedures, strategies and desired outcomes for seeking out and considering the needs of those traditionally underserved by existing transportation systems, such as low-income and minority households, who may face challenges accessing employment and other services.

## Targets

The Santa Cruz County Regional Transportation Plan identified measurable outcomes, called targets for the first time in the 2014 RTP. Voluntarily establishing targets, each linked to a sustainability goal, utilizes performance-based planning to inform investment priorities to create the desired future. Striving to reach specific and measurable outcomes is consistent with the STARS recommended approach of backcasting. Backcasting allows communities to collectively focus on what they want to see happen, then select, evaluate and implement projects and programs that move the community toward these agreed upon outcomes.

The targets have been updated for the 2040 RTP and are shown in **Figure 4.3**. The adopted targets are intended to be aggressive, but reasonably obtainable. Unlike more broadly scoped community plans, the adopted targets focus on areas that transportation policies can affect. The targets reflect community input received **(Appendix A)**. They were carefully crafted to be consistent with state and federal goals, and to work with available data and travel demand model outputs.

The adopted goals, policies and targets were used to prioritize projects for funding in the transportation investment program portion of the 2040 RTP. Incorporating targets into the goals and policies enables the Regional Transportation Commission to assess how well the long range plan will perform over time. Details on monitoring performance of the transportation system in advancing the targets are discussed in **Chapter 7 – System Performance**. The complete list of goals, policies and targets for the 2040 RTP can be found in **Appendix C**.

| Sustainability Targets | | Outcomes Advanced | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | People | | | | Prosperity | | | Planet |
| | | Access & Mobility | Health | Safety | Equity | Economic Benefit | Cost Effectiveness | Climate & Energy | Ecological Function |
| **GOAL 1:** Establish livable communities that improve people's access to jobs, schools, recreation, healthy lifestyles and other regular needs in ways that improve health, reduce pollution and retain money in the local economy. | **TARGET 1A:** Increase the percentage of people that can travel to key destinations within 30-minute walk, bike or transit trip by 20 percent by 2020 and 47 percent by 2040 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | **TARGET 1Bi:** Reduce per capita fuel consumption and greenhouse gas emissions by 1 percent by 2020, 5 percent by 2035, and 6 percent by 2040 through a reduction in vehicle miles traveled and improved speed consistency. | | ✓ | | | ✓ | | ✓ | |
| | **TARGET 1Bii:** Reduce total greenhouse gas emissions from transportation by 1 percent by 2020 and 60 percent by 2040 through electric vehicle use, other emerging technologies, reduction in vehicle miles traveled and improved speed consistency. | | ✓ | | | ✓ | | ✓ | |
| | **TARGET 1C:** Reinvest in the local economy $5 million/year by 2020 and $12 million/year by 2040 from savings resulting from lower fuel consumption due to a reduction in vehicle miles traveled | ✓ | | | | ✓ | ✓ | ✓ | |
| | **TARGET 1Di:** Improve travel time reliability for vehicle trips | ✓ | | | | ✓ | | ✓ | |

| Sustainability Targets | | Outcomes Advanced | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | People | | | | Prosperity | | | Planet |
| | | Access & Mobility | Health | Safety | Equity | Economic Benefit | Cost Effectiveness | Climate & Energy | Ecological Function |
| ***cont. GOAL 1:*** Establish livable communities that improve people's access to jobs, schools, recreation, healthy lifestyles and other regular needs in ways that improve health, reduce pollution and retain money in the local economy. | **TARGET 1Dii:** Improve multimodal network quality for walk and bicycle trips to and within key destinations | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | **TARGET 1E:** Decrease single occupancy mode share by 4 percent by 2020 and 9 percent by 2040 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | **TARGET 1F:** Increase the number of active transportation trips by 5 percent of total trips by 2020 and by 18% of total trips by 2040 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| **GOAL 2:** Reduce transportation related fatalities and injuries for all modes. | **TARGET 2A:** Reduce injury and fatal collisions by mode by 20 percent by 2020 and by 60 percent by 2040 | | ✓ | ✓ | ✓ | ✓ | | | |
| | **TARGET 2B:** Reduce total number of high collision locations | | ✓ | ✓ | ✓ | ✓ | | | |
| **GOAL 3:** Deliver access and safety improvements cost effectively, within available revenues, equitably and responsible to the needs of all users of the transportation system and beneficially for the natural environment. | **TARGET 3A:** Increase the average local road pavement index to 57 by 2020 and 72 by 2040 | | | ✓ | | ✓ | ✓ | | |
| | **TARGET 3B:** Reduce number of transportation facilities in "distressed" condition by 3 percent by 2020 and 5 percent by 2040 | | | ✓ | | ✓ | ✓ | | |

| Sustainability Targets | | Outcomes Advanced | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | People | | | | Prosperity | | | Planet |
| | | Access & Mobility | Health | Safety | Equity | Economic Benefit | Cost Effectiveness | Climate & Energy | Ecological Function |
| ***cont. GOAL 3:*** Deliver access and safety improvements cost effectively, within available revenues, equitably and responsible to the needs of all users of the transportation system and beneficially for the natural environment. | **TARGET 3C:** Reduce travel times and increase travel options for people who are transportation disadvantaged due to income, age, race, disability or limited English proficiency by increasing the percentage that are within a 30-minute walk, bike or transit trip to key destinations by 20% by 2020 and 47% by 2040 | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| | **TARGET 3D:** Ensure transportation services (and impacts) are equitably distributed to all segments of the population | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| | **TARGET 3E:** Maximize participation from diverse members of the public in RTC planning and project implementation activities | | | | ✓ | | | | |

**Figure 4.3 – 2040 Regional Transportation Plan Performance Targets and Relationship to Triple Bottom Line**

*Source: Santa Cruz County Regional Transportation Commission*

## Notes for Chapter 4

1 "The Burden of Chronic Disease and Injury – California, 2013," California Department of Public Health (2013), http://www.cdph.ca.gov/programs/Documents/BurdenReportOnline%2004-04-13.pdf.

2 "Chronic Disease Prevention and Health Promotion," Centers for Disease Control and Prevention, accessed December 2013, http://www.cdc.gov/chronicdisease.

3 Transportation disadvantaged households are defined as non-white, low-income, or poverty. Transportation disadvantaged communities are defined as census tracts where greater than 65% of the total population is non-white; census tracts where greater than 65% of households are low income or census tracts where greater than 20% of households are in poverty. These definitions were determined by AMBAG for the Monterey Bay region in the 2035 Metropolitan Transportation Plan- Sustainable Communities Strategy. Transportation disadvantaged communities are also defined using the Assembly Bill 1550 definition for census tracts that are at or below the threshold designated as low income by the California Department of Housing and Community Development's income limits.

# CHAPTER 5 Funding Our Transportation System

## Introduction

In planning which programs, projects, and actions in Santa Cruz County will advance the region's goals, policies and targets, the Regional Transportation Plan (RTP) must consider how much funding will be available to support the transportation system, including maintaining existing infrastructure and services, and new transit, highway, local road, bicycle, pedestrian, and demand management projects. The total cost of the RTP investment strategy (also referred to as the constrained project list or Action Element) must be "financially constrained" based on revenues that are reasonably expected to be available. The "Financial Element" identifies the current and anticipated public revenue sources available to fund the planned transportation investments described in **Chapter 6 – Transportation Investments**. Based on financial projections for local, state, and federal revenue sources, approximately $170 million per year is expected to be available to operate, maintain and improve the multi-modal transportation system in Santa Cruz County.

The 2040 RTP includes new funding from the Measure D sales tax and new Senate Bill 1: Road Repair and Accountability Act of 2017 fuel taxes and vehicle fees to help address some of the backlog of maintenance and other transportation investments to keep people moving. After decades of state and federal underinvestment in the transportation system, a supermajority of Santa Cruz County voters approved Measure D in November 2016 which invests an additional $20 million per year into the multimodal transportation system. In April 2017, the state legislature approved Senate Bill 1 (SB1) which helps stabilize transportation funding throughout the state. SB1 is expected to provide an additional $7 million per year to the County of Santa Cruz and local cities to maintain local streets and roads, an extra $3 million per year for local transit, as well as significant investments to maintain and repair state highways, bridges, and culverts. In total, the 2040 RTP estimates that Senate Bill 1 will provide about $25 million per year on average for local and regional projects.

Unfortunately, even with this recent infusion of funding, there are considerable challenges associated with operating, maintaining, and investing in the future transportation system. Projected revenues still only generate about half of what would be needed to fund all of the projects that have been identified through 2040 (Appendix F). While anticipated revenues are insufficient to fund all of the ongoing costs to maintain the existing transportation system and to implement the full list of projects and programs that have been identified by the community, the Regional Transportation Commission (RTC), cities, the County of Santa Cruz, Santa Cruz METRO, state agencies, and other transportation providers work with

the community to set clear priorities for the constrained funds and work with state and federal representatives to identify new and innovative ways to pay for transportation infrastructure and services.

## Available Funds

Transportation programs and projects in Santa Cruz County are funded from a variety of local, state and federal funding programs. Based on current and projected revenue sources, approximately $3.75 billion from federal, state, and local funding sources are reasonably anticipated to be available to finance transportation projects in Santa Cruz County through 2040 (**Figure 5.1**). A list of the specific local, state, and federal funding programs and sources is shown in **Appendix E.**

As shown in **Figure 5.2** and **Appendix E,** the public and businesses contribute to transportation funding programs through taxes and fees, primarily collected at the gas pump and at cash registers. Truck weight fees and a portion of automobile registration fees also help fund some local transportation projects and repay state debt service on past state transportation bonds.

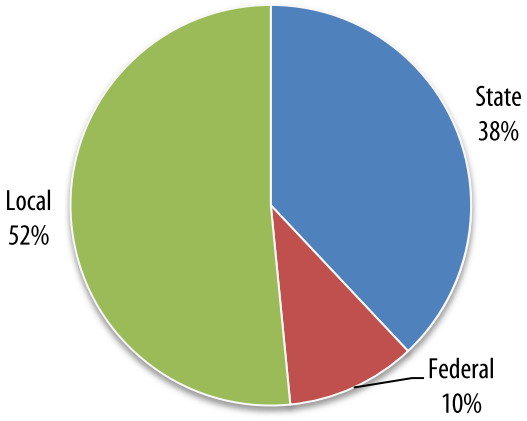



**Figure 5.1 – 22-Year Revenue Forecast – $3.75 Billion (2018 Dollars)**

*Source: SCCRTC*

**Local Revenues:** As summarized in **Figure 5.1**, although federal and state funding for transportation is critical, over 50% of anticipated revenues come from local sources, primarily local sales taxes, transit fares, and city general funds.

**State Revenues.** State revenues, including state gasoline and diesel taxes and fees that are allocated by formula to cities, the County of Santa Cruz, and transit, make up approximately 38% of revenues available for transportation projects in Santa Cruz County. About half of state funds expected to be available in Santa Cruz County are allocated by the California Transportation Commission (CTC) to Caltrans to operate, maintain, and improve safety on the state highway system.

**Federal Revenues.** Federal funding is generated from per gallon federal gasoline taxes, which have not increased since 1993, and are supplemented by Federal general funds deposited in the "Highway Trust Fund" (HTF). The amount of federal funding available, types of programs funded, and rules associated with those funds is based on the federal transportation act. In 2015, Congress approved the Fixing America's Surface Transportation Act (FAST Act), the first long-term transportation authorization since 2005. In Santa Cruz County, federal revenue sources total about 10% of the projected revenue through 2040. Federal funds are made available to projects in Santa Cruz County primarily through Federal Transit Administration (FTA) grant programs, safety and bridge program grants available to local jurisdictions and approximately $3.5 million per year to the region for the Surface Transportation Block Grant Program (STBG).

Depending on the federal transportation act (currently the FAST Act), annual appropriations bills, the California and local budgets, diesel and gasoline consumption, and the general condition of the local and global economy, funding levels for most funding programs may change significantly from year to year.

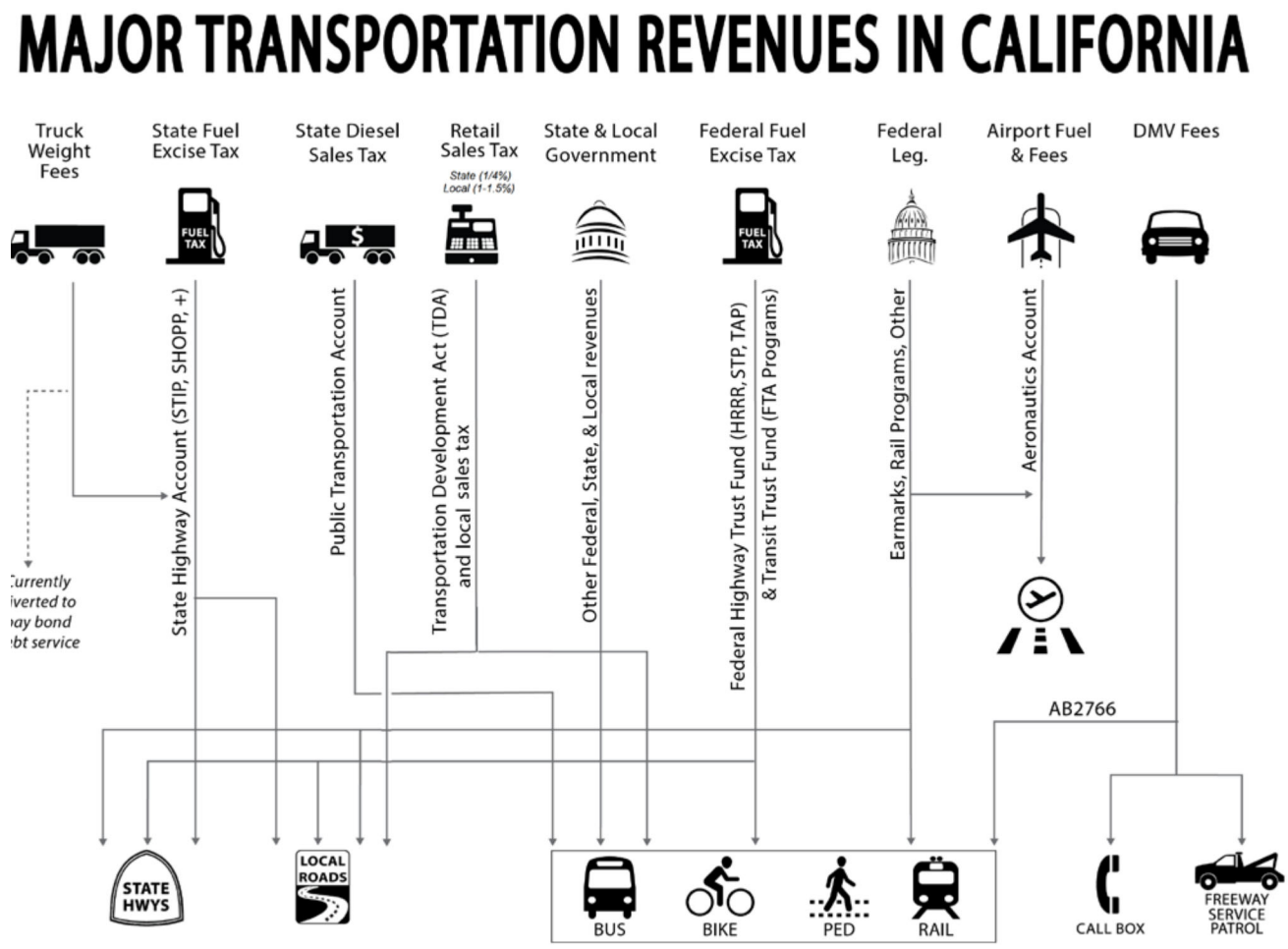



**Figure 5.2 – Major Transportation Revenues in California**

*Source: Caltrans and Santa Cruz County Regional Transportation Commission, 2017*

## Restricted versus Flexible Funds

As shown in **Figure 5.3**, of current and projected future revenue sources, most revenues available for transportation projects and programs identified in the Regional Transportation Plan (RTP) are highly restricted (or "dedicated") by federal, state, or local regulations for use by specific jurisdictions, agencies and/or types of projects. For example, some funding sources may only be applied to projects that support transit or airport facilities, while other sources are exclusively for road maintenance or capital projects on the state highways. This includes nearly $700 million in State Highway Operation and Protection Program (SHOPP) funds that can only be used for maintenance and safety projects

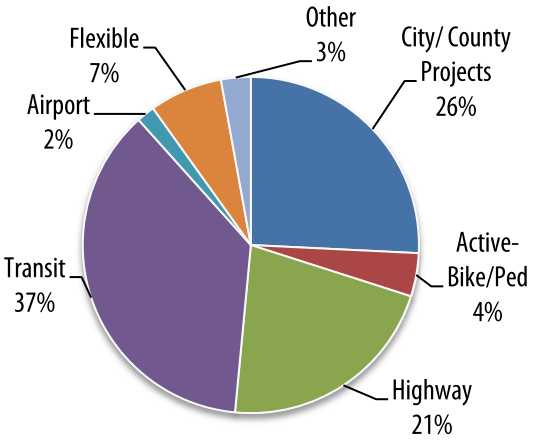



**Figure 5.3 – Funding Restrictions by project type**

*Source: SCCRTC*

on state highways through 2040. Over one third (1/3) of local, state, or federal funds can only be used on transit and paratransit projects and operations, including the local ½ cent transit sales tax (approved by Santa Cruz County voters in 1978) and rider fares designated for the Santa Cruz Metropolitan Transit District (METRO), 20% of Measure D revenues, LiftLine rider fares, and funds from the Federal Transit Administration. Most funds allocated to cities and the county can be used on a variety of projects – including local road, bicycle, and pedestrian projects. In selecting projects for the constrained investment strategy, the project list must match with the funds dedicated to specific project types or agencies.

The RTC has discretion over about 4% of the funds available for transportation projects (approximately $7 million per year). These funds are from regional shares of the State Transportation Improvement Program (STIP), Surface Transportation Block Grant Program (STBG) and SB 1- Local Partnership Program. The RTC typically distributes these funds through a competitive process based on how well projects advance the priorities identified in the RTP policy element (Chapter 4) and criteria established by the California Transportation Commission (CTC) and federal law. In addition to these discretionary funds, State Transit Assistance, Transportation Development Act, and Measure D funds flow through the RTC's annual budget to the Metro, local jurisdictions and other partner agencies by formula for purposes that are restricted by state law and the Measure D ordinance. Other agencies are responsible for selecting projects for the remaining funds.

## New Revenues

**Measure D.** In response to ongoing funding shortfalls and the large backlog of maintenance and other projects, Santa Cruz County voters approved Measure D in November 2016, a 30-year half-percent sales tax dedicated to local transportation projects and programs. Measure D provides approximately $20 million per year in stable funding for projects in Santa Cruz County, which cannot be taken away by the state. Funds are distributed by formula to cities, the County of Santa Cruz, Santa Cruz METRO, and other local transportation agencies and categories of projects, as outlined in the Measure D Ordinance and Expenditure Plan and summarized in **Figure 5.4**. With passage of Measure D, Santa Cruz County became a "self help" county, joining 85% of California's population that lives in counties whose voters approved transportation ballot measures.

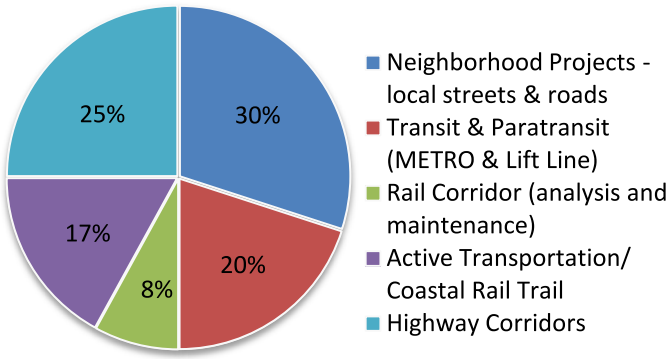



**Figure 5.4 – Measure D Investment Categories**
*Source: SCCRTC*

**Senate Bill 1.** In recognition that traditional state funding sources, such as gas taxes, have not kept pace with demands on the multimodal transportation system and the cost of transportation projects, in 2017 the California legislature stabilized transportation funding through Senate Bill 1 (SB1) - The Road Repair and Accountability Act. SB1 helps address the diminishing value of the state gasoline and diesel tax revenues by adjusting fees to address inflation (the state gasoline tax was last increased in 1994), increased fuel economy of vehicles, and the range of uses of the transportation system, while increasing transparency and accountability measures on how funds are used. About 30% of SB 1 revenues are

distributed by formula to cities and counties for local road maintenance and rehabilitation and about 35% to Caltrans to maintain the state highway system.

Because county voters have approved local sales taxes dedicated for transportation purposes, Santa Cruz County will also receive a share of $200 million that is available statewide per year through SB1. This Local Partnership Program recognizes and rewards communities that have approved local "self-help" sales taxes and fees. In addition, SB1 creates a variety of programs under which Santa Cruz County jurisdictions will be able to compete for funding. These include the Active Transportation Program for bicycle and pedestrian projects; Congested Corridors Program for highway, transit, local road, bicycle and pedestrian facilities, and restoration and preservation to protect local habitat ($250 million/year statewide); and the local planning grants program to encourage local and regional planning that furthers state goals ($25 million/year statewide). **The RTP estimates that approximately $500 million in SB 1 funds will be available for highway maintenance (SHOPP), local road, transit, and other projects through 2040.**

**California Cap & Trade Program.** As part of the implementation of AB 32 (the Global Warming Solutions Act of 2006), the California Air Resources Board (ARB) established a cap-and-trade program to cap greenhouse gas emissions (GHG) statewide. The program sets a limit or *cap* on the total amount of greenhouse gas that may be emitted and collects fees from businesses that emit greenhouse gases. While revenues from cap-and-trade auctions have fluctuated significantly, beginning in Fiscal Year 2015/16, state statutes were approved which continually designate 25% of proceeds for High Speed Rail, 10% to the Transit and Intercity Rail Capital Program (TIRCP), 5% to the Low Carbon Transit Operations Program (LCTOP) for new or expanded bus or rail service and capital projects that reduce greenhouse gas emissions, and 20% for Affordable Housing and Sustainable Communities Program (AHSC). While most of these are competitive programs that favor larger regions or areas that meet a state definition of "disadvantaged communities" (which does not apply to almost all of Santa Cruz County), the 2040 RTP assumes that local transportation programs will secure at least some of these funds over the next 22 years (nearly $30 million).

## Funding Uncertainties

Financial projections developed for the RTP reflect the best estimates currently available. These projections are meant to be used as a general tool to assist the RTC, local jurisdictions and other project sponsors in determining what projects are reasonable to pursue and prioritize in the short and long term. However, forecasting the amount of funding that will be available for transportation is a challenging and somewhat speculative exercise. Actual revenues will vary from year to year.

The availability of the funding identified in the 2040 RTP is also dependent on state, federal, and local taxes, fees, and other sources continuing to exist or being replaced with other funding mechanisms. The reliability of funding projections can also be impacted by changes in the economy, state and federal laws, environmental mandates, fuel consumption, and related gas tax revenues. Since adoption of the 2010 RTP, several funding sources that agencies had historically relied upon have been eliminated, such as the sales tax on gasoline for transportation (Proposition 42) and federal programs eliminated in 2012 with adoption of the federal transportation act MAP-21. Many local jurisdictions were particularly hard hit in 2010 by the elimination of redevelopment agencies and related funding. In Santa Cruz County, redevelopment agencies had spent millions of dollars annually on transportation projects, including roadway repairs, new sidewalks, bicycle lanes, highway projects, and transit facilities, before they were

dissolved by the California State Legislature and redevelopment funds redirected to the State General Fund.

Additionally, SB 1 revenues, approximately 14% of the constrained revenues (about $25 million/year) have been threatened and it is possible that a repeal initiative will be on the November 2018 statewide ballot. Without SB1, there would be more potholes, less funding for safety projects on highways and local roads, and Santa Cruz Metro will not be able to replace as many buses as are needed to maintain existing bus service.

*Without SB1, there would be more potholes, less funding for safety projects on highways and local roads, and Santa Cruz Metro will not be able to replace as many buses as are needed to maintain existing bus service.*

## Funding Shortfalls – A Local, State, and Federal Challenge

As noted earlier, while $170 million per year and $3.75 billion over 22 years may seem like a lot of money, $7 billion in projects and programs have been identified by local agencies and the public through 2040 (**Appendix F**). The significant shortfall in transportation funding is not unique to Santa Cruz County. The combination of state, federal and local revenues designated for transportation no longer pay for transportation projects at the same levels they have in the past. Aging infrastructure, heavier trucks and buses, rising construction costs, and new regulatory requirements could also impact project costs. Increasing traffic and expanded use of transit service, bicycles and pedestrians facilities also place increased demands on the transportation system.

Another major challenge is that transportation has historically been funded by revenues generated at the gas pump, which decline with better vehicle fuel efficiency. While use of transportation facilities and services is ever increasing, the purchasing power of state and federal gas taxes and fees has not kept pace with the cost to operate and maintain the transportation system. As more vehicles get better gas mileage or use alternative fuels or electricity, fewer gas taxes are collected for the same amount of vehicle miles traveled; so even when gas prices increase, gasoline tax revenues decline as compared to how much people drive, resulting in significantly less funding for transportation projects.

Since Federal gas taxes have not been increased since 1993, the Highway Trust Fund is regularly on the brink of going bankrupt, forcing Congress to repeatedly shift general funds to bail it out and Federal funds have been making up a declining percentage of transportation funding, down to 20% nationwide. Because our county does not have as many facilities that are considered "nationally significant" as some other areas (such as large metropolitan areas and areas serving ports or major truck routes), Federal funds make up only 12% of the transportation funds in Santa Cruz County. By 2020, unless Congress provides the highway trust fund with a more sustainable source of dedicated revenues, additional bailouts from other revenues will be needed to cover an estimated $18 billion annual gap. While federal funds make up only a portion of transportation budgets, state transportation agencies and transit agencies nationwide anticipate having to delay or cancel projects and services because of the long-term uncertainty in federal funding.

In 2018, Congress began debating a possible infrastructure funding plan, which could provide additional funding for transportation, water, and other infrastructure projects. The Trump Administration proposes using federal funds to incentivize private financing, with federal funds expected be offset by spending reductions in other areas. Given uncertainties surrounding proposals, new funding from a potential infrastructure plan are not included in the 2040 RTP. If passed, new federal funds might expedite delivery

of priority projects and allow additional projects to be implemented through 2040. While Congress and President Trump agree that the nation's infrastructure is a priority, there has been no consensus around specific programs that would be funded or how to pay for transportation system projects.

## Potential Future Revenues

Since existing revenue sources are insufficient to address all of the needs in the region, the RTP also identifies some additional strategies that could address some of the funding gaps. Potential revenue sources that do not currently exist, but which could supply significant transportation funds for our region in the future, include new vehicle weight fees and replacement of state and federal gas taxes with road user charges.

**Road User Charges**. The decline in purchasing power of gas tax revenues due to inflation and decline of revenue on a per-mile basis as vehicles become more fuel-efficient has caused leaders around the U.S. to look for alternatives for funding the transportation system. A number of states are looking towards a road usage charge (a.k.a. mileage based user fee or vehicle miles traveled-VMT fee) where drivers would pay for the roads, as they do other public utilities, based on how much they use them. With technological advancements this new approach to directly charge roadway users has become feasible. This type of system can be implemented while still protecting the privacy of road users. Road user charges will cost more to collect than the gas tax but will produce greater and more stable net revenue.

In 2016 and 2017, California conducted a pilot program to study the feasibility of a mileage-based fee to replace existing gas taxes in California. While federal and state agencies are investigating replacing the deteriorating gas tax with a road user charge based on the number of miles driven this funding option is unlikely to be realized for many years.

**Local Vehicle Registration Fees.** The RTP also assumes that a new local $10 vehicle registration fee will be approved that raises $31 million by 2040, as allowed under Senate Bill 83.

**Other potential revenues.** While not assumed to be available for constrained projects through 2040 in this RTP, examples of some of funding mechanisms other areas and states have implemented to fund transportation projects include: special assessment districts, transit benefit districts, users fees and fares, regional development fees, state general obligation bonds, tolls, vehicle sales taxes, truck and other vehicle weight fees, utility partnerships, hotel/motel lodging fees, increased general fund investments, private investments, and special grant programs.

## Methodology for Projecting Available Funds

The financial projections in this RTP are based on reasonably foreseeable revenues. The projections were calculated based on a combination of historical averages, current trends, and/or state and federal actions. In most instances, base-year figures for formula funding sources (those that the region typically receives every year according to population, road miles, or fixed factors) reflect the amount of funding available in Fiscal Year 2017/18. In other instances, historical averages were used to calculate anticipated revenues. For sporadic funding sources, the RTP's calculations use a fixed percentage of the total statewide amount available for the base-year figure, based on Santa Cruz County's share of the state population.

Financial projections were developed in coordination with partner agencies in the Monterey Bay region, including the Association of Monterey Bay Area Governments for federally-mandated Metropolitan

Transportation Plan (MTP), cities, the County of Santa Cruz, Santa Cruz METRO, and other agencies providing transportation services. Projections are consistent with those figures shown in the California Transportation Commission's (CTC) State Transportation Improvement Program Fund Estimate and Federal Transportation Improvement Program (FTIP).

# CHAPTER 6 Transportation Investments

## Identifying Needs

The Action Element of the RTP is a list of programs, projects and actions needed to operate, maintain, and improve the transportation system in Santa Cruz County (**Appendix F** - Project List). The cost to implement all of these projects is $7 billion through 2040. The RTP project list strives to assess the full cost to operate, maintain, and improve all modes of the transportation system in Santa Cruz County. The project list encompasses over 570 projects aimed at meeting the transportation needs of the community through 2040.

The Action Element includes:

- Highway, local road, bicycle, pedestrian, transit, airport, goods movement, transportation demand management (e.g. carpool and traveler information), and transportation system management (e.g. signal synchronization, transit signal priority) projects;
- Operation and maintenance costs of existing transportation facilities – such as bridges, pavement, sidewalks, and public buses;
- Projects local agencies identified through their own planning processes, including transportation studies, General Plans, and capital improvement programs;
- Projects identified by members of the public and public interest groups;
- Projects recommended by RTC advisory committees;
- Projects resulting from a Complete Streets Needs Assessment, which identified projects that would increase safety and promote greater use of active transportation (biking, walking, transit) near major activity centers.

## Prioritizing Projects

The transportation needs identified in the Action Element far outweigh revenues available from 2018 through 2040. As discussed in the financial section of this plan, only $3.75 billion in local, state, and federal funds is reasonably expected to be available through 2040, but $7 billion is needed to fully fund all of the projects identified in the RTP. An additional $150 million per year in new taxes, fees, and other revenues beyond what was identified in the Financial Element (**Chapter 5**) would be required to deliver

all of the transportation projects identified in **Appendix F**. Given the significant gap between funding needs and projected revenues, the projects listed in the RTP were divided into two groups:

1. *Within Projected Funds ("Constrained") Projects* —Priority projects that could be funded over the next 22 years with reasonably foreseeable transportation revenues including dedicated and already programmed funds ($3.7 billion).

2. *Need New Funds ("Unconstrained") Projects* —Projects that cannot be implemented over the next twenty-two years unless there are significant changes in the amount of local, state, and federal funding available for transportation.

## Within Projected Funds (Constrained) Project List

The 2040 RTP is a minor update to the 2014 RTP. The projects on the constrained list for the 2040 RTP reflect the work performed by the RTC utilizing the Sustainable Transportation and Analysis Rating System (STARS) in developing the project list for the 2014 RTP. The STARS sustainability framework served as a tool to screen projects for their ability to provide the greatest benefit for our region from limited transportation dollars. RTC also worked closely with AMBAG on a scenario planning process to identify priority projects given financial constraints. The AMBAG scenario planning process supported the development of the state-mandated Sustainable Communities Strategy (SCS) to reduce greenhouse gas emissions as forecasted in the MTP. The preferred scenario defines the transportation projects that are on the constrained project list in the RTP and MTP (**Appendix F**).

Input was solicited from project sponsors, public, public interest groups and RTC committees in developing the final project list that identifies the projects as either constrained and/or unconstrained. The within projected funds or "constrained" project list consists of over 220 projects that could be implemented over the twenty-two year timeframe and the need new funds or "unconstrained" list includes over 230 projects that will need additional funds in order to be implemented. Approximately 120 projects are identified as both constrained and unconstrained. For these projects, only a portion of a project could be funded over the next twenty-two years, and it will be necessary to secure and/or generate additional funding sources (beyond those identified in **Appendix E**) to fulfill all the needs. For some capital projects, if new funds do not become available, a project may have to be scaled back and only a portion of the project built.

## Summary of Constrained Projects

In order to meet the goals and targets of the 2040 RTP, both short term and long term strategies need to focus on developing a multimodal transportation system that provides safe choices for how people travel. The following sections provide a summary of how the transportation investments that have been prioritized for the 2040 RTP advance the sustainability goals and policies identified for this RTP.

### Goal 1 – Access and Environment

One of the goals of the RTP is to improve people's access to daily needs in ways that improve health, reduce pollution and improve the economy. The constrained project lists addresses this goal through a variety of projects.

**Highway.** The RTC and Caltrans have made several improvements to the Highway 1 Corridor over the last decade and the 2040 RTP continues to include funding for Highway 1 improvements. The 2040 RTP includes three new auxiliary lanes projects (Soquel to 41st Ave, Bay/Porter to Park Ave, and Park Ave to State Park Drive), funded by Measure D, that are expected to smooth traffic flow and improve safety by extending the distance available for merging. The northbound auxiliary lane from San Andreas Rd to Freedom Blvd is also included on the constrained project list. The auxiliary lanes projects are stand alone projects but along with interchange reconstruction are designed to provide the additional width necessary for high occupancy vehicle lanes in the future.

High occupancy vehicle (HOV) lanes on Highway 1 are identified as a need and are listed on the full project list for the 2040 RTP. However, the cost of completing the entire HOV lanes project on Highway 1 (approximately $600 million) is beyond the amount of discretionary funding that can be used for highway projects in our county through 2040. Additional Highway 1 Corridor projects, including several new interchanges, that would need to be designed and constructed in advance of HOV lanes are identified in the unconstrained project list as needs that are not currently financially feasible with revenues projected through 2040. This is especially true given the need to maintain existing transportation facilities, including local roadways. If other revenue becomes available, it is possible that more of the Highway 1 Corridor projects on the project list could be implemented to move closer to adding HOV lanes to Highway 1. Nine percent of the projected funds are designated for highway improvements and 13% for highway maintenance.

**Transportation System Management.** There is a broad array of strategies to better use capacity of the existing transportation infrastructure. These techniques improve the operation of the transportation system; reduce congestion, travel times, and fuel lost to traffic delays; and provide more consistent travel times day to day. RTP projects that support the goals of greater efficiency include:

- **Incident management**. Collisions and other incidents can cause travel times to be unpredictable and significantly prolonged. A variety of technologies and programs included in the RTP help identify, respond to, and clear incidents, including Freeway Service Patrol, call boxes, closed-circuit TV cameras, and traffic management centers.

- **Arterial management**. Coordinated signal timing, separate queues and priority at signals for high occupant vehicles/buses, roundabouts and additional intersection improvements provide for increased traffic flow and have been prioritized in the 2040 RTP.

**Transit Efficiencies and Improvements.** Santa Cruz Metropolitan Transit District (METRO) runs an extensive public transit system. Thirty-four percent of projected transportation funding identified in the RTP is designated for transit, with a significant portion of those funds from a local half-cent sales tax approved by Santa Cruz County voters in 1978.The passage of Measure D in 2016 provides the Metro with 16% of the Measure D half-cent sales tax funds over a 30 year period. This RTP includes projects focused on increasing transit ridership. Strategies include:

- **Reduced Travel Times:** Improve travel times through reduced headways, transit signal priority, and transit queue jumps. **Increased Levels of Service:** Increased frequency on high ridership and express service routes have been prioritized on the 2040 project list.
- **Passenger amenities: Bus stop improvements to**taling $500,000 are prioritized in the RTP. These improvements include shelters, benches, and lighting. Upgrades to park-and-ride lots are also prioritized in the RTP.
- **Bus and Paratransit vehicle replacements**: Bus and van replacement totaling over $80 million are prioritized in the 2040 RTP
- **Access to Transit:** Most bus riders walk to bus stops. In order to increase ridership, this RTP invests in new sidewalks, curb ramps, and improved pedestrian crossings that provide safer and more appealing access to transit.
- **Traveler Information:** Real time transit schedule information can be provided online, via mobile applications, and at bus stops if the infrastructure is in place. This plan calls for funding equipment to provide real time transit schedule information.

**Rail.** In 2012, the RTC purchased the Santa Cruz Branch Rail Line right-of-way. Funds for the rail right of way provided by Measure D include an analysis (including environmental and economic analysis) of future potential use to better serve Santa Cruz County residents and visitors.

**Active Transportation.** This RTP prioritizes numerous projects that encourage walking, bicycling, and taking transit as an alternative to driving especially near major activity centers. Approximately 12% of the constrained RTP project list is designated for pedestrian and bicycling improvements and programs. The RTP prioritizes projects that fill gaps in the bicycle network and provide separated bicycle and pedestrian paths to promote new riders and encourage physical activity. These include two new bicycle/pedestrian bridges over Highway 1 that will provide improved access over the highway. Funding prioritized for the Monterey Bay Sanctuary Scenic Trail (MBSST), the Pajaro River Levee Trail and the San Lorenzo Valley Trail are examples of this commitment to active transportation. Investments

in new bicycle lanes, bicycle parking, bike-accessible transit, and bicycle education programs are also included. Traffic calming measures in business districts and neighborhoods can make walking and bicycling more attractive by reducing automobile speeds. Several projects in the RTP include landscaping, bulb-outs, speed bumps and other traffic calming measures. The 2040RTP strives to increase the number of people who are using active forms of transportation through providing greater connectivity, higher quality facilities, education and encouragement programs, and evaluation of progress over time.

**Transportation Demand Management.** Transportation demand management (TDM) is a general term for strategies that increase transportation system efficiency through a reduction in demand, especially during peak periods. TDM strategies can reduce automobile use by making alternatives more desirable through incentives or make automobile use less desirable through disincentives such as increased travel costs.

The RTP includes several TDM strategies that increase the efficiency of existing transportation facilities by promoting carpooling, vanpooling, and use of transit, as well as increasing bicycling and walking. Rideshare matching services and individualized assistance to employers, schools, and residents facilitate use of alternatives to driving alone. TDM services that promote employers to allow a flexible work schedule or allow employees to telecommute will reduce demand during the peak hours. Providing easy access to up-to-date information about transportation options is a key component of TDM. 511 Traveler Information will provide people with information on roadway conditions as well as alternative transportation options. Motorists may change their route, when they travel, or mode to avoid congestion.

**Goods Movement**. Goods movement benefits from reduced congestion and predictable travel times. Projects to improve traffic flow and travel time reliability of our roadways are being prioritized in the plan including Highway 1 auxiliary lane projects, Freeway Service Patrol, intersection improvements, signal synchronization and 511 traveler information. Prioritization of active transportation projects may also reduce traffic congestion in key destination areas as people shift from driving to biking and walking.

## Goal 2 – Improve Safety

Ensuring the safety of people using the transportation system is a key goal of the RTP. Safety can be improved through enforcement of traffic laws, motorist education of rules, facility design and emergency response. The 2040 RTP continues investing in programs that increase the safety of the transportation system in Santa Cruz County. These programs include

**Motorist Aid.** The RTP prioritizes programs that help remove stranded motorists from the highway to reduce the risk of collisions. The Freeway Service Patrol, which operates tow trucks that clear incidents and tow vehicles off segments of Highway 1 and Highway 17, reduce the potential for secondary collisions. The call boxes located on state highways can be used by motorists to seek help.

**Enforcement.** The number of injuries and fatalities can be reduced by enforcement of traffic laws on our roadways to reduce unsafe driving practices. The RTP continues to fund the California Highway Patrol to provide extra enforcement on Highway 17.

**Education.** The RTP continues to invest in bicycle and walking safety education programs that result in increased use of safety equipment (helmets and lighting), increase predictable and responsible behavior and raise awareness about risk factors to decrease the risk and severity of collisions. The RTC partners with a number of agencies to promote transportation safety to Santa Cruz County residents.

**Safe Routes to School.** The 2040 RTP invests in programs that construct or repair crosswalks, sidewalks, trails and traffic calming measures that enable children to safely walk and bike to school.

**Traffic Calming.** There are a number of traffic calming projects that are prioritized in the RTP that will reduce the speed and volume of automobile traffic on local roads and thus can reduce the likelihood and severity of collisions.

**Highway.** The RTP invests in three Highway 1 auxiliary lanes projects that will reduce opportunities for conflicts by supplying longer distances for vehicles to merge in and out of the through lanes.

**Bicycle and Pedestrian Facilities**. The RTP prioritizes projects that will expand the network of sidewalks, bike lanes, bike treatments and multiuse trails which separates active transportation modes from motor vehicles thereby reducing opportunities for collisions. Intersection improvements prioritized in the RTP, with particular attention to bicycle and pedestrian movements and ADA accessibility, will help to reduce incidents at intersections. Nationwide, roughly 50% of the serious injury collisions and 21% of the fatal collisions occur at intersections.[1]

**Security/Emergency Services.** Transportation systems can be greatly impacted by natural disasters or security incidents**.** Transportation systems are also a critical part of the response effort by connecting law enforcement and safety responders to the incident site and handling the public's transportation needs in response to the incident. Consistent with the California Strategic Highway Safety Plan and emergency relief and disaster preparedness plans, the 2040 RTP continues to invest in projects that provide security and emergency services. Surveillance and communication are key components to facilitating effective response and recovery efforts. Changeable message signs and CCTV cameras on the highways provide real time incident and traffic operation information. Cameras and security lighting at transit centers and bus stops are part of METRO's ongoing operations. A 511 Traveler Information System provides a centralized location to communicate travel conditions during an emergency. Additionally, the transit system can play an important role in assisting the public during times of emergency by helping to provide transport out of or around affected areas.

## Goal 3 - Maintain the Existing Transportation System and Provide Access Equitably

**System Maintenance.** The cost to maintain our existing transportation system is accelerating as the backlog of roads in disrepair keeps increasing. This is due primarily to funding shortfalls for maintenance over the last many years as well as higher costs associated with maintaining an aging system. As shown in **Figure 6.1,** the cost to fix roadways increases exponentially as a roadway deteriorates. Note the cost difference per square yard (sy) for sealing versus overlays versus reconstruction. For that reason, it is oftentimes more cost effective to regularly repair some roadways that are in fair condition, rather than to rebuild roadways with severe deterioration. The longer there is a delay in maintenance of our streets and

roads, the rate of deterioration accelerates, and the greater the future maintenance costs. Preserving the existing infrastructure is a key focus of this RTP. Local jurisdictions and Caltrans have developed Pavement Management Systems (PMS) to spread funding for maintenance as far as possible.

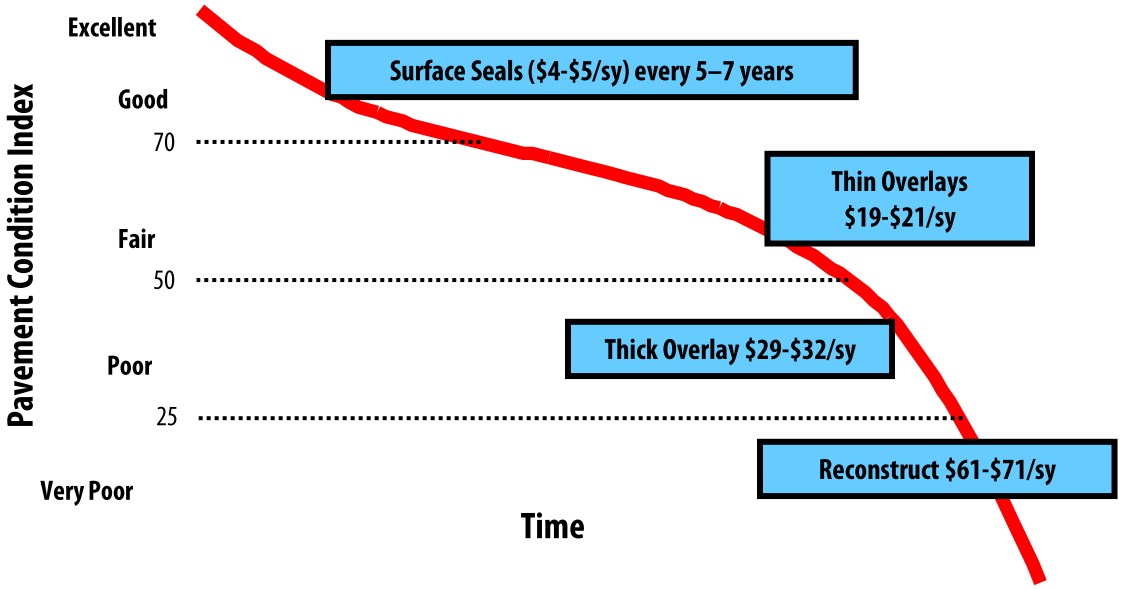



**Figure 6.1 – Cost of Road Maintenance**

*Source: 2016 California Statewide Local Streets and Roads Needs Assessment*

**Highway Maintenance.** The 2040 RTP also includes Caltrans State Highway Operation and Protection Program (SHOPP) projects that provide operational improvements, address collision reduction mandates and preserve the current highway system.

**Maintenance of current transit infrastructure:** The transit system needs consistent funding for maintaining the system. Buses need to be replaced; transit centers updated; bus shelters, service vehicles and operations facilities need to be maintained. Fleet maintenance, bus replacements, physical plant upgrade, and transit center renovations have all been partially funded in the RTP.

**Equity.** The RTP project list has been developed to address the transportation needs of the entire community, and attempts to ensure that no one community bears more of the benefits or burdens of transportation investments than any other. The 2040 RTP accomplishes this by soliciting broad public input, building on strong community-based partnerships, and identifying projects that support an integrated and multi-modal system that improves mobility and access for all communities in the region.

## Fund Distribution

A breakdown of project costs by transportation mode for projects listed on the constrained list is shown in **Figure 6.2**. Many projects included in the constrained list are multimodal. For example, a project on a local road may include roadway repairs, new bicycle lanes, new sidewalks, and intersection improvements and thus funds for these projects will be distributed amongst the various modes.

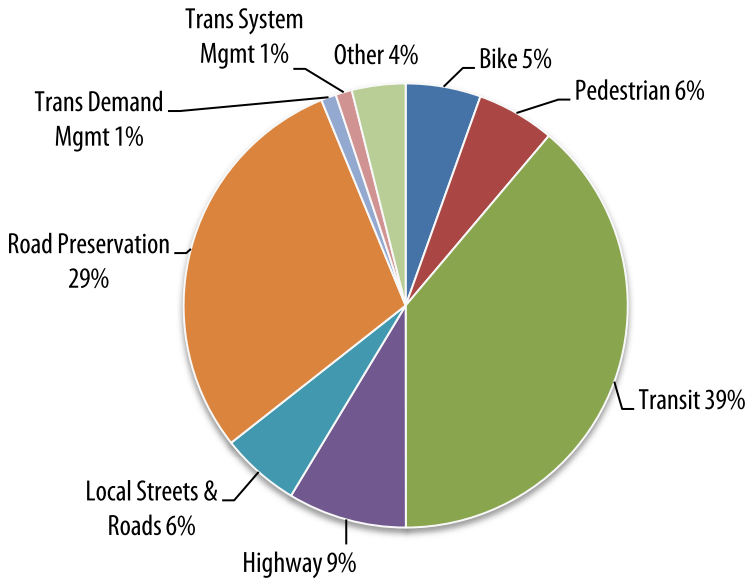



**Figure 6.2 – Fund Distribution by Mode ($3.75 billion - Includes Dedicated and Discretionary Funds)**
*Source: Santa Cruz County Regional Transportation Commission*

## The Need New Funds (Unconstrained) Project List

While many projects can be funded within the revenues projected for the next 22 years, there are a great many proposed projects which still cannot be funded within projected revenues. Projects that "Need New Funds" (**Appendix F** – "Unconstrained" column) include projects that are not financially feasible through 2040, may be lower priority, have potentially significant environmental constraints, and/or do not advance regional targets to the same level as other projects. It represents the next tier of projects and programs that could be pursued if new revenue sources are generated or become available to the region.

These additional roadway projects, public transit services, pedestrian and bicycle facilities and other projects are important to both the public and local agencies, but are feasible only if projected revenues are supplemented either through increased local taxes or other new local, state or federal funds.

## Implementing the Investment Program

Together, the 2040 RTP's constrained and unconstrained projects reflect the wide range of transportation needs in Santa Cruz County and serve as the basis for investing future transportation funds. Development of the project list, however, is just the first step towards actual implementation of the

projects, as the majority of the projects are not yet scheduled to receive funding. **Figure 6.3** outlines the main steps that bring a transportation project through development, funding and implementation. Project implementation can take from six months to 20 years, depending on the size and complexity of the project, the availability of funding, and whether or not the project is exempt from certain state and federal mandates. Often, a project is delayed during the environmental phase due to the need for several levels of federal and state agency approvals. In other cases, delays may be due to public concerns with a project.

Absence of reliable funding can create stops and starts during a project's development, which is particularly costly to transportation projects that require long lead times. A project may achieve a milestone only to find funding for the next phase has been postponed. Long lags between project phases can require project sponsors to redo costly studies to address updated conditions once funding for the subsequent phase becomes available. Reliable funding sources, as provided by Measure D, help to stabilize project costs.

## Project Cost

Since most new projects must be shoe-horned into already built-up urban areas, it is not a simple or inexpensive proposition to add new highway lanes, widen city streets to add car or bicycle lanes and sidewalks, start new rail passenger service or build new bus facilities. Additionally, project costs identified in the RTP are estimates. Once a project undergoes environmental review and final design, the project cost estimate will be updated and may differ significantly from that shown in a large scale planning document such as the RTP. For instance, the cost of implementing transportation projects is subject to fluctuations in the prices of oil, steel and cement. Project delays, environmental constraints, neighborhood opposition, and right-of-way needs can also increase costs and in some cases may even cause a funded project to be withdrawn. With limited funds available, project sponsors oftentimes are left with few options but to significantly scale back plans or to initiate environmental review and design work before construction funding is secured.

## Building Transportation Projects

1. Need - Need for project identified by a public agency, member of the public, a private business, or a community group.

2. Planning - Project included in planning documents, such as the Regional Transportation Plan, State Highway Operation and Protection Program (SHOPP), General Plan, Climate Action Plan, and/or Capital Improvement Program. Public input is encouraged.

3. Scope Defined - Project sponsor prioritizes project and develops preliminary cost estimates and defines scope of project. For highway projects, a Project Initiation Document (such as a Project Study Report) is prepared by Caltrans or a local agency with Caltrans oversight to provide this information.

4. Secure funding - Project sponsor seeks and secures funds for project. Project sponsors may approve local funds (e.g. general funds, gas taxes) in their annual budget, submit grant applications to other agencies for funds [e.g. RSTP (RTC), STIP (RTC and CTC), AB2766 (Air District), safety and bridge (Caltrans), etc], or seek voter approval for funds (e.g. sales tax measure, parcel fees). Projects approved for state or federal transportation funds are included in the Regional (RTIP), State (STIP), State Highway (SHOPP) and/or Federal Transportation Improvement Program. Public input is encouraged. Securing funding can take several years.

5. Environmental review and preliminary design - Analysis to ensure consistency with local, regional and coastal plans/policies, identify environmental impacts and mitigation measures in accordance with state law (CEQA). Federally-funded projects must also undergo NEPA review. Public input is encouraged. Depending on the size and potential impacts of projects, environmental review and preliminary design can take 1 month to several years.

6. Approvals - Obtain approvals, agreements and/or permits from resource agencies. Approvals can take months to years.

7. Final Design - Development of final design, includes development of project specifications and estimates used by contractors to bid on a construction project. Design can take 1 to 3 years.

8. Right of way acquisition - Acquire rights of way and relocate utilities if needed. Acquisition can take months to 2 years.

9. Construction - Prepare and advertise construction contract, hire construction contractor and construct project. Construction can take months to 2 years.

**Figure 6.3 – Typical Stages of Transportation Project Development**

*Source: Santa Cruz County Regional Transportation Commission*

## Funding Decisions

The 2040 RTP is an important tool for identifying the community's transportation priorities. The policy and project lists within the 2040 RTP will help guide future funding decisions. Projects will be given priority for funds that come under the RTC's discretion based on their ability to meet criteria established by the RTC. The analysis of project benefits will inform future funding discussion. This analysis will occur during grant cycles for new federal, state and local funds, which generally occur every two years, depending on the program. Projects eligible for other state, federal and regional funding not under the RTC's discretion, also need to be included in the 2040 RTP project list and/or consistent with the adopted Regional Transportation Plan goals and policies. Construction of planned projects on this list is not assured until actual funds are allocated.

## Notes for Chapter 6

[1] "Intersection Safety," U.S. Department of Transportation, Federal Highway Administration, accessed January 2014, http://safety.fhwa.dot.gov/intersection/.

# CHAPTER 7 System Performance

Performance-based planning is a strategic approach that uses key information to help inform investment decisions. The performance of the previous regional transportation plan for Santa Cruz County completed in 2014 was analyzed in detail to determine how well the constrained list of transportation projects and programs advance the goals and targets established for the 2014 RTP and affect the county's future. The analysis that was performed is still largely applicable to the 2040 RTP given that the project list for the 2040 RTP has not changed substantially from the 2014 version. The performance measure analysis that was developed for the 2014 RTP can be found in **Appendix D** for reference. The 2040 Monterey Bay Area Metropolitan Transportation Plan – Sustainable Communities Strategy also presents a performance measures analysis for the larger AMBAG region and this analysis can be found on the AMBAG website (http://www.ambag.org).

The 2040 RTP focuses the system performance on presenting available data that monitors the performance of the transportation system to date. Data to monitor the transportation system can be challenging and expensive to acquire. The information presented below utilizes data that was gathered from a variety of sources. Data is not available at this time to monitor all of the measures in the 2040 RTP although many of the more fundamental indicators (injuries and fatalities, vehicle miles traveled, greenhouse gas emissions, pavement condition) are presented below.

## GOAL 1. Establish livable communities that improve people's access to jobs, schools, recreation, healthy lifestyles and other regular needs in ways that improve health, reduce pollution and retain money in the local economy.

### Improve people's ability to meet most of their daily needs without having to drive. Reduce smog-forming pollutants and greenhouse gas emissions.

**Target:** Reduce per capita fuel consumption and greenhouse gas emissions by 1 percent by 2020, 5 percent by 2035 and 6 percent by 2040 through a reduction in vehicle miles traveled and improved speed consistency.

If there was information for only one measure to monitor the performance of the transportation system, vehicle miles traveled is the measure to monitor. Vehicle miles traveled or VMT is the total number of miles of vehicle travel within a specified area. Changes in vehicle miles traveled provides information about whether congestion, air quality (including GHG emissions), health, and ability to walk, bike or take transit, is increasing or decreasing over time. The number of vehicle miles traveled for Santa Cruz County

can be determined a few different ways. **Figure 7.1** shows estimates of average daily VMT since 2005 from the Highway Performance Monitoring System (HPMS) implemented by Caltrans. The vehicle miles traveled data estimated through the HPMS is calculated using traffic count data collected on both the highway system and the local street and road network. This VMT represents the amount of travel for all vehicles within Santa Cruz County borders. The data shows that the high was in 2005 with a gradual decrease in total VMT until 2011 and then a slightly upward trend to 2015. [Note: The 2010 data point likely represents an error in the counts used to determine the VMT.] The changes in total VMT can be due to a change in population and/or a change in the amount people drive a vehicle.

On this same figure (**Figure 7.1**) is the average daily VMT per capita that is calculated by dividing the total vehicle miles traveled by the population of the county. VMT/capita represents the average amount people drive daily. The data shows that the maximum amount of VMT/capita occurred in 2005. The amount of driving per person steadily decreased since 2005 and then has leveled off in the last few years.

The GHG emissions/capita target due to changes in VMT (and not vehicle technology changes) is represented by the VMT/capita data. **Figure 7.1** shows that the 2015 VMT/capita from the HPMS is reduced by more than 7% compared to the 2005 base year and if the trend continues there will be a 15% reduction in VMT/capita by 2020 compared to 2005.

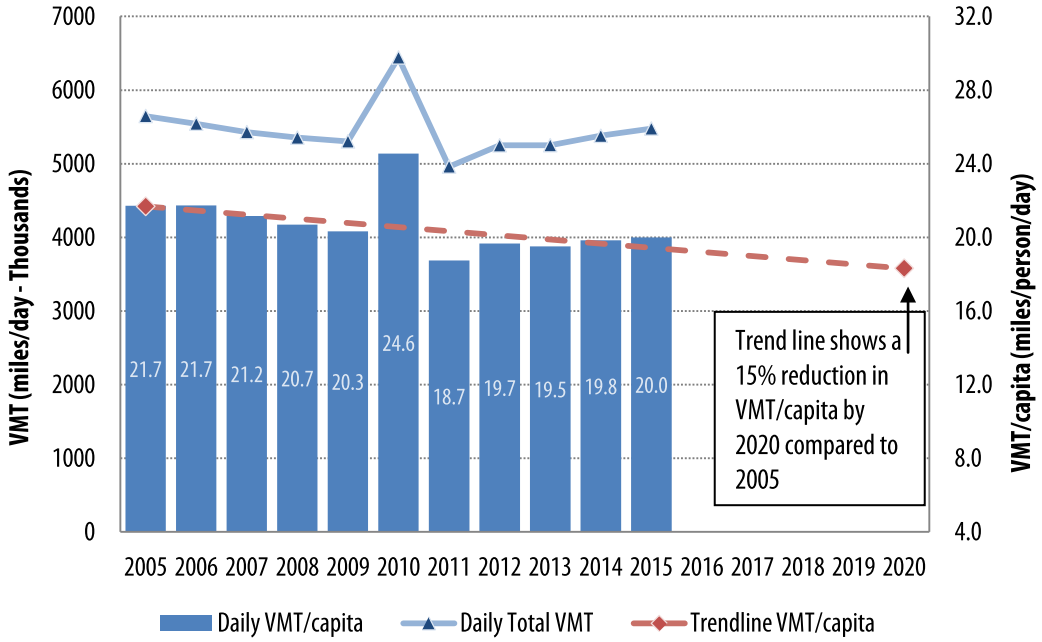



**Figure 7.1 – Daily Vehicle Miles Traveled (Total and Per Capita)**

*Source: Highway Performance Monitoring System, Caltrans.*
*Data from 2010 was removed from trend line calculation due to likelihood of inaccurate count data used to determine VMT.*

Vehicle miles traveled for Santa Cruz County can also be estimated using a travel demand model (**Figure 7.2**). The Association for Monterey Bay Area Governments (AMBAG) runs the travel demand model for the region. The AMBAG model is used for developing the Metropolitan Transportation Plan – Sustainable Communities Strategy which is developed in collaboration with the Santa Cruz County RTP (as well as the Monterey and San Benito RTPs). The model results shown here are the Santa Cruz County portion of the full fleet vehicle miles traveled results for the 2040 MTP-SCS. Results also include

postprocessing VMT reductions for 2040 for projects that the model is not sensitive to based on analysis from the 2014 RTP. A postprocessing reduction of 4.6% was used, down from 5.46%, due to less transit projects in the 2040 RTP in comparison to the 2014 RTP. See **Appendix D** for postprocessing discussion from the 2014 RTP.

The modeled data shows a reduction in VMT/capita relative to the 2005 base year of approximately 8% by 2020 and 10.7% by 2040 (**Figure 7.2**). The modeled *total* VMT in future years is increasing primarily due to population growth. Through prioritization of projects that promote transit use, biking, and walking, as well as changes in land use that shorten the distance people travel from home to work and home to shopping, per capita VMT and thus per capita $CO_2$ emissions will continue to be reduced. This RTP prioritizes numerous projects that encourage walking, bicycling, and taking transit as an alternative to driving especially near major activity centers. Approximately 12% of the constrained RTP project list is designated for pedestrian and bicycling improvements and programs and approximately 37% is designated for transit services. See **Chapter 6** for more details on projects that will help to advance this goal.

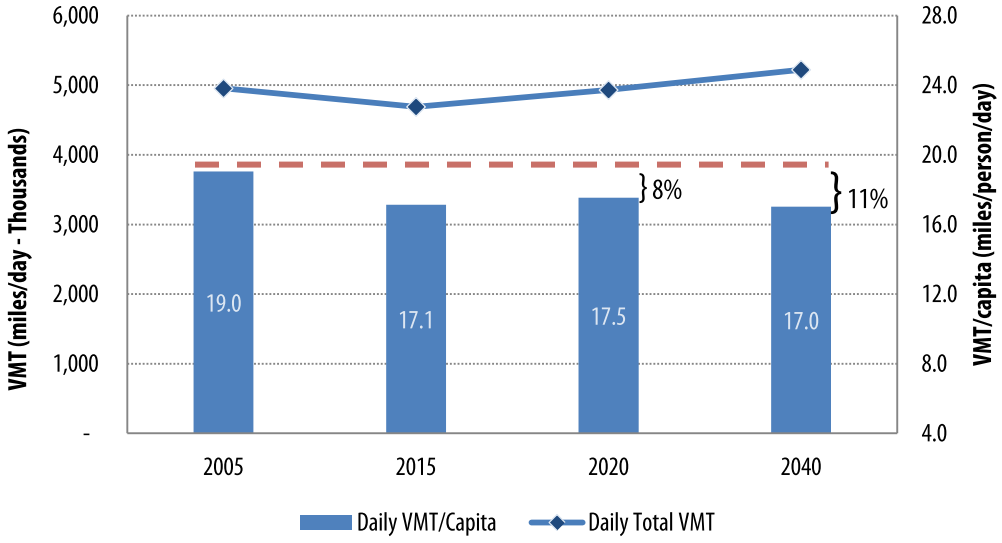



**Figure 7.2 – Model Results of Santa Cruz County Daily Vehicle Miles Traveled (Total and Per Capita)**

*Source: AMBAG Travel Demand Model Projections and Postprocessing Reductions. Based on Implementation of 2040 RTP Project List*

**Target:** Reduce <u>total</u> greenhouse gas emissions from transportation by 1 percent by 2020 and 60 percent by 2040 (compared to 2005) through electric vehicle use, other emerging technologies, reduction in vehicle miles traveled and improved speed consistency.

Climate change is the most significant global challenge of the 21st century. Reducing greenhouse gas emissions from all sectors in order to reduce the effects of climate change is a top priority for California. Gasoline and diesel fuels used to power our cars are significant contributors to greenhouse gas emissions. Reducing these emissions is a goal of the 2040 RTP. A sixty percent reduction in total greenhouse gas emissions by 2040 is consistent with California Executive Order B-16-12 to reduce total greenhouse gas emissions from transportation by 80 percent below 1990 levels by 2050, and California Executive Order B-30-15 to reduce greenhouse gas emissions by 40 percent below 1990 levels by 2030.

Data for assessing trends in greenhouse gas emissions from Santa Cruz County can be gathered from a couple of different sources. **Figure 7.3** shows the total amount of $CO_2$ generated from gasoline and diesel fuel sales in Santa Cruz County from 2010 to 2016. [Note: the 2014 data point is likely not representative of fuel sales for this year given the low value compared to other years.] The decrease in GHG between 2010 and 2016 is approximately 6% which represents reductions in GHG emissions from transportation due to changes in vehicle miles traveled, speed consistency, population and vehicle technology that affect the vehicle fleet mix on the road. The targets for 2020, 2030 and 2050 reflect the 0% and 40% and 80% reduction targets for total GHG relative to 1990 set by the state but given the lack of fuel sales data for 1990 (or 2005 which is base year used for SB 375), the reductions are compared to the 2010 fuel sales. $CO_2$ reductions per capita are also plotted in **Figure 7.3.** The GHG per capita emissions are reduced by 11% between 2010 and 2016. The per capita percent reduction is greater than the reduction in total GHG due to the increase in population.

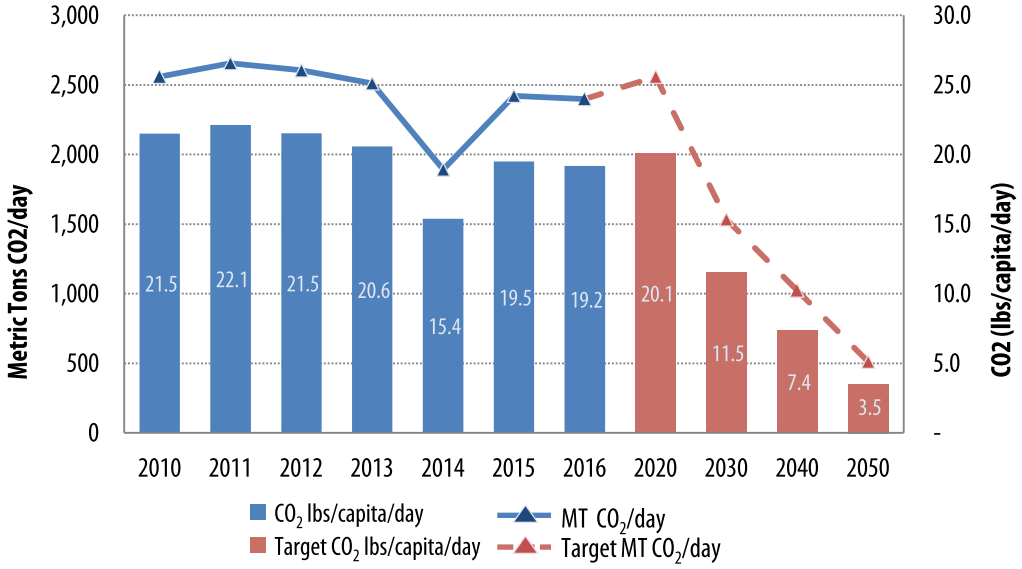



**Figure 7.3 – Historic and Target Santa Cruz County Greenhouse Gas Emissions from Transportation**

***Source:*** *California Energy Commission, Retail Fuel Outlet Annual Report Results*[1]

Greenhouse gas emissions can also be estimated using a combination of a travel demand model and the California Air Resources Board emission factors model (EMFAC2014). The travel demand model estimates vehicle miles traveled based on future transportation scenarios and the emission factors model takes the VMT data along with existing and projected vehicle fleet mix data to estimate $CO_2$ emissions. **Figure 7.4** is based on the VMT of the full fleet of vehicles on Santa Cruz County roadways from the AMBAG model, the VMT postprocessing reductions discussed earlier and the $CO_2$ emissions data from the EMFAC2014 model. The modeled data that is forecasted for 2040 shows a decrease in total GHG emissions of 45% which does not meet the target of 60% reduction in total GHG emissions by 2040. The reduction in GHG by 2040 is based on projecting many factors one of which is the number of electric vehicles on our roadways in future years. The EMFAC2014 model was written prior to Executive Order B-16-12 to increase the number of electric vehicles to 1.5 million on our roadways by 2025 and that all personal transportation would be electric by 2050. The EMFAC2014 model assumes only 9% of the vehicle miles traveled in 2040 (**Figure 7.5**) would be due to electric vehicles which is likely to be significantly underestimated due to the more recent California legislation and work that is being done to meet this requirement.

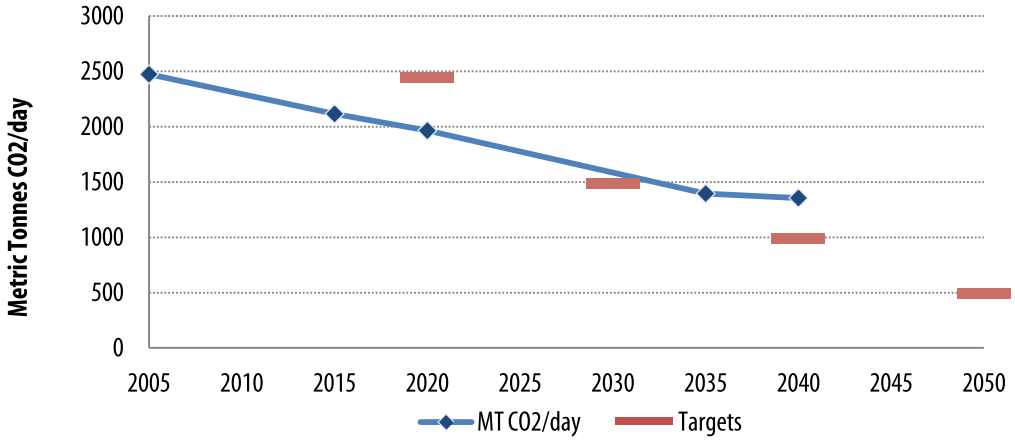



**Figure 7.4 – Total Modeled CO2 Emissions from Transportation in Santa Cruz County**

*Source: AMBAG Travel Demand Model and California Air Resources Board EMFAC2014 Model Results*

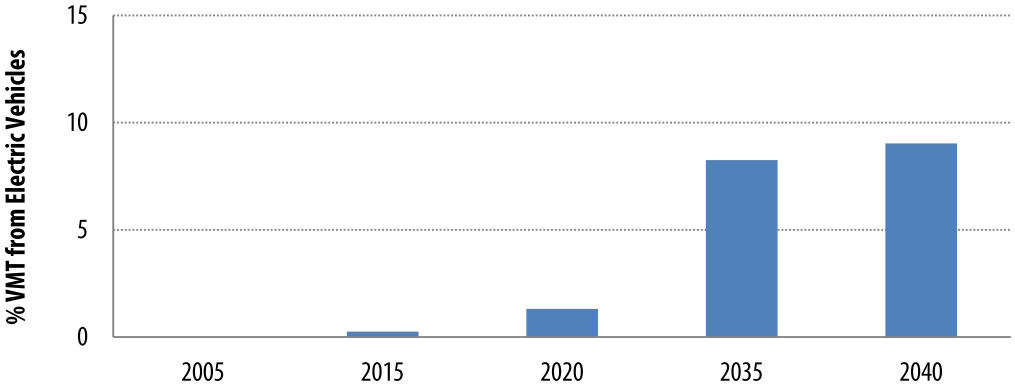



**Figure 7.5 – Percentage of Vehicle Miles Traveled from Electric Vehicles by Year Assumed in California Air Resources Board Emissions Factor Model (EMFAC2014)**

*Source: California Air Resources Board Emission Factor Model (EMFAC2014)*

A comparison of the CO2 per capita emissions based on fuel sales shows that in 2016, Santa Cruz County is in the mid to lower range of per capita GHG emissions relative to many other counties in CA (**Figure 7.6**). There is much to be done in Santa Cruz County and in the rest of California to meet the targets for total GHG emission reductions.

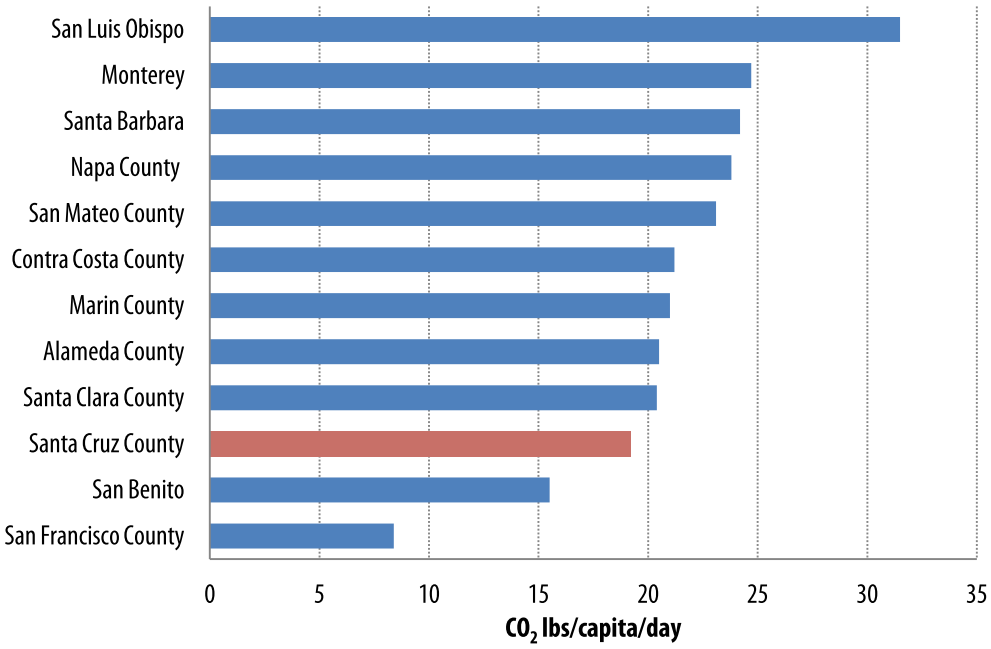



**Figure 7.6 – 2016 CO2 lbs/capita/day based on fuel sales**

*Source: California Energy Commission, Transportation Fuels Data*

Reduction in greenhouse gas emissions from transportation is based primarily on decreasing how much we drive and improvements in vehicle technologies that reduce the use of fossil fuels. This RTP prioritizes projects that promote transit use, biking and walking as an alternative to driving to reduce vehicle miles traveled as discussed above and in **Chapter 6**. Improvements in vehicle technology are not under the purview of the Regional Transportation Commission but are tracked here to provide information on how Santa Cruz County is advancing California's GHG emission reduction goals for transportation. The California Air Resources Board updated the Climate Change Scoping Plan in 2017[2]. This plan describes the existing and proposed strategies for reducing greenhouse gas emissions from all sectors including transportation. Strategies for transportation include reducing VMT through promotion of sustainable communities, increased active transportation and transit, and modernization of rail; implementing the advanced clean car program which requires vehicle manufacturers to produce an increasing number of low and zero emission vehicles; supporting federal and state incentive programs for increasing use of zero emission vehicles; and acceleration of clean fuel programs to name just a few of the strategies that are being addressed at the state level.

## Improve health by increasing the percentage of trips made using active transportation options, including bicycling, walking and transit.

**Target:** Decrease single occupancy trip mode share by 4 percent by 2020 and by 9 percent by 2040.

**Target:** Increase the number of active transportation trips by 5 percent of total trips by 2020 and by 18% of total trips by 2040.

Replacing trips traditionally made in a vehicle with walking, bicycling, or taking transit can lead to improved health through regular physical activity and reduced obesity rates. Increased walking, bicycling and taking transit can also reduce congestion on our roadways. Data is available for commute trip mode share from the American Community Survey (ACS). The mode share data from the ACS is presented in **Figure 7.7** which shows that the percentage of drive alone trips has stayed constant between 2000 and 2011-2015, the percentage of shared ride has decreased and the percentage of biking and work from home have both increased.

The California Household Travel Survey (CHTS) data was collected by Caltrans in 2011-2012 to provide data on travel patterns for regional planning. The CHTS data for Santa Cruz County provides an estimate of the mode share for all trips people take (**Figure 7.8**). **Figure 7.8** also plots the target mode shares for 2020 and 2040.

While the network of bicycling and walking facilities throughout much of Santa Cruz County is substantial, improvements to this network could promote greater use. Separated or buffered bicycle facilities, wider bike lanes and lanes designed outside of the door zone of parked cars all encourage use of bicycles as a means of travel. Sidewalks exist in much of the more populated areas of Santa Cruz County but there are gaps, which limit access for people and are not always attractive due to little or no buffer between pedestrians and high volume traffic. The projects in this plan improve the quality of the active transportation network and thus will help to advance the goal of increasing the percentage of walk, bike and transit trips within key destinations by designing facilities that are safe, convenient and comfortable to the user.

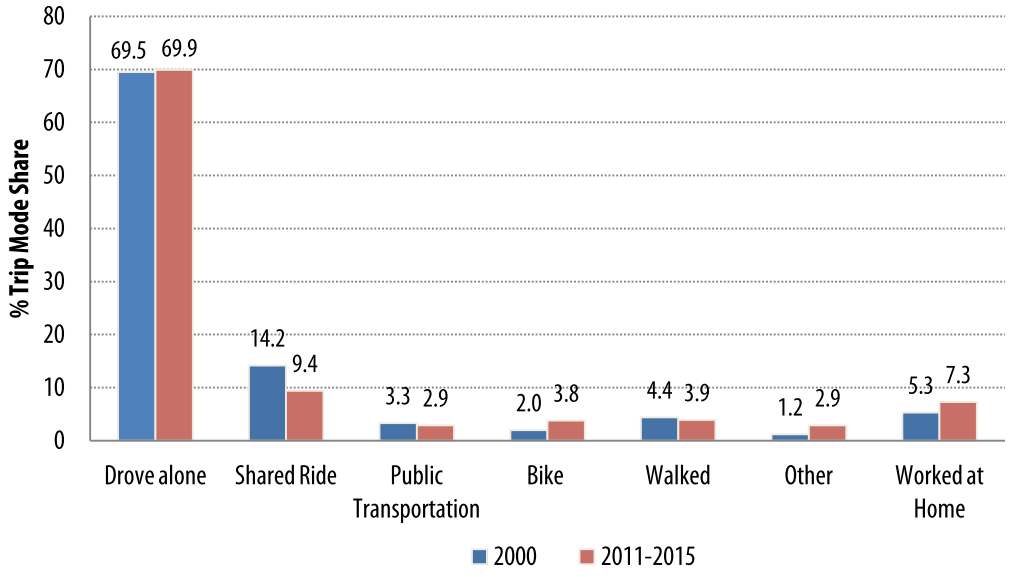



**Figure 7.7 – Santa Cruz County Commute Trips Mode Share**

*Source: American Community Survey 2011-2015 Summary*

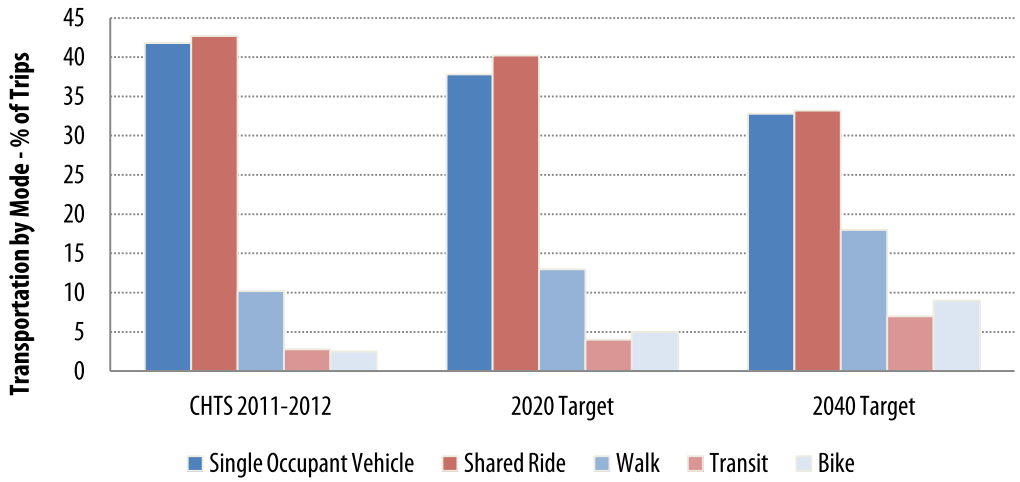



**Figure 7.8 – Santa Cruz County Mode Share for All Trips**
*Source: California Household Travel Survey 2011-2012 and Targets*

# GOAL 2. Reduce transportation related fatalities and injuries for all transportation modes.

## Improve transportation safety, especially for the most vulnerable users.

**Target:** Reduce injury and fatal collisions by mode by 20 percent by 2020 and by 60 percent by 2040.

Improving the safety of transportation users, especially for the most vulnerable users, such as bicyclists and pedestrians, is a priority for Santa Cruz County as well as across California and the nation. The Statewide Integrated Traffic Records System (SWITRS) collision database tracks collision data that allows the RTC to monitor the number of collisions over time to assess how the investment of projects and programs are advancing this target. The collision data by mode is graphed below. The data shows that the number of injury and fatal collisions for Santa Cruz County has increased for motor vehicles, bicyclists and pedestrians since the target base years of 2009-2011 (**Figure 7.9**). An increase in public awareness and a change in driving behavior will be needed in order to improve the safety of the transportation system in Santa Cruz County to reach the 2020 and 2040 targets of the 2040 RTP.

The State Highway Operation and Protection Program (SHOPP) projects which are implemented by Caltrans on Santa Cruz County Highways (1, 9, 17, 129, 152, and 236) focus on reducing collisions. Extra enforcement on Highway 17 through the Safe on 17 program, as well as separated or buffered bicycling and pedestrian facilities implemented by local jurisdictions have also been prioritized in this plan to improve safety. Educational programs such as "Vision Zero" implemented by the Community Traffic Safety Coalition are prioritized to promote driver awareness and changes in driving behavior. See **Chapter 6** for more details on projects that will help to improve safety on Santa Cruz County roadways.

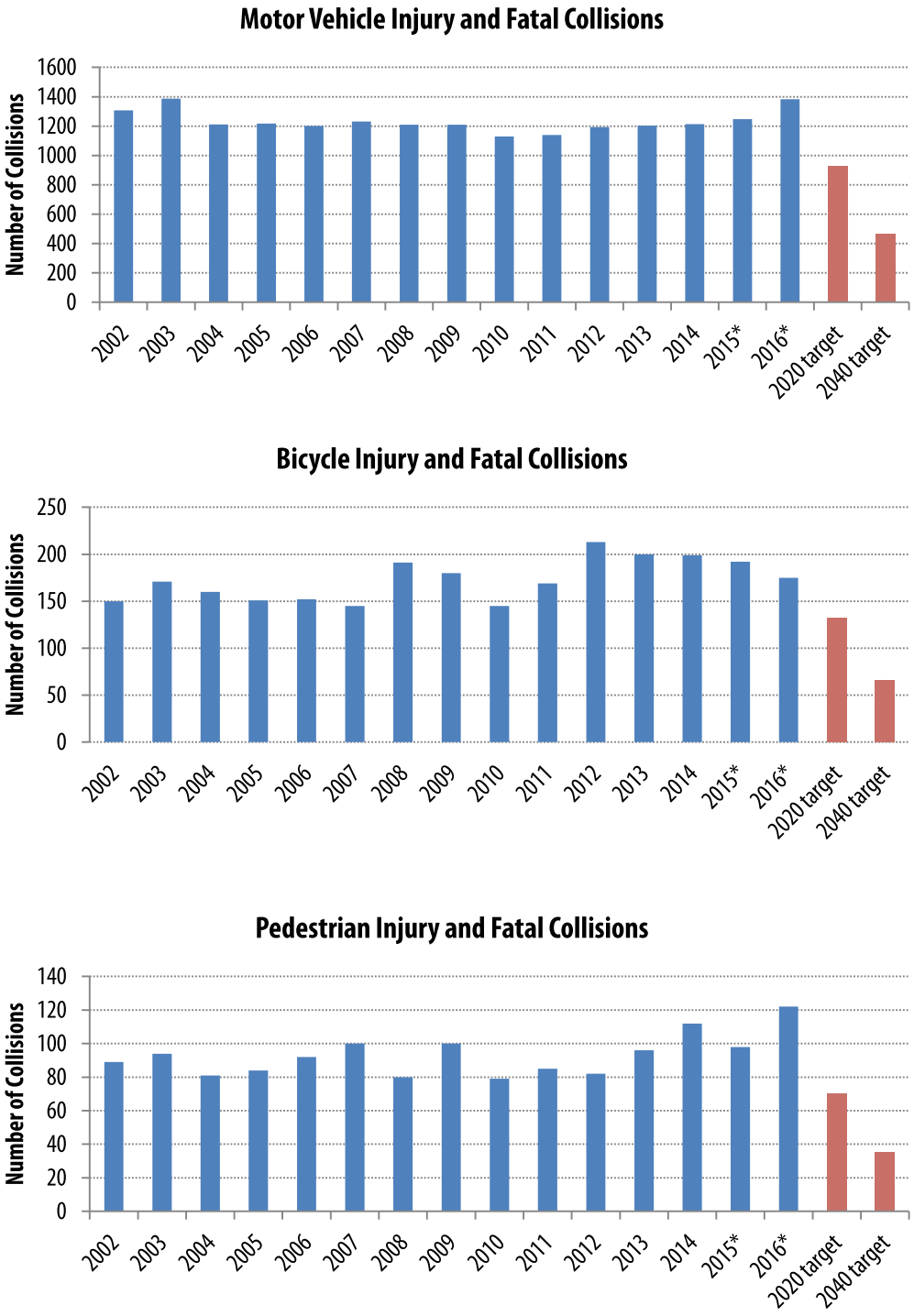



**Figure 7.9 – Injury and Fatal Collisions – Motor Vehicle, Bicycle and Pedestrian**

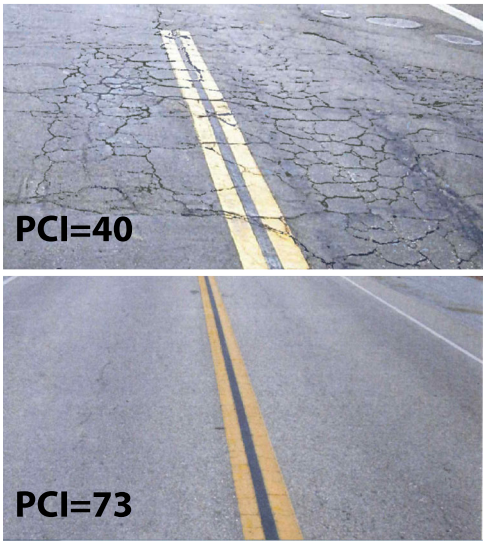
*Source: Statewide Integrated Traffic Records System (SWITRS), California Highway Patrol available through the Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2017*

** 2015 and 2016 data is provisional*

# GOAL 3. Deliver access and safety improvements cost effectively, within available revenues, equitably and responsive to the needs of all users of the transportation system, and beneficially for the natural environment.

## Maintain the existing system and improve the condition of transportation facilities.

**Target 3A.** Increase the average local road pavement condition index (PCI) to 57 by 2020 and 72 by 2040.




A key focus of this RTP is on preserving the existing transportation infrastructure. The "pavement condition index" or PCI is a measure of the average condition of the local street and road pavement on a scale of 0 to 100 where 0-24 is failed, 25-49 is poor, 50-69 is fair, and 70-100 is good. **Figure 7.10** shows the trend in the pavement condition indices for the jurisdictions in Santa Cruz County starting in 2005. A comparison of the pavement condition index for Santa Cruz County relative to other counties in California is shown in **Figure 7.11**. The countywide PCI of 50 for 2016 is on the cusp between poor and fair and indicates the need for substantial investment in maintenance. This plan invests in pavement repairs, sidewalk and bicycle lane maintenance, bus replacements, bus stops, and transit service vehicles that need upgrades and maintenance. Measure D and Senate Bill 1 funds will provide a significant source of funding for maintaining and improving the condition of transportation facilities in Santa Cruz County. Approximately 30% of the constrained RTP project list is designated for roadway maintenance.

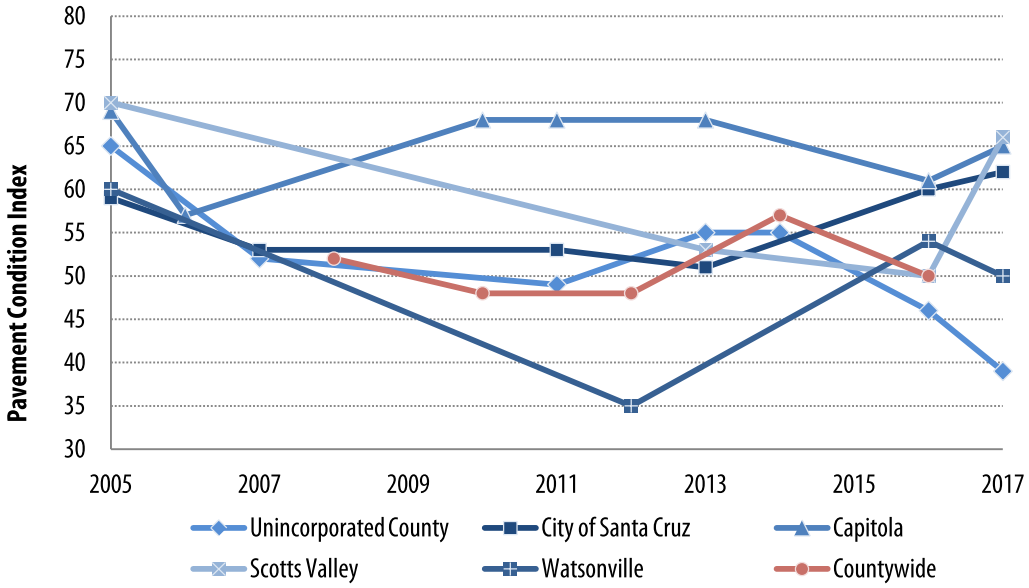



**Figure 7.10 – 2005 to 2017 Pavement Condition Indices for Jurisdictions in Santa Cruz County**

*Source: Capitola, Unincorporated County, City of Santa Cruz, Scotts Valley, Watsonville*

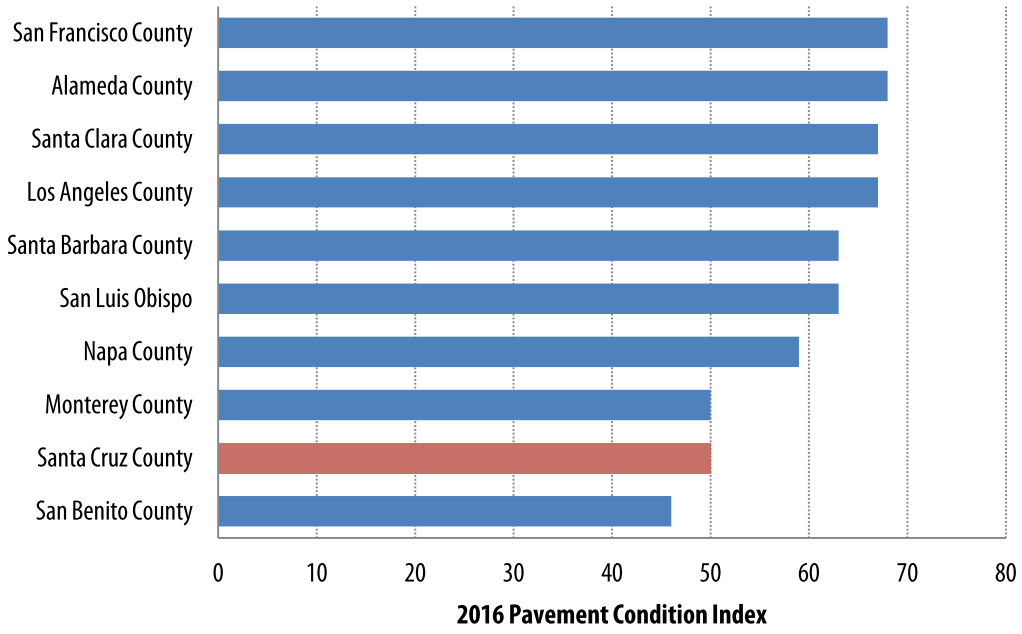



**Figure 7.11 – Comparison of Santa Cruz County Pavement Condition Index with other California Counties**

*Source: 2016 California Statewide Local Streets and Roads Needs Assessment, Save California Streets*

**Target 3B.** Reduce the number of transportation facilities in "distressed" condition by 3 percent by 2020 and 5 percent by 2040.

The condition of the transit system is one indicator of the level of "distressed" transportation facilities for Santa Cruz County. The Metro buses are in need of regular maintenance and/or replacement to ensure continued and cost-effective service. **Figure 7.12** shows the condition of the Metro buses from 2005 to 2017 and the 2020 and 2040 targets relative to 2005. The 2040 RTP prioritizes funding for 66% of the bus replacement need over the 22 year timeframe of this plan.

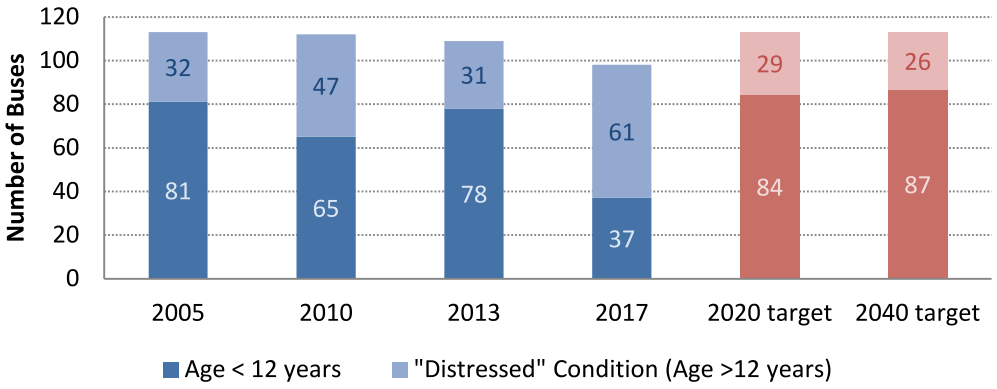



**Figure 7.12 – Santa Cruz Metro Bus Condition**

*Source: Santa Cruz Metropolitan Transit District*

### Increase transportation revenues.

After decades of state and federal underinvestment in the transportation system, a supermajority of Santa Cruz County voters approved Measure D in November 2016 which invests an additional $20 million per year into the multimodal transportation system. In April 2017, the state legislature approved Senate Bill 1 (SB1) which helps stabilize transportation funding throughout the state. SB1 is expected to provide an additional $9 million per year to the County of Santa Cruz and local cities to maintain local streets and roads, an extra $3 million per year for local transit, and significant funding to maintain and repair state highways, bridges, and culverts.

## Notes for Chapter 7

[1] CA Energy Commission, California Annual Retail Fuel Outlet Report Results, accessed November, 2017, http://www.energy.ca.gov/almanac/transportation_data/gasoline/piira_retail_survey.html

[2] CA Air Resources Board, The 2017 Climate Change Scoping Plan, The Strategy for Achieving California's 2030 Greenhouse Gas Target, accessed November, 2017 (https://www.arb.ca.gov/cc/scopingplan/revised2017spu.pdf)

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# CHAPTER 8 Environmental and Air Quality Review

Transportation investments have the potential to impact the environment both positively and negatively. The 2040 RTP is extensively evaluated for its potential impacts as part of the required California Environmental Quality Act (CEQA) environmental review. The evaluation provides an understanding of the tradeoffs between transportation and environmental impacts. This comprehensive analysis not only reflects the RTC's diligence in meeting state requirements, but also the long standing interest from the Santa Cruz County community in preserving natural resources.

## CEQA Required Environmental Review

Environmental review of the 2040 Regional Transportation Plan (RTP) evaluates the potential environmental effects of implementing the 2040 RTP, including alternative transportation investment scenarios, and identifies potential mitigation measures. Recognizing an opportunity to achieve efficiencies, the Santa Cruz County Regional Transportation Commission, the Association of Monterey Bay Area Governments (AMBAG), the Transportation Agency for Monterey County, and the San Benito County Council of Governments decided to merge their environmental analysis for their respective RTPs and the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS). The potential environmental impacts of each plan are collectively detailed in one Environmental Impact Report (EIR) for the 2040 MTP/SCS, which encompasses the three RTPs (Santa Cruz, Monterey and San Benito Counties).The EIR can be found on AMBAG's website (http://www.ambag.org).

As a programmatic document, the 2040 MTP-SCS Environmental Impact Report presents a region-wide assessment of the impacts of the proposed 2040 MTP-SCS. The intent of a program-level EIR is to focus, in general terms, on the probable regional environmental effects that can be identified at this point in time that are associated with the implementation of the plans. The 2040 MTP-SCS EIR does not analyze impacts of individual projects. Projects will undergo a separate environmental review process, conducted by the agency sponsor, once the project is ready to be implemented.

AMBAG, as the lead agency for the 2040 MTP/SCS EIR, which includes environmental review of the Santa Cruz County 2040 RTP, will hold a 55-day public review period to receive comments on the draft EIR. The EIR is widely circulated and reviewed by RTC advisory committees representing project sponsors and transportation stakeholders; representatives of State and Federal governmental agencies; representatives of special interest groups; representatives of the private business sector; and residents of Santa Cruz County consistent with the region's public participation plan.

## Biological and Natural Resources

Santa Cruz County is home to a diverse mix of habitats and species including coastal oak woodland, second growth redwood, coastal scrubs, Central California Coast coho salmon, Central California Coast steelhead and California red-legged frog. The rivers, watershed and drainages within Santa Cruz County, including the San Lorenzo River and the Pajaro River, drain into the Monterey Bay National Marine Sanctuary and are of biological importance as they provide valuable habitat for a variety of species and local water supplies. Farmlands, rangelands and timberlands made-up of fruit crops, nursery crops, vegetable crops, field crops, livestock and timber, are important natural resources located in Santa Cruz County and are economic generators. The transportation system can support access to these unique resources and transportation investments can benefit and/or create challenges for biological and natural resources. The 2040 RTP goals and policies consider how well transportation investments benefit the natural environment. A detailed description of biological resources and natural resources and potential impacts is described in detail in the 2040 MTP/SCS EIR.

## Cultural Resources

Prehistoric, paleontological and other historical resources and landscapes with significance to a group of people generally make up the cultural resources present in Santa Cruz County. Cultural resources in Santa Cruz County include, but are not limited to fossils, indigenous people sites, trees and historic structures such as residences, villas, businesses, and churches. Many cultural resources in Santa Cruz County are known and identified as National Register listings, California State Landmarks or as Points of Historical Interest. It is also possible that other cultural resources have not yet been identified. Cultural resources are non-renewable and recognition of these resources supports a greater understanding of Santa Cruz County's past. Transportation planning efforts can avoid conflict with cultural resources through recognition of their importance. New transportation investments are subject to laws and regulations related to cultural resources. A detailed description of cultural and potential impacts is described in detail in the 2040 MTP/SCS EIR.

## Environmental Mitigation

In order to minimize the impacts of transportation projects on the environment, mitigation activities may be necessary to avoid, minimize or compensate for potential impacts to environmental resources. As appropriate, mitigation measures will be identified for potential environmental impacts and described in detail in the 2040 MTP-SCS EIR, which encompasses the three RTPs (Santa Cruz, Monterey and San Benito Counties). Mitigation measures may include, requiring project sponsors to: survey a project site to determine the presence of environmental resources;

development of an environmental resource management plans for the impacted area; include specific project elements or design features such as landscaping, construction of sound walls or the location of ground disturbance and setbacks; include specific construction activities such as watering active construction areas, fencing off designated areas and use of alternative fuel or electric construction vehicles; limit construction time periods by month, time of day or weather conditions; include compensatory measures such as tree or plant replacement at a defined ratio for replanting and removal.

## Regional Mitigation

Regional mitigation efforts, rather than the traditional project-specific mitigation, can improve the quantity and quality of habitat by conserving larger, scarce, multi-resource ecosystems and increase habitat connectivity. Whereas traditional project-specific mitigation typically prioritizes on-site mitigation, regional mitigation prioritizes improvements by overall effectiveness, which can lead to compensatory off-site mitigation. Furthermore, regional mitigation programs frequently result in a coordinated effort to protect larger areas as opposed to buying land in small pieces to satisfy mitigation requirements project by project. Regional mitigation can be particularly effective in developing and maintaining wildlife corridors. Wildlife corridors connect like habitats in order to facilitate the movement of certain species to allow the exchange between individual populations and reestablishment after changes to a specific geographic area.

Habitat Conservation Plans and other conservation planning efforts, such as the Conservation Blueprint, developed by the Land Trust of Santa Cruz County, and the Wildlife Habitat Connectivity GIS database, developed by Caltrans and partner agencies, support regional mitigation and can serve as a resource for future mitigation plans in Santa Cruz County. These resources can be used to determine where future mitigation efforts associated with transportation projects identified in the RTP may be required and potential areas for regional mitigation. The Conservation Blueprint identifies Priority Multi-Benefit Areas, which are areas within Santa Cruz County that are most likely to provide benefits across vital aspects of conservation—biodiversity, water resources, working lands, recreation and healthy communities and Conservation Land Networks which collectively safeguards the county's biodiversity. The Priority Multi-Benefit Areas are locations which may be considered in future regional mitigation planning programs.

In 2011, the Santa Cruz County Regional Transportation Commission participated in a regional mitigation effort to restore and improve critical wetland habitat in Watsonville Sloughs. The RTC funded restoration of 1.5 acres of wetlands as part of a larger effort by City of Watsonville, the Resource Conservation District of Santa Cruz County, and Federal, State and local natural resource agencies to restore and conserve habitat for a variety of rare local wildlife and plant species.

## Advanced Mitigation

A key piece of regional mitigation efforts as identified by the Federal Transportation Act, is determining the locations of ecological importance and other environmental features in advance of pursuing transportation projects. Knowing in advance locations where impacts to species, habitat types, and other important ecological functions could be best offset within the region and establishing a range of mitigation options, should mitigation be necessary, facilitates regional mitigation. Advance planning is an effective way for incorporating natural resource considerations into transportation planning by facilitating early coordination and consultation with resource agencies, and increasing opportunities for identifying specific sensitive areas, and effective regional mitigation measures. In partnership with multiple federal, state, and local resource agencies, Caltrans, the Resource Conservation District, Santa

Cruz County, and the Santa Cruz County Regional Transportation Commission, a Memorandum of Understanding has been executed which will create an advance mitigation planning framework for transportation projects countywide. The advance mitigation process is designed to encourage broader stakeholder participation, expedite delivery of transportation projects, provide more cost-effective use of public funds, and focus on addressing critical conservation priorities.

The RTC is pioneering improved ways for early planning of mitigation for transportation improvements. This can be demonstrated by recent efforts to provide $5 million in funds through Measure D for construction of a wildlife crossing under Highway 17. The Highway 17 wildlife crossing is a partnership between Caltrans, the Land Trust of Santa Cruz County and the Santa Cruz County Regional Transportation Commission. Caltrans will be constructing a wildlife undercrossing under Highway 17 near Laurel Curve to allow safe passage for wildlife. The wildlife crossing connects two core habitat areas that the Land Trust has protected from development. The Land Trust has solicited donations for land acquisition and construction of this project. Mitigation credits will be generated by the Highway 17 Wildlife Connectivity Project that can be used by future transportation projects for specified mitigation purposes.

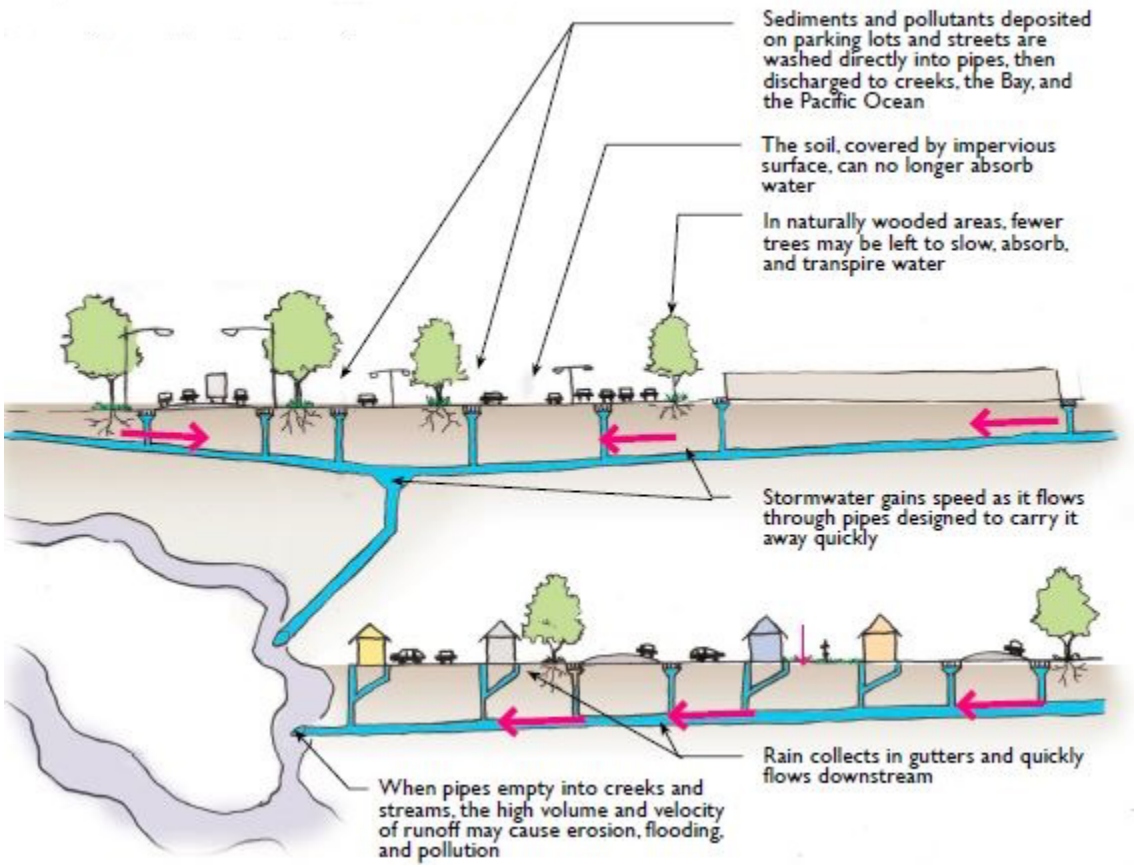
The RTC is also working closely with Caltrans, the Resource Conservation District, County of Santa Cruz and natural resource agencies on the Scott Creek Lagoon Restoration and bridge replacement project. While Caltrans has slated the Scott Creek Bridge for replacement, natural resource and permitting agencies have expressed a need for substantial habitat restoration at the site. In 2013, Caltrans, the Regional Transportation Commission, the County of Santa Cruz, and the Resource Conservation District entered into an agreement to consider lagoon restoration and bridge design options. A technical advisory committee made-up of United States Army Corps of Engineers, National Marine Fisheries Service, United States Fish and Wildlife Service, National Oceanographic and Atmospheric Administration, Regional Water Quality Control Board, California Coastal Commission, the California Coastal Conservancy and the Nature Conservancy has been established to provide input on design concepts. By collaborating at an early stage of the project, participants can work together to identify the best options for transportation, environmental benefits and cost, and identify potential funding sources for the project.

Mitigation banking, in-lieu of fees program, and conservation banking are strategies that allow for advanced, regional and/or multiple-project mitigation to occur in a designated area. For example, agencies may acquire, in coordination with resource agencies and local jurisdictions, resource conservation areas as a bank for off-site mitigation of RTP transportation projects. Zayante Sandhill's conservation bank is the only conservation bank established in Santa Cruz County. The region may consider supporting the development of additional site specific mitigation banks or developing an umbrella mitigation bank which could include multiple bank sites. The 2040 RTP addresses the need for advanced mitigation with inclusion of an Environmental Mitigation Program (EMP) which is intended to make funds available to protect, preserve, and restore native habitat that are disturbed by construction of transportation projects listed in RTC's RTP. EMP funds could be for uses such as, purchasing land prior to project development to bank for future mitigation needs, funding habitat improvements in advance of project development to leverage and enhance investments by partner agencies.

## Stormwater

Impervious surfaces in developed areas, such as pavement, prevent precipitation from naturally soaking into the ground. Instead, the rainwater washes into storm drains that lead directly to streams, rivers and coastal areas. The most significant impacts of this traditional design are pollutants that are washed

directly into water bodies; a greater degree of erosion and flooding occur as a result of increased water volumes and flow speeds if there is no mechanism to slow or divert water; and groundwater aquifers are not replenished from storm water runoff.




Addressing stormwater requirements associated with transportation projects can be very costly and can range between 2%-55% of project costs. Jurisdictions are developing systems to improve tracking of stormwater requirement related costs to provide more accurate cost estimates.

Design features intended to manage rainfall and mitigate stormwater impacts are commonly referred to as "low impact design". The goals of low impact design include improved filtration and reductions in flow and volume by mimicking the natural hydrologic function of healthy ecosystems in street landscapes. Examples of design features which reduce flow, volume and increase filtration include vegetated swales, infiltration and flow through planters, rain gardens, landscaped areas, streets trees, pervious pavement, infiltration trenches and dry wells, and vegetated buffer strips.

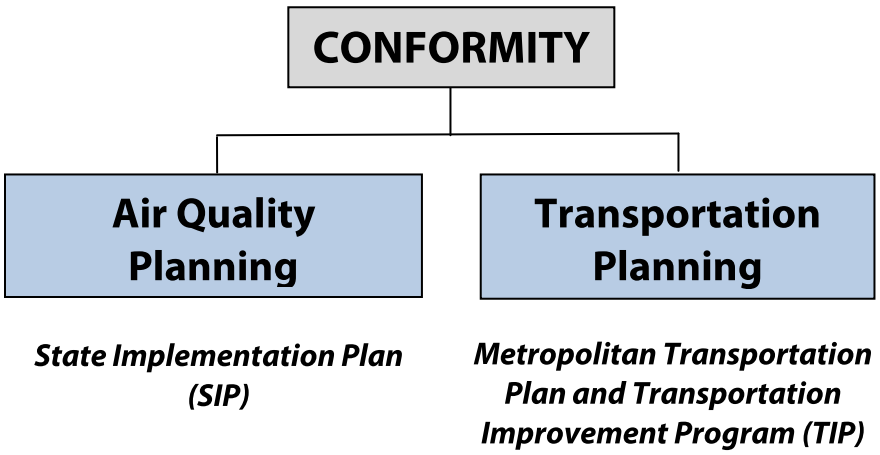
In the future, water quality and stormwater flows may be incorporated into the RTP's analysis of a sustainable transportation system. The Sustainable Transportation Analysis and Rating System (STARS) tool utilized by the RTC in development of the goals, policies and targets of the 2040 RTP is structured to allow for measures of water quality and stormwater runoff as indicators of ecological function.

## Greenhouse Gas Emissions

The Santa Cruz County Regional Transportation Commission is taking a proactive approach towards identifying strategies for reducing greenhouse gases in the 2040 RTP. In addition to the analysis of greenhouse gas emission impacts included in the 2040 MTP/SCS EIR, the Santa Cruz County RTC voluntarily incorporated greenhouse gas emission reduction targets into the performance analysis of the RTP. Please refer to Chapter 7 for a more detailed discussion of the GHG performance analysis of the 2040 RTP.

## Air Quality Conformity

The North Central Coast Air Basin (NCCAB) is made up of Santa Cruz, Monterey, and San Benito Counties. The NCCAB is defined as a federal air quality "maintenance area" because it currently meets federal air quality requirements, but previously did not. Federal air quality rules set forth by the Clean Air Act require that transportation activities are consistent with federally mandated air quality plans pertaining to on-road mobile sources (i.e. cars, trucks, buses, commuter rail, and motorcycles) as defined in the State Implementation Plan. As the designated Metropolitan Planning Organization within the region, the Association of Monterey Bay Area Governments (AMBAG) is responsible for conformity findings for transportation plans covering areas within the NCCAB.




The three county region (or NCCAB) has achieved federal-air quality conformity since 2005 for all criteria pollutants including carbon monoxide (CO), nitrogen dioxide (NO2), particulate matter (PM), lead (Pb), and sulfur dioxide (SO2), in addition to ozone (O3). For the RTP to be in conformity, the total emissions projected for the RTP are within the on-road mobile source emissions limits ("budgets") established by the State Implementation Plan. Since the region now qualifies as being in attainment, the region is no longer beholden to conformity analysis of its plans and programs and as such is no longer eligible to receive federal Congestion Mitigation and Air Quality (CMAQ) Improvement Program funds. However, several projects in the 2040 RTP implement the Air District's approved Transportation Control Measures (TCM's) for the region, which are developed to reduce transportation-related emissions by reducing vehicle use or improving traffic flow.

# CHAPTER 9 What's Next?

The Santa Cruz County Regional Transportation Plan is updated approximately every four years to reflect new initiatives, priorities and requirements. It builds upon the work of previous initiatives, complements ongoing work, and lays the groundwork for the future. This chapter identifies a number of considerations that will likely be discussed in more detail in future editions of the RTP.

## Climate Adaptation

Santa Cruz County is susceptible to a wide range of climate change effects including increased temperatures, changing precipitation patterns, increased number and severity of wildfires, sea-level rise, extreme weather events, and numerous effects on biodiversity and habitats. The transportation system is impacted by increased flooding, landslides or mudslides, erosion, and heat waves or fires that cause roadways to buckle. The mudslides caused by the high levels of rainfall in winter of 2016-17 caused significant damage to Santa Cruz County roadways increasing the backlog of roadway maintenance substantially. Sea-level rise is a particularly critical climate stressor that impacts Santa Cruz County and includes more extensive coastal flooding during storms, periodic tidal flooding and increased coastal erosion. Current research suggests that coastal California could experience a 5 to 10 inch rise in sea level by 2040 based on annual sea level rise rate of about 4– 8 mm/yr.[1] Santa Cruz County's coastal cliffs are experiencing average erosion rates of 0.17 to 2.1 feet or more per year.[2]

The Santa Cruz County Regional Transportation Commission is aware of the need to undertake efforts that respond to impacts of climate change. The state of California regularly updates California's Climate Adaptation Strategy.[3] This report outlines the high level recommendations for all sectors as well as the

strategies that are needed to combat the affects of climate change and the projects and programs already being implemented. The California Transportation Commission's (CTC) 2017 RTP guidelines for Regional Transportation Planning Agencies (RTPAs) require RTPs to be consistent with California's Climate Adaptation Strategy Report. Climate factors will affect decisions in every phase of the transportation management process: from long-range planning and investment; through project design and construction; to management and operations of the infrastructure; and system evaluation.

The Santa Cruz County Regional Transportation Commission in coordination with Caltrans and local jurisdictions will need to consider the following to plan for impacts of climate change:

- Facilitate coordinated response from transportation providers to disruptions resulting from climate variability and extreme weather events;
- Develop transportation planning specifications in conjunction with accepted statewide practices concerning new construction and development, such as drainage capacity, location near shore lines, and materials;
- Identify transportation assets at high risk to impacts from climate change;
- For assets at risk, decide upon whether protection will be built around the facility, the facility will be redesigned to accommodate climate change impacts, or the facility will be abandoned and relocated elsewhere.
- Prioritize investments that protect evacuation routes; and,
- Provide guidance for more resilient building materials and design standards for transportation facilities.

The uncertainties inherent in projecting long-term impacts of climate changes coupled with the long service life of most transportation infrastructure present a challenge for transportation decision making. The economic cost associated with climate change impacts has yet to be fully estimated. Impending climate impacts have implications not only for the siting of new transportation infrastructure, but also maintenance and operation, design features of transportation systems, and emergency planning and response for extreme climate events. Because today's transportation network will likely be in place for decades to come, investment and design decisions made today need to consider potential changes in climate conditions 30, 50, and sometimes 100 years or more from now (**Figure 9.1**). The RTC will monitor federal and state activities for addressing climate adaptation as well as the actions of local entities which have instituted policies and plans for addressing climate adaptation.

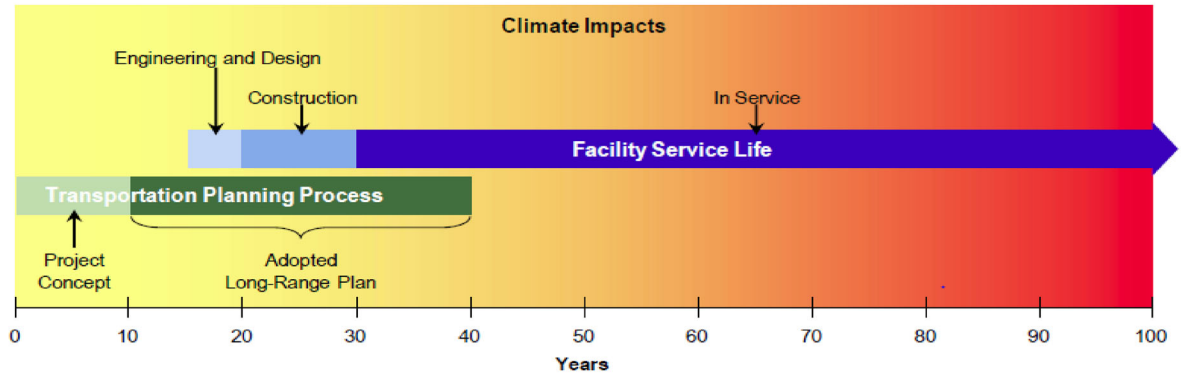



**Figure 9.1 – Relationship of Transportation Planning Timeframe and Infrastructure Service Life to Increasing Climate Change Impacts**

*Source: Climate Change Science Program and the Subcommittee on Global Change Research*[4]

## Automated Vehicles

The effects of automated vehicles on future transportation systems are under much debate. Automated vehicles (AVs) are an emerging technology that could bring a number of benefits to the transportation system including increased safety through a reduction of injuries and fatalities, increased throughput and mobility within existing capacity due to driving efficiencies, environmental benefits from smarter driving that releases fewer emissions, and improved system management through vehicle data. Conversely, there is also the potential of AVs to drastically increase traffic congestion and the amount of vehicle miles traveled particularly when self-driving vehicles no longer require a person on board. These potential benefits and challenges have not been integrated into the 2040 RTP for a number of reasons. There are many uncertainties associated with AVs including a currently unfolding set of federal and state regulations, resolution of questions around programming ethics, solutions to liability and insurance concerns, the impacts of AVs on transportation infrastructure needs, and market adoption rates.

The large Metropolitan Planning Organizations in California like San Diego Association of Governments (SANDAG) and Southern California Association of Governments (SCAG) are just beginning to incorporate automated vehicles into their regional transportation plans. The RTC will be following these efforts to determine how best to incorporate automated vehicle technology in transportation planning. The RTC updates the RTP every four years and will have numerous opportunities before AVs become common to consider appropriate policy and infrastructure investments. A more detailed explanation of automated vehicles and the issues related to transportation planning is provided in the following paragraphs.

### Definitions

Generally speaking an AV is defined by the ability of the vehicle to control a safety-critical function such as steering, throttle, or braking without direct driver input.[5] AVs may be autonomous (using only vehicle sensors) or may be connected (using communication systems such as vehicle-to-vehicle and vehicle-to-infrastructure technologies in addition to sensors). Connectivity is a critical feature to realizing the full potential benefits of AVs. AV technology is advancing at a rapid rate and not all AVs automate every vehicle function. Therefore it is helpful to define various levels of automation.

The National Highway Traffic Safety Administration has adopted the Society of Automotive Engineers (SAE) definitions for automation which include five levels. Levels one through two include vehicles where some functions are automated such as assisted parking or adaptive cruise control, but still require a human driver to conduct some or most parts of the driving tasks. Level one and two vehicles are already common and available for purchase. Levels three to five are considered highly automated vehicles and are defined by the ability of the vehicle to conduct most or all of the driving tasks.[6]

## Implementation and Timeline

There are a number of factors that could influence the adoption rate of automated vehicles. Currently the cost of the technology is prohibitively expensive and some have argued that the legal issues regarding privacy and liability will delay implementation even if the costs were not so high. As demand grows and economies of scale are realized the costs will slowly go down, but some research concludes that even then costs will still be higher than the average cost of vehicle ownership now.[7] Regarding the legal and liability concerns, states have already started passing legislation that allows for testing and use of AVs on existing roadways. The legal framework around current vehicle systems is multifaceted and did not develop overnight but was rolled out as vehicles became more commonplace and attempts at regulating failed and then succeeded. Similarly, the legal framework for regulating AVs will slowly evolve over time and will, as most law does, look to the past as a starting point.[8] Until then manufacturers of AVs will have to develop vehicles that comply with existing law and at least initially AVs will operated in mixed traffic.

There are also factors that may increase the speed of market adoption including a large amount of investor interest in rapidly evolving vehicle-to-vehicle and vehicle-to-infrastructure technology. The automotive industry's introduction of a subscription based model of vehicle usage versus the traditional ownership models may also influence automated vehicle fleet mix by providing easier access to AVs thereby facilitating consumer acceptance.[9, 10] Additionally, companies that retrofit older vehicles with automated features may increase the vehicle fleet more rapidly.[11]

The ability to program the AVs to make difficult decisions in the context of more complex roadways such as local roads is another area of uncertainty. On highways and expressways AVs have limited types of encounters, usually only maneuvering other vehicles or lanes and there is little variation in the right-of-way. On local roads, there are intersections, driveways, potholes, debris, animals, as well as people walking or riding a bike. The number of complex decision points on local roads soars due to more variation in the right-of-way and increased encounters with unpredictable objects. Programming for all these decision points can require consideration of some complicated ethical questions, making it more likely that lower level AVs requiring human interference and control for these types of driving environments will be introduced into the market first.

Based on an entry date of 2020, historic vehicle purchasing and turn-over rates, as well as a the factors presented above, the Victoria Transport Policy Institute (VTPI) forecasts that market saturation would not occur until the 2060's and that full self-driving vehicles (SAE Level 5) would not be commercially available until the 2030's or 2040's.[12]

## Infrastructure and Planning

The presence of AVs has the potential to transform the way planners manage traffic and will require a number of significant investments in intelligent transportation system (ITS) architecture over the long

term. In the short term AVs will have minimal impacts on infrastructure requirements since they can operate in mixed traffic on existing roadways shared with conventional vehicles.

Vehicle-to-infrastructure technology would allow for public agencies to provide drivers with warnings based on information regarding known and predictable conditions such as signal phasing and timing (SPaT), work zones, transit signal priority, emergency vehicle preemption and sharp curves.[13]

Automated vehicles have the potential to increase driving efficiency and therefore throughput or capacity as measured in vehicles per hour per lane (vphpl). However, until AVs constitute a large majority of the vehicle fleet, their roadway operational benefits to locations with recurring congestion may not be realized if they are mixed with traditional vehicles. To realize increased vphpl designated lanes or separate roadway facilities may be needed. However, increased roadway capacity in the form of additional designated lanes is costly and may be infeasible in locations where land and resources are limited. Additionally, as discussed above initially AVs may still need human interaction on more complex local roadways reducing their ability to increase driving efficiency on roadways other than highways.

Despite differences of opinions around timing and implementation much research now agrees that the introduction of AVs will increase vehicle miles traveled.[14,15] Fully automated vehicles will increase vehicle use by people who could previously not drive and may cause an increase in the number of trips people make and thus the number of miles people travel if vehicles can be programmed to do errands without the need for people to be in the vehicle. Reductions in congestion due to driving efficiencies could be eliminated by increases in congestion due to increasing VMT. Increasing AV use will require the RTC and other public agencies to rethink investment strategies and policy decisions in order to determine how the triple bottom line of sustainability may be impacted.

## State and Federal Policy

The responsibilities for the regulation of human driven vehicles are clearly delineated between the federal Department of Transportation's National Highway Traffic Safety Administration (NHTSA) and the states. Currently the federal responsibilities for motor vehicles include setting and enforcing Federal Motor Vehicle Safety Standards (FMVSS), investigating and managing recalls and remedies for non-compliance, communicating and educating the public about safety issues, and issuing guidance for manufacturers to follow. State responsibilities include licensing drivers and registering vehicles, enacting and enforcing traffic laws and regulations, conducting safety inspections if they chose to do so, and regulating vehicle insurance and liability. With the introduction of AVs there may be new responsibilities that do not clearly fall within the existing parameters.

NHTSA released a policy document containing performance guidelines for highly automated vehicles (HAVs) in September 2016 with the acknowledgement that it is preliminary guidance intended to lay the foundation for future federal policy.[16] While the guidance is not currently mandatory, manufacturers designing HAVs are subject to NHTSA's defect, recall and enforcement authority. Some elements of the guidance may become mandatory in the near future and there will be additional augmentations to the guidance as NHTSA conducts more research. The NHTSA recommends maintaining a similar clear line of responsibilities with AVs as is currently provided for human driven vehicles. The policy document also provides a model state policy with the goal of encouraging consistency amongst states in their approach to regulating AVs. After the release of this policy document the United States Congress began considering legislation that would bar states from blocking AVs.

California currently allows for AV testing but requires licensing with the state and regular reporting on any system problems or incidents. As of March 2017, 22 different firms have registered to test AVs in California.[17] The California Department of Motor Vehicles has also released draft regulations establishing a path for post-testing deployment of full AVs, which at the time of this research had not been adopted.

## Notes for Chapter 9

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[10] Cadillac and General Motors are already piloting subscription programs in urban areas.

[11] Companies such as Autonomous Stuff and Drive.ai are already exploring and developing ways to retrofit vehicles to add autonomous features.

[12] Todd Litman, ibid.

[13] Federal Highway Administration, "Connected Vehicle Impacts on Transportation Planning Desk Reference," (June 2016).

[14] Fehr and Peers, " Effect of Next-Generation Vehicles on Travel Demand and Highway Capacity," (February 2014). And Cite both FP and Symposium

[15] Transportation Research Board, "Automated Vehicles Symposium 2016," Transportation Research Circular: Number E-C22 (July 2017).

[16] NHTSA, ibid.

[17] "Adopting and Adapting: State and Automated Vehicle Policy," Paul Lewis, Gregory Rogers and Stanford Turner, Eno Center for Transportation (June 2017).

# Transportation Glossary & Acronym Guide

**AASHTO:** See American Association of State Highway and Transportation Officials

**AB 2766 - Motor Vehicle Fee Program:** A program that permits air districts to allocate vehicle registration surcharge fees of up to $4.00, per vehicle, per year to projects that reduce motor vehicle emissions, such as zero-emission vehicles, roundabouts/traffic circles, and trip reduction programs.

**AB 32 (The Global Warming Solutions Act of 2006):** California Assembly Bill (AB) which set goals to reduce the state's greenhouse gas emissions to 1990 levels by 2020. Directs the California Air Resources Board (CARB) to develop regulations and establish a mandatory reporting system to track and monitor global warming emissions levels.

**Accessible:** A transportation vehicle, facility or program is accessible if it can be used by persons with disabilities through the provision of ramps, lifts, curb cuts and special equipment, planning or amenities.

**ACOE:** see Army Corps of Engineers

**Action Element:** The Action Element of the RTP consists of short and long-term activities that address regional transportation needs. All transportation modes (highways, local streets and roads, mass transportation, rail, maritime, bicycle, pedestrian and aviation facilities and services) are addressed. In addition, the Action Element identifies project priorities beyond what is already programmed.

**Active Transportation:** Active Transportation includes any method of travel that is human-powered, but most commonly refers to walking and bicycling.

**Active Transportation Program:** Funding program established in 2013 for projects that increase bicycling and walking. Consolidates several federal and state programs - including the federal Transportation Alternatives Program (TAP), Safe Routes to Schools, and Bicycle Transportation Account.

**ADA**: see Americans with Disabilities Act

**ADT**: see Average Daily Traffic

**Air Quality Management Plan (AQMP)**: Prepared by the Monterey Bay Unified Air Pollution Control District (MBUAPCD), the region's AQMP evaluates attainment of federal and state air quality standards within Santa Cruz, San Benito and Monterey counties.

**Allocate**: The process used to release funding to transportation projects.

**Alternative Planning Scenario (APS):** Scenario required to be developed by an MPO if the region's sustainable communities strategy (SCS) falls short of meeting regional greenhouse gas reduction targets from passenger vehicles. Scenario showing how targets would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

**Alternative Transportation Fuels:** Low polluting fuels that are used to propel a vehicle, in place of petroleum-based gasoline or diesel fuels. Examples include biodiesel, electricity, ethanol, propane, compressed natural gas, and liquid natural gas.

**AMBAG**: see Association of Monterey Bay Area Governments

**American Association of State Highway and Transportation Officials (AASHTO):** A national nonprofit, non-partisan association

representing highway and transportation departments.

**American Recovery and Reinvestment Act (ARRA)**: Federal bill approved in February 2009 aimed at creating jobs and spurring economic activity. Included funding for transportation infrastructure projects, among other non-transportation projects and programs. The RTC selected projects to receive $12 million from the Highway portion of the bill.

**Americans with Disabilities Act (ADA)**: Federal legislation (1990) defining the responsibilities of and requirements for transportation providers to make transportation accessible to individuals with disabilities. Examples include public and private entities providing fixed-route or demand-responsive transportation services using accessible vehicles, complementary paratransit service for individuals who cannot use fixed-route service, curb cuts and other accessible sidewalk facilities.

**APE**: see Area of Potential Effect

**Appropriate/Appropriation**: A budgetary term that refers to an act by a governing body to provide budgeted funds to programs that have been previously authorized by other legislation. The amount of funding appropriated may be less than what was authorized.

**APS**: see Alternative Planning Strategy

**AQMP**: see Air Quality Management Plan

**Area of Potential Effect (APE)**: Area in which resources may be affected by a project.

**Army Corps of Engineers (ACOE)**: Federal agency responsible for providing engineering services, including the planning, design, construction, and operation of water resources and other civil works and military projects.

**ARRA**: see American Recovery and Reinvestment Act

**Arterial Road System**: Roads which provide corridors for through traffic movement, many of which feed into the highway network. Most are served by bus transit and have marked bicycle lanes.

**Association of Monterey Bay Area Governments (AMBAG)**: A voluntary association of Santa Cruz, San Benito and Monterey counties and the cities therein. AMBAG has been designated as the Metropolitan Planning Organization (MPO) by the State of California and acts as the Council of Governments (COG) responsible for developing the Regional Housing Needs Assessment (RHNA) for Santa Cruz and Monterey counties.

**ATP:** see Active Transportation Program

**Authorize**: An act by Congress that creates the policy and structure of a program, including formulas and guidelines for awarding funds. Authorizing legislation (such as MAP-21) may set an upper limit on program spending or may be open ended. Revenues to be spent under an authorization must be appropriated annually by separate legislation.

**Automated Vehicle Location (AVL):** A device that uses the coordinates from satellites to determine the precise location of vehicles. AVL is often used to manage bus, taxi and commercial vehicle fleet operations.

**Auxiliary Lane:** Freeway lanes linking adjacent interchanges to reduce weaving conflicts between exiting and entering vehicles.

**Average Daily Traffic (ADT)**: The 24-hour volume of traffic that passes a point on an "average" day. Depending on the location, ADT can be assumed to be a two-way volume. Annual ADT volumes or AADT estimate traffic volumes during an average day of the year, calculated using the average daily traffic and factoring in weekday and seasonal characteristics.

**Average Vehicle Ridership (AVR)**: The average number of people per motorized vehicle. Also called Average Vehicle Occupancy (AVO).

**AVL:** see Automated Vehicle Location

**AVO:** Average Vehicle Occupancy

**AVR**: see Average Vehicle Ridership

**B2W:** Bike to Work

**Base Year:** Year used in performance analysis as a reference point for current conditions.

**Baseline:** Future scenario which includes only projects currently underway or programmed funds. The Baseline scenario functions as the "No Project" alternative in the MTP/RTP Program EIR.

**Bikeway**: Facility designated for use by bicyclists. There are three types of bicycle facilities.

1. *Bike Path or Bike Trail (Class I Bikeway)* — Provides a completely separated right-of-way designated for the exclusive use of bicyclists and pedestrians with cross-flows by motorists minimized.

2. *Bike Lane (Class II Bikeway)* —Provides a striped and/or signed right-of-way for use by bicycles, but with occasional adjacent vehicle parking and cross-flows by pedestrians and motorists permitted.

3. *Bike Route (Class III Bikeway)* — Highlights direct or scenic routes for bicyclists using signs or permanent markings. Routes may be shared with pedestrians or motorists.

**Buffered Bike/Pedestrian Facility:** A bicycle or pedestrian facility that has additional space between the motor vehicle travel lane and the bicycle and pedestrian facility. A buffered facility offers a more comfortable biking or walking environment.

**Bus Rapid Transit (BRT):** A broad term that, through improvements to infrastructure, vehicles and scheduling, attempt to use buses to provide a service that is of a higher quality than an ordinary bus line.

**California Air Resources Board (CARB or ARB)**: State agency responsible for adopting state air quality standards, establishing emission standards for new cars sold in the state, overseeing activities of regional and local air pollution control agencies, and setting regional targets for reducing greenhouse gas emissions.

**California Coastal Trail (CCT):** The CCT is a network of public trails that will extend the entire 1200-mile length of the California Coast and currently is more than half complete.

**California Department of Transportation (Caltrans or CT)**: State agency which builds and maintains state highways, some state railways, and administers multi-modal transportation programs within the state.

**California Environmental Quality Act (CEQA)**: Legislation which requires private entities, state and local agencies to disclose, consider and mitigate the environmental impacts of various actions.

**California State Association of Counties (CSAC)**: Agency representing the 58 county governments before the California Legislature, administrative agencies and the federal government.

**California Transportation Commission (CTC):** A board appointed by the governor and state legislature that sets spending priorities for highways and transit, reviews Regional Transportation Plans (RTPs) and Regional Transportation Improvement Programs (RTIPs) and allocates funds to transportation projects from several funding programs.

**California Transportation Plan (CTP):** A statewide, long-range transportation policy plan that provides for the movement of people, goods, services, and information. The CTP offers a blueprint to guide future transportation decisions and investments that will ensure California's ability to compete globally, provide safe and effective mobility for all persons, better link transportation and land-use decisions, improve air quality, and reduce petroleum energy consumption.

**Call Box System**: A network of roadside phones which link motorists directly with dispatchers to request assistance or emergency services.

**Caltrans**: see California Department of Transportation

**Cap & Trade Program:** The California Air Resources Board, as part of AB 32, has established a cap and trade program to reduce greenhouse gas emissions from all sectors. The program sets a limit or *cap* on the amount of a pollutant that may be emitted. Emissions permits are sold to firms which allow them the right to emit a specific volume of the specified pollutant. The total number of permits cannot exceed the cap. Although how the funds will be allocated has not been determined, it is reasonable to assume that low-carbon transportation improvements should receive a substantial share of the proceeds from the cap-and-trade program.

**Capital Improvement Program (CIP)**: A document which sets forth the cost, funding and year of construction for projects over a specified number of years (typically five to seven years).

**Capital Improvements**: Physical infrastructure improvements such as pavement, sidewalks, bridges, signals and purchases of equipment, vehicles.

**CARB**: see California Air Resources Board

**Carpool:** An arrangement in which two or more people share the use of a privately-owned automobile to travel together to and from pre-arranged destinations — typically between home and work or home and school.

**Carsharing:** Organized short-term auto rental, often located in downtowns, near public transit stations, residential communities and employment centers. Carsharing organizations operate fleets of rental vehicles that are available for short trips by members who pay a subscription fee, plus a per trip charge.

**Categorical Exemption (CE):** Classes of projects that are usually exempt from CEQA, provided that no exceptions apply.

**CE:** see Categorical Exemption

**CEQA**: see California Environmental Quality Act

**Changeable Message Signs (CMS)**: Large overhead signs providing advisory information to travelers.

**CHP**: California Highway Patrol

**CIP**: see Capital Improvement Program

**Climate Adaptation:** Refers to efforts by society or ecosystems to prepare for or adjust to climate change and its impacts.

**CMA:** See Congestion Management Agency

**CMAQ**: see Congestion Mitigation and Air Quality Improvement Program

**CMIA**: see Corridor Mobility Improvement Account

**CMS**: see Changeable Message Signs

**CNG:** see Compressed Natural Gas

**COG:** see Council of Governments

**Collector Streets**: Streets that collect traffic from local streets, channeling it to arterials, freeways, or local destinations such as schools or shops.

**COMMISSION**: see Santa Cruz County Regional Transportation Commission

**Community Traffic Safety Coalition (CTSC)**: A coalition of agencies and individuals that promotes bicycle and pedestrian safety, particularly for school children. Operated by the Santa Cruz County Health Services Agency and partially funded by the RTC.

**Commute Solutions**: Santa Cruz County's rideshare program which provides information about transportation alternatives to the single occupant vehicle and carpool match lists.

**Commute**: The trip to/from a regular location, usually work or school.

**Commuter Rail:** Conventional rail passenger service within a metropolitan area. Service primarily is in the morning (home-to-work) and afternoon (work-to-home) travel periods.

**Commuter:** A person who travels regularly between home and work or school.

**Complete Streets:** Streets designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists, and bus riders of all ages and abilities are able to safely move along and across a complete street.

**Compressed Natural Gas (CNG):** A clean-burning alternative fuel for vehicles.

**Conformity:** A demonstration of whether a federally-supported activity is consistent with the Clean Air Act. Transportation conformity applies to plans, programs, and projects approved or funded by the Federal Highway Administration or the Federal Transit Administration.

**Congestion Management Agency (CMA):** State designated county-level policy body responsible for monitoring and developing a Congestion Management Plan (CMP) to measure levels of service on highways, roadways, and intersections. Santa Cruz County has opted out of the congestion management program.

**Congestion Mitigation and Air Quality Improvement Program (CMAQ)**: Federal funding program established specifically for projects and programs that contribute to the attainment of a national ambient air quality standard. Funds distributed to regions based on population, Air Quality maintenance/attainment category and air pollution severity. Due to changes in federal air quality measurements, the Monterey Bay region is no longer eligible for these funds, but may be eligible in the future if federal standards are tightened.

**Congestion:** Congestion is usually defined as travel time or delay in excess of what is normally experienced under free-flow traffic conditions. Congestion is typically accompanied by lower speeds, stop-and-go travel conditions, or queuing, such as behind ramp meters or heavily-used intersections.

**Consolidated Transportation Services Agency (CTSA)**: Agency responsible for coordinating specialized transportation services. In Santa Cruz County, the CTSA is Lift Line, a division of Community Bridges.

**Constrained (Fiscal Constraint/Financially Constrained)**: Denotes a funding scenario under which projects, programs, expenditures in a plan or programming document that can be implemented within the constraints of committed, available or reasonably available revenue sources. This document also identifies constrained projects as "Within Projected Funds."

**Coordinated Public Transit-Human Services Transportation Plan (CPTP)**: A federally-required plan to serve as a unified, comprehensive strategy for the delivery of transportation services for people with disabilities, older adults, and low-income

individuals. A three-county plan is approved by AMBAG.

**Corridor Mobility Improvement Account (CMIA)**: Authorized by voters in 2006 as part of Proposition 1B bond to fund state highway projects that provide demonstrable congestion relief, enhanced mobility, improved safety, and stronger connectivity.

**Corridor**: A major transportation route which can consist of one or more highways, arterial streets, transit lines, rail lines and/or bikeways.

**Council of Governments (COG):** A voluntary organization of local governments that strives for comprehensive regional planning. AMBAG is the COG for Monterey and Santa Cruz counties.

**County Shares**: A formula in state law that requires a minimum return of STIP revenues to counties based on population and state highway miles.

**CPTP**: see Coordinated Public Transit-Human Services Transportation Plan

**CSAC**: see California State Association of Counties

**CT**: see California Department of Transportation

**CTC**: see California Transportation Commission

**CTP:** see California Transportation Plan

**CTSA**: see Consolidated Transportation Services Agency

**CTSC:** see Community Traffic Safety Coalition

**Dedicated Funds**: Federal, state or local funds which can be used only for specific purposes or by specific agencies.

**Demand Responsive**: Individualized transportation services requested by passengers, and/or where routes are developed around a group of requests, which may change on a daily basis. Oftentimes provided to people unable to use fixed-route buses by taxis or by advance reservation on paratransit vehicles.

**Department of Transportation (DOT):** At the federal level, the cabinet agency headed by the Secretary of Transportation that is responsible for highways, transit, aviation, and ports. The DOT includes the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), the Federal Aviation Administration (FAA), and other agencies. The state DOT is Caltrans.

**Development Impact Fee:** A fee charged to private developers, usually on a per-dwelling-unit or per-square-foot basis, used to pay for infrastructure improvements necessitated as a result of the development.

**Discretionary Funds**: Federal, state and local funds which can be used for a variety of purposes. Sometimes also referred to as "flexible funds."

**DMV**: CA Department of Motor Vehicles

**DOT:** see Department of Transportation

**EA**: see Environmental Assessment

**EB**: Eastbound

**ED**: see Environmental Document

**EJ:** see Environmental Justice

**EIR**: see Environmental Impact Report

**EIS:** see Environmental Impact Statement

**EMFAC - Emission Factor:** Model that estimates on-road motor vehicle emission rates for current year as well as backcasted and forecasted inventories.

**EMS**: see Extinguishable Message Sign

**Environmental Assessment (EA)**: A document that serves to briefly provide sufficient evidence and analysis for determining whether to prepare an EIS or FONSI for federal-aid projects. It is the federal equivalent of the CEQA term "initial study."

**Environmental Document (ED)**: The draft or final Environmental Impact Statement or Environmental Impact Report, Finding of No Significant Impact, Environmental Assessment or Negative Declaration.

**Environmental Impact Report (EIR)**: An assessment of the environmental effects and mitigations for a proposal or decision which, under the California Environmental Quality Act (CEQA), has been determined may significantly impact the environment.

**Environmental Impact Statement (EIS):** Document that details any adverse economic, social and environmental effects of a proposed transportation project prepared pursuant to the National Environmental Policy ACT (NEPA), roughly analogous to an EIR under CEQA.

**Environmental Justice (EJ):** The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EJ principles include ensuring that planned transportation improvements do not have a disproportionate adverse impact on low income or other under-represented groups, and that minority and low-income populations receive equal benefits, on an equally timely basis, as other populations.

**EPA - Environmental Protection Agency:** Federal agency established to develop and enforce regulations that implement environmental laws enacted by Congress to protect human health and safeguard the natural environment.

**Excise Tax:** Excise taxes are taxes paid when purchases are made on a specific good, such as fuel. Excise taxes are often included in the price of the product.

**Expenditure**: In transportation terms, this is any allowable expense associated with a project or program.

**Expressway:** A divided highway for high-speed traffic with at least partial control of access. In some areas, expressways are divided arterial roads with limits on the frequency of driveways and intersecting cross-streets. In other area, access to expressways is limited only to grade-separated interchanges, making them the full equivalent of freeways.

**Extinguishable Message Sign (EMS)**: Signs along roadways that provide advisory messages or direct motorists to Highway Advisory Radio broadcasting current information about traffic conditions.

**FAA:** see Federal Aviation Administration

**Farebox Recovery Ratio:** The proportion of public transit operating expenses covered by passenger fares. The ratio divides the farebox revenue (cash, tickets, and passes) by the total operating expenses.

**Federal Aviation Administration (FAA):** The federal agency that regulates the use of airspace and is responsible for evaluating and disseminating information about hazards and obstructions to aviation.

**Federal Highway Administration (FHWA)**: The federal agency responsible for the approval of transportation projects related to the roadway system.

**Federal Railroad Administration (FRA):** Federal agency created to promulgate and enforce rail safety regulations, administer railroad assistance programs, conduct research and development in support of improved railroad safety and national rail transportation

policy, and consolidate government support of rail transportation activities.

**Federal Transit Administration (FTA)**: The federal agency responsible for administering federal transit funds and assisting in the planning and establishment of mass transportation systems.

**Federal Transportation Improvement Program (FTIP)**: Federally required multi-year capital improvement program listing projects using federal funds and major highway, transit, and active transportation projects including project costs, funding sources, and development schedules. AMBAG prepares the FTIP in the Monterey Bay area and refers to this document as the Metropolitan Transportation Improvement Program (MTIP).

**FHWA**: see Federal Highway Administration

**Financial Element:** A required component of the RTP, the financial element identifies the current and anticipated revenue sources available to fund the constrained transportation investments described in the Action Element. The intent of the Financial Element is to define realistic financing constraints and opportunities.

**Finding of No Significant Impact (FONSI):** Federal environmental document (NEPA) term roughly analogous to Negative Declaration under CEQA.

**Fiscal Year (FY)**: The 12-month period established for budgeting purposes. The fiscal year for state and most local governments in California begins July 1 and ends June 30. The federal fiscal year begins October 1 and ends September 30.

**Fixed Guideway**: A term for transportation modes that feature guidance along a fixed structure, such as a track, a concrete channel, or a cable. Examples include diesel powered railroad trains, electrified light rail trolleys, monorails, funiculars, gondolas, and people movers.

**Fixed Route Service:** Service provided on a regular, fixed-schedule basis along a specific route.

**Fixed Route**: A fixed route is a bus transit route in which a vehicle operates on a regular, fixed-schedule along a specific route, with vehicles stopping to pick up and deliver passengers at specific locations.

**Flex Hours**: Work hours which allow an employee to work a non-standard work schedule and commute during non-peak hours. Common examples include the 4/10 where an individual works four 10-hour days per week or the 9/80 where an individual works longer hours each day with one day off every other week.

**FONSI:** see Finding of No Significant Impact

**Freeway Service Patrol (FSP)**: Roving tow truck service that clear incidents on roadways during peak travel periods.

**Freeway:** A divided arterial highway designed for the unimpeded flow of large traffic volumes. Access to a freeway is controlled and intersection grade separations are required.

**FSP**: see Freeway Service Patrol

**FTA**: see Federal Transit Administration

**FTIP**: see Federal Transportation Improvement Program

**FY**: see Fiscal Year.

**Gas Tax:** The tax applied to each gallon of fuel sold. In California this is also call the Motor Vehicle Fuel Tax or Highway Users Tax Account (HUTA).

**General Plan:** A policy document required of California cities and counties by state law that describes a jurisdiction's future development in

general terms, and includes policy statements and maps. Land use decisions must be derived from the document, which includes seven mandatory elements: Land Use, Circulation, Housing, Conservation, Open Space, Noise, and Safety.

**GHG:** see Greenhouse Gas

**GIS - Geographic Information System**: Mapping software that links information about where things are with information about what things are like. GIS allows users to examine relationships between features distributed unevenly over space, seeking patterns that may not be apparent without using advanced techniques of query, selection, analysis, and display.

**Grade Crossing:** A crossing or intersection of highways, railroad tracks, other guideways, or pedestrian walks, or combinations of these at the same level or grade.

**Greenhouse Gas (GHG)**: Any of the atmospheric gases that contribute to the greenhouse effect by absorbing infrared radiation produced by solar warming of the Earth's surface. Include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

**HAR**: see Highway Advisory Radio

**HBR**: see Highway Bridge Program

**HCM**: see Highway Capacity Manual

**Headquarters (HQ)**: The main offices in Sacramento of the California Department of Transportation (Caltrans), a government agency in California charged with improving mobility across the state.

**Headways:** Time interval between transit vehicles traveling the same direction on the same route; i.e., 15-minute or 2-hour headways indicates service every 15 minutes or every 2 hours.

**High Occupancy Toll (HOT) Lanes**: A lane on a multi-lane highway designated for use, primarily in the peak periods, free of charge by vehicles with two or more occupants or for single-occupant vehicles paying a toll.

**High Occupancy Vehicle (HOV) Lanes (or Diamond Lanes)**: A lane on a multi-lane highway designated for use, primarily in the peak periods, only by vehicles with more than one (or sometimes two) occupants – such as carpools, vanpools, shuttles, and buses. In California, motorcycles, emergency vehicles, and certain low/zero emissions vehicles may also use HOV lanes.

**Highway Advisory Radio (HAR)**: Radio station providing updated information on traffic conditions.

**Highway Bridge Program (HBR)**: Federal funding program administered by Caltrans for bridge replacement or rehabilitation on public roads.

**Highway Capacity Manual (HCM**): Provides information for many transportation facilities and modes, including techniques for estimating the number of vehicles that can fit in a roadway (capacity), Level of Service, and design characteristics.

**Highway Safety Improvement Program (HSIP):** Formerly the Hazard Elimination and Safety Program (HES). Federal funding program administered by Caltrans for improving safety.

**Highway:** A general term which includes roads, streets, and parkways and all their appurtenances. In this document "highway" typically refers only to roads on the State Route System however (e.g. Highway 17).

**HOT**: see High Occupancy Toll Lanes

**HOV**: see High Occupancy Vehicle Lanes

**HPMS - Highway Performance Monitoring System:** A federally mandated program

designed by FHWA to assess the performance of the nation's highway system. Includes data on public roadways.

**HQ**: Headquarters

**HSIP:** see Highway Safety Improvement Program

**HSR - High Speed Rail:** Railroad passenger service that, as defined by California state law, operates at maximum speeds of more than 200 miles per hour. Because of the speed, high speed rail normally operates on intercity (longer) routes.

**HUTA:** Highway Users Tax Account. See Gas Tax

**Infill Development:** Development of land within an established urbanized area.

**Initial Stud**y: Under CEQA, a systematic review of a proposed project undertaken to determine whether there is substantial evidence that it may result in one or more significant impacts.

**In-Lieu Fee (ILF) Mitigation:** A permittee pays a fee to the operator of the ILF program instead of conducting project-specific mitigation. An ILF program typically combines fees collected from a number of permittee's projects to finance a mitigation project.

**Intelligent Transportation System (ITS)**: A general classification of transportation technologies, management tools, and services made possible through advances in computer and communication technologies. Examples include real-time information about traffic incidents, dynamic curve warning signs, and the guidance of vehicles through remotely controlled equipment.

**Interagency Technical Advisory Committee (ITAC)**: An RTC committee consisting of representatives from planning and public works departments, transit, UCSC and Cabrillo College, transportation management associations, the Air District, and other entities who review and make recommendations about regional plans, projects, and funding.

**Intercity Rail:** Railroad passenger service that primarily serves longer trips, such as those between major cities or regions.

**Inter-modal**: Using or addressing inter-connections between various transportation facilities or modes.

**Interregional Transportation Improvement Program (ITIP)**: A state funding program designated to receive 25% of funds programmed in the STIP (the other 75% are RTIP funds). Available for major state highway and passenger rail routes which link regions. Projects are proposed by Caltrans and subject to CTC approval.

**IS**: see Initial Study

**ISTEA**: Inter-modal Surface Transportation Efficiency Act. Federal funding and authorization bill that governed federal surface transportation spending 1991-1997.

**ITAC**: see Interagency Technical Advisory Committee

**ITIP**: see Interregional Transportation Improvement Program

**ITS**: see Intelligent Transportation Systems

**Jobs/Housing Balance**: The interrelationship between the location and type of housing versus the location and type of jobs in a region. This interrelationship has implications for transportation demand.

**JPA - Joint Powers Authority:** Two or more agencies that enter into a cooperative agreement to jointly wield powers that are common to them. JPAs are a vehicle for the cooperative use of existing governmental powers to finance and provide infrastructure and/or services in a cost-efficient manner.

**Key Destinations:** Eleven locations of employment and commercial centers identified throughout Santa Cruz County for use in target analysis.

**LCP**: see Local Coastal Program

**Level of Service (LOS)**: A qualitative assessment of a facility's operating conditions. The extent or degree of service provided by, or proposed to be provided by, a facility based on and related to the operational characteristics of the facility. Level of Service indicates the capacity per unit of demand for each public facility. For automobiles, LOS ratings typically range from LOS A, which represents free-flow conditions, to LOS F, which is characterized by heavy congestion, stop-and-go traffic, and long queues forming behind breakdown points.

**Light Rail:** A passenger transportation system of self-propelled vehicles that operate over steel rails located in the street, on an aerial structure, or on a separated right of way.

**Liquefied Natural Gas (LNG):** A cleaner burning liquid fuel derived from a natural gas that is cooled to below its boiling point so it becomes a liquid. Santa Cruz METRO converts LNG to Compressed Natural Gas (CNG) to operate most of its buses.

**LNG:** see Liquefied Natural Gas

**Local Coastal Program (LCP)**: Local Coastal Programs are basic planning tools used by local governments to guide development in the coastal zone, in partnership with the Coastal Commission.

**Local Jurisdictions**: The four cities (Capitola, Santa Cruz, Scotts Valley and Watsonville) and the (unincorporated) County of Santa Cruz, each of which has its own elected decision-makers, planning and public works departments, and control over land-use decisions within its boundaries.

**Local Streets**: Streets that provide direct access to adjacent residential areas, on which through traffic is generally discouraged.

**Local Transportation Commission (LTC)**: Established under SB 325 to allocate Transportation Development Act (TDA) revenues and designated under AB 69 as the regional transportation planning agency (RTPA). The Santa Cruz County Regional Transportation Commission is the LTC for Santa Cruz County.

**LOS**: see Level of Service/Level of Service Standard

**Low Emission Vehicles**: Vehicles using alternative fuel sources which emit little or no tailpipe exhaust, e.g., electric, hybrid electric, and fuel cell.

**LTC**: see Local Transportation Commission

**LTF:** Local Transportation Funds. See Transportation Development Act

**Maintenance Area**: Area which, at one time did not, but now does meet current state or federal air quality standards.

**Major Transportation Investment Study (MTIS)**: An analysis of project alternatives formerly required to receive federal and state funds. An MTIS was completed in 1999 for the Watsonville-Santa Cruz-UCSC corridor.

**MAP-21 - Moving Ahead for Progress in the 21st Century:** Federal transportation act signed into law on July 6, 2012. Successor bill to SAFTEA-LU (2005), MAP-21 consolidated several funding programs and establishes requirements for transportation planning and project implementation.

**Mass Transit**: A common carrier service provided for transporting passengers on established routes, with fixed schedules, published rates of fares. Includes buses and rail.

**MBSST Network**: see Monterey Bay Sanctuary Scenic Trail Network

**MBUAPCD**: see Monterey Bay Unified Air Pollution Control District

**Metro**: see Santa Cruz Metropolitan Transit District

**Metropolitan Planning Organization (MPO)**: A federally-designated agency responsible for monitoring and planning associated with regional employment, residential and transportation. AMBAG is the MPO for Santa Cruz County as part of the three-county Monterey Bay region.

**Metropolitan Transportation Plan (MTP)**: The federally-mandated transportation plan for the tri-county Monterey Bay region, composed of transportation projects from the transportation plans from Santa Cruz, Monterey and San Benito counties prepared by AMBAG. With SB375, also includes the regional Sustainable Communities Strategy (SCS).

**Mitigation:** Project or program intended to offset impacts of a transportation project on an existing natural resource such as a stream, wetland, and/or endangered species.

**Mitigation Banking:** The preservation, enhancement, restoration or creation of a wetland, stream, or habitat conservation area which offsets, or compensates for, expected adverse impacts to similar nearby ecosystems.

**Mixed Flow Lane:** Travel lanes shared by autos, trucks, buses, and motorcycles (as compared to restricted lanes, such as HOV lanes).

**Mixed Use:** Combining of commercial, office, and/or residential land uses to reduce travel distances and facilitate walking. Examples include multi-story buildings containing businesses and retail stores on the lower floors, and homes on the upper floors.

**MMLOS:** see Multimodal Level of Service

**Mode Split or Mode Share**: The proportion of total travel in each travel mode.

**Mode**: Method of travel, e.g., private automobile, walking, bicycle, transit, airplane, bus, train.

**Monterey Bay Sanctuary Scenic Trail (MBSST) Network**: A planned recreation, transportation and interpretive pathway that links existing and new trail segments into a continuous coastal trail around the Monterey Bay, from Lover's Point in Monterey County to the San Mateo County line in Santa Cruz County.

**Monterey Bay Unified Air Pollution Control District (MBUAPCD or Air District)**: Agency responsible for implementing and enforcing state and federal air quality regulation in Santa Cruz, Monterey and San Benito counties.

**MPO**: see Metropolitan Planning Organization

**MTD**: see Santa Cruz Metropolitan Transit District

**MTIP**: Metropolitan Transportation Improvement Program. See Federal Transportation Improvement Program.

**MTIS**: see Major Transportation Investment Study

**Multimodal Level of Service (MMLOS):** A way to measure the degree to which street design and operations meets the traveling needs of each user type – automobile, bus, pedestrian, bicycle, etc.

**Multi-modal**: Using or addressing more than one transportation mode.

**National Environmental Policy Act (NEPA)**: Federal law identifying environmental disclosure requirements. Required to be followed on projects using federal funds.

**National Highway System (NHS)**: A federally established national road system. In Santa Cruz

County, the NHS includes sections of Highway 1, Highway 17, Highway 129, Highway 152, 41st Avenue, Capitola Road, Freedom Boulevard, Graham Hill Road, Mt. Hermon Road, Ocean Street, Soquel Avenue and other major arterials.

**NB**: Northbound

**ND:** see Negative Declaration

**Negative Declaration (ND):** A determination based upon an initial study that there is no substantial evidence that a proposed project may result in a significant effect.

**NEPA**: see National Environmental Policy Act

**NHS**: see National Highway System

**Non-Attainment Area**: An air basin which does not meet existing state or federal air quality standards.

**O&M: Operations and Maintenance**. The range of activities and services provided by the transportation system and for the upkeep and preservation of the existing system.

**Obligate**: The act of securing commitment from Federal or State government (e.g. FHWA or Caltrans) to pay or reimburse entities for a project's eligible costs. Many funding programs require a project sponsor to obligate funds in a timely manner or lose the funds.

**Off-Peak Period:** The time of day when the lowest concentration of travels are using a transportation facility. These times are generally before 6 a.m., mid-day, and after evening commute hours.

**Open Space:** Generally understood as any area of land or water which is not developed for urbanized uses. In General Plans areas may be designated as Open Space for the purposes of the preservation or managed production of natural resources, outdoor recreation, or the promotion of public health and safety.

**Operations**: On-going activities necessary to manage and perform services for a system, such as labor costs. For transit, costs include fuel, salaries and replacement parts.

**Overall Work Program (OWP):** Budgetary document describing proposed activities for the upcoming fiscal year, including those required by federal and state law.

**OWP:** see Overall Work Program

**Paratransit**: Term used to describe transportation services which operate on flexible routes and/or provide demand-responsive service, and is most frequently used by elderly and disabled passengers unable to take fixed route transit. Generally vans, small buses, or taxis are used to provide this service. The ADA-mandated service in our region is ParaCruz and is provided by the METRO. Another main provider is Community Bridges Lift Line.

**Park-and-Ride Lot:** A facility where individuals can meet to utilize carpools, vanpools, and transit to continue traveling to their destinations.

**Parking Management**: Strategies which use parking supply or pricing as an incentive or disincentive to affect the demand for parking. Preferred parking for carpools is an example of a parking management incentive, and charging parking fees is an example of a disincentive.

**Passenger Miles:** The total number of passengers carried by a transit system, multiplied by the number of miles each passenger travels. Passenger miles are normally measured on a daily or annual basis.

**Pavement Condition Index (PCI):** A numerical index between 0 and 100 used to indicate the general condition of a pavement with 0 representing the worst possible condition and 100 representing the best possible condition.

**Pay as You Drive (PAYD) Insurance:** A type of automobile insurance whereby the costs are

dependent upon type of vehicle used, and measured against time, distance and location.

**Peak Periods**: The hours during which the greatest traffic volumes or highest transit use occur.

**PeMS - Performance Monitoring System:** The PeMS program uses urban freeway data collected through freeway loop detectors to provide current, ongoing data on freeway volumes and speeds that can be displayed graphically and exported to other monitoring applications.

**Performance Based Planning:** An approach that uses performance measures to support investment decisions to help achieve desired outcomes.

**Performance Measures (or Evaluation Measures or Targets):** Objective, quantifiable measures used to evaluate the performance of the transportation system, and to determine how well planned improvements to the system are achieving established objectives.

**Person Trip:** Any person's one-way travel to any destination for any purpose. More specifically, a trip is the one-way movement from an origin to a destination, whereby each trip has two trip ends.

"**Planned" Projects**: Projects on the Constrainted/within projected funds RTP list which have not previously been approved for funding by the RTC. Projects are expected to be funded through 2035.

**Policy Element:** A required component of the RTP, the policy element clearly conveys the region's transportation goals and policies.

**Primary Transportation Network**: Includes state highways, principal arterials and rail line in Santa Cruz County.

**Program**: *verb-* to assign funds to a project.

**Program Environmental Impact Report (PEIR):** Environmental review process used to evaluate the potential environmental effects of large-scale plans or programs.

**"Programmed" Projects**: Projects on the Constrained/within projected funds list for which funding has already been approved by the RTC. These projects will be initiated and/or completed by 2019.

**Project Study Report (PSR):** A preliminary engineering report that documents agreements on the scope, a set of reasonable and feasible alternatives, the schedule, and the estimated cost of a project so that the project can be included in a future State Transportation Improvement Program (STIP).

**Proposition 1A:** Bond measure passed by voters in November 2008 authorizing $9.95 billion to the California High-Speed Rail Authority to construct the core segments of the rail line from San Francisco to the Los Angeles area.

**Proposition 1B:** Bond measure passed by voters in November 2006 authorizing $27 billion in bonds distributed to highway, local road, and transit projects through a combination of competitive and formula programs.

**Proposition 116**: Bond measure passed by voters in June 1990 providing $1.9 billion in funds primarily for rail projects, but also included funds for paratransit vehicles, bicycle facilities, and ferries. $11 million was earmarked for Santa Cruz County rail projects.

**PSR:** see Project Study Report

**Rail Transit**: Public transportation services provided on a fixed rail line, e.g., light rail.

**Ramp Metering:** Electronic traffic control devices located at freeway access points to meter the entry of vehicles onto the freeway. The goal is to help optimize the movement of persons and vehicles.

**RDA**: see Redevelopment Agency

**Redevelopment Agency (RDA)**: Originally established by local ordinances to assist a specifically designated area with capital improvement projects intended to revitalize the area, RDAs were dissolved in 2012 as part of the California State Budget Act (2011).

**Regional Blueprint:** Collaborative planning processes that engage residents of a region in articulating a vision for the long term future of their region. The goal of the process is to develop a preferred growth scenario that can guide regional and local land use and transportation.

**Regional Housing Needs Assessment (RHNA)**: Quantifies the need for housing within each jurisdiction of the AMBAG region based on population growth projections. Communities then address this need through the process of completing the housing elements of their General Plans.

**Regional Surface Transportation Program (RSTP)**: A flexible federal funding program initially established by ISTEA and distributed to regions based on population formula to fund transit, highway, and local streets and roads projects.

**Regional Surface Transportation Program Exchange (RSTPX):** Regional Surface Transportation Program funds (federal) exchanged for state funding.

**Regional Transportation Improvement Program (RTIP)**: The state required multi-year capital improvement program for transportation projects using state and federal funds. The RTIP for Santa Cruz County is adopted by the SCCRTC and is submitted to the California Transportation Commission for inclusion in the State Transportation Improvement Program (STIP) and to AMBAG for inclusion in the FTIP.

**Regional Transportation Plan (RTP)**: The state-mandated long-range plan that acts as a blueprint to guide transportation development. Developed by regional transportation planning agencies, it includes a policy, action, and financial elements. The SCCRTC prepares and adopts the RTP for Santa Cruz County. The RTP must be consistent with other local plans.

**Regional Transportation Planning Agency (RTPA)**: Agencies designated by the State of California to provide regional transportation planning and make funding decisions, including preparation of the Regional Transportation Plan and the Regional Transportation Improvement Program. The Santa Cruz County Regional Transportation Commission is the designated RTPA for Santa Cruz County.

**Regional Travel Demand Model (RTDM):** A computer software program using demographic data to estimate the transportation impacts of population growth and land use decisions on the transportation system, and to assess the utility of transportation projects.

**Reverse Commute:** Travel in the direction opposite to the main flow of peak period commute traffic.

**RHNA:** see Regional Housing Needs Assessment

**Ridership:** The number of transit users, usually reported as a yearly total or as the average for a normal workday.

**Rideshare**: Alternatives to driving alone, including carpooling, vanpooling, taking the bus, bicycling, walking and telecommuting.

**Right-of-Way (ROW)**: The area of property owned by a public or private entity used for transportation purposes.

**ROW**: see Right-of-Way

**RPA:** see Rural Planning Assistance

**RSTP**: see Regional Surface Transportation Program

**RSTPX**: see Regional Surface Transportation Program Exchange

**RTC**: see Santa Cruz County Regional Transportation Commission

**RTDM:** see Regional Travel Demand Model

**RTIP**: see Regional Transportation Improvement Program

**RTP**: see Regional Transportation Plan

**RTPA**: see Regional Transportation Planning Agency

**Rural Planning Assistance (RPA)**: Funds awarded by the California Department of Transportation (Caltrans) annually for use by the Regional Transportation Planning Agency.

**Safe Routes to Schools:** Initiatives, such as education, encouragement campaigns, and infrastructure improvements, that make it easier and safer for children to walk and bicycle to school.

**Safe Routes to Transit:** Strategies to address the challenges of getting to and from a transit stop or station. These include sidewalks and curb cuts to bus stops, pedestrian crosswalks near transit stations, bicycle lanes that connect to transit and bike parking at transit stations, feeder-distributor bus/shuttle routes, car sharing/station cars, and ridesharing.

**Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU):** Funding and authorization bill from 2005-2012 that governed federal surface transportation spending.

**SAFE**: see Service Authority for Freeway Emergencies

**SAFETEA-LU:** see Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

**Santa Cruz County Regional Transportation Commission (SCCRTC or RTC)**: Transportation policy, planning and funding body designated as the Regional Transportation Planning Agency (RTPA), Local Transportation Commission (LTC), Rail/Trail Authority and Service Authority for Freeway Emergencies (SAFE) for Santa Cruz County.

**Santa Cruz METRO**: see Santa Cruz Metropolitan Transit District

**Santa Cruz Metropolitan Transit District (SCMTD or METRO)**: The public transit operator for Santa Cruz County. Also known as Santa Cruz Metro.

**SB**: Southbound

**SB 45**: California Senate Bill (Chapter 622, Statutes of 1997, Kopp) that mandated major transportation reforms impacting transportation planning, funding and development. Transferred from the state to the regions more authority in deciding how to invest transportation funds. Established current STIP process.

**SB 375 (2008)**: Established to implement the state's greenhouse gas (GHG) emission-reduction goals, as set forth by AB 32, in the sector of cars and light trucks. Requires California's Air Resources Board (CARB) to develop regional reduction targets for greenhouse gas emissions (GHG), and requires MPO's to develop "Sustainable Community Strategies" (SCS) to reduce emissions from vehicle use through integrated land use and transportation planning.

**SCCRTC:** see Santa Cruz County Regional Transportation Commission

**Scenario Planning:** A decision making tool to help identify the projects that are prioritized in a transportation plan. Scenario planning allows a community to evaluate the likely outcomes of a number of scenarios to explore possible benefits and costs of alternative futures.

**SCMTD**: see Santa Cruz Metropolitan Transit District

**SCS:** see Sustainable Communities Strategy

**Self-Help Counties**: A term used to describe counties that have enacting local voter-approved funding mechanisms -- such as half-cent sales taxes -- to pay for transportation improvements.

**Service Authority for Freeway Emergencies (SAFE**): As the designated SAFE for Santa Cruz County, the SCCRTC owns and manages the call box system on local state highways and other motorist aid programs. Funded by $1-per-year vehicle registration fee.

**SHOPP**: see State Highway Operations and Protection Program

**Signal Preemption:** A system used for emergency and public transit vehicles to change signal phasing from red to green allowing for more rapid crosstown access.

**SOV - Single Occupant Vehicle:** Privately operated vehicle that contains only one driver or occupant.

**Specialized Transportation**: Often used synonymously with "paratransit," refers to vehicle and programs operated primarily for the elderly and persons living with disabilities. Service is generally provided door-to-door in vans or automobiles on a semi-fixed route or demand- responsive basis.

**SRTP**: see Short Range Transit Plan

**STA**: see State Transit Assistance

**STARS:** see Sustainable Transportation Analysis & Rating System (STARS)

**State Highway Operation and Protection Program (SHOPP)**: State plan and funding program to maintain the operational integrity and safety of the state highway system. It includes primarily rehabilitation, safety, and operational improvement projects.

**State Transit Assistance (STA)**: State funding program for mass transit operations and capital projects. As of March 2010, funds derived from statewide sales tax on diesel fuel, distributed based on population.

**State Transportation Improvement Program (STIP)**: A multi-year program of transportation projects to be funded with various state and federal revenues. Adopted biennially by the California Transportation Commission (CTC), based on projects proposed in RTIPs and from Caltrans (ITIP). Funds distributed to regions based 75% on population and 25% on highway miles.

Statewide Integrated Traffic Records System (SWITRS): Database of collisions managed by the California Highway Patrol.

**STIP**: see State Transportation Improvement Program

**STP**: see Surface Transportation Program

**Surface Transportation Program (STP)**: Federal flexible funding program that may be used by states and localities for projects on any federal-aid highway (includes road, bike, pedestrian, highway), bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities.

**Sustainability:** Sustainability is defined as balancing economic, environmental and equity interests. Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations.

**Sustainable Community Strategies (SCS):** An element of the MTP, as required by SB 375, that demonstrates how development patterns and the transportation network, policies, and programs can work together to achieve the

state's targets for reducing regional greenhouse gas (GHG) emissions from cars and light trucks in a region.

**Sustainable Transportation Analysis & Rating System (STARS):** An integrated planning framework for transportation plans and projects. Used by planners, communities and decision-makers to evaluate the impacts of transportation plans and projects, identify innovative strategies and improve decision-making.

**System Preservation:** The maintenance of the existing transportation system.

**Targets:** For this RTP, targets are measurable objectives for achieving goals. Targets are a decision support tool linking policies and projects to goals, assessing performance trends, and provide the opportunity to make adjustments in priorities. Consistent with backcasting, establishing targets involves setting desirable future objectives first then determining the degree to which investments will meet objectives, rather than relying on demand based forecasts to direct the planning and investments.

**TAZ:** see Traffic Analysis Zone

**TCM**: see Transportation Control Measure

**TCRP**: Transportation Congestion Relief Program

**TDA**: see Transportation Development Act

**TDM**: see Transportation Demand Management

**TEA**: see Transportation Enhancement Activities

**TEA-21**: see Transportation Equity Act for the 21st Century

**Telecommute (or Telework)**: Conducting some or all of daily work activities from a location other than the normal worksite, usually from home or remote site, and often with the assistance of telecommunications equipment. Employees sometimes referred to as teleworkers or e-workers.

**TIA**: see Transportation Improvement Area

**TMA**: see Transportation Management Association

**TMC**: Traffic Management Center. Monitors roadways using closed circuit cameras, loop detectors and information from the CHP and field staff. Posts and updates messages on traffic conditions on various systems, including the 511 telephone number, road signs, and websites.

**TOD:** see Transit-Oriented Development

**TOS**: see Traffic Operations System

**TPP:** see Transit Priority Project

**Traffic Analysis Zone:** A geographic unit used for transportation modeling. A TAZ is smaller than a census tract and a Trip Distribution Zone (TDZ).

**Traffic Operations System (TOS)**: A system of highway communications equipment to monitor traffic conditions and relay traveler information in real time.

**Transit:** Travel by bus, rail, or other vehicle, either publicly or privately owned, that provides general or specialized service on a regular or continuing basis.

**Transit Dependent**: An individual who because of age, income, physical/mental condition, geographic location, or personal choice, does not have a private vehicle available and relies on transit for his/her transportation needs.

**Transit-Oriented Development (TOD):** Residential and employment growth that occurs near existing and planned public transit facilities.

**Transit Priority Project (TPP):** Under SB 375, a project that (1) contains at least 50 percent

residential use (commercial use, if any, must have floor area ratio of not less than 0.75); (2) have a minimum net density of 20 units per acre; and (3) be located within one-half mile of a major transit stop or high-quality transit corridor included in the MTP. TPP may be exempt from CEQA.

**Transportation Control Measure (TCM)**: A project or program intended to reduce air pollution generated by automobiles.

**Transportation Demand Management (TDM)**: Strategies to reduce demand by automobiles on the transportation system, by promoting telecommuting, flex-time, bicycling, walking, transit use, staggered work hours, and ridesharing.

**Transportation Development Act (TDA)**: State law enacted in 1971. Local TDA funds (or Local Transportation Funds – LTF) are generated from a one-quarter of one percent state sales tax. Revenues are allocated annually to support transportation planning and administration, transit, transportation for the elderly/disabled, bikeway and pedestrian projects, based on state law and RTC rules and regulations.

**Transportation Disabled**: People who cannot use public transportation easily or at all because of physical, emotional, or mental limitations.

**Transportation Disadvantaged:** People who have significant unmet transportation needs. May include people experiencing poverty, people experiencing language barriers, people of color, older adults, youth and people with disabilities who experience a disproportionately small share of benefits from transportation investments, particularly because traditional transportation investments prioritize vehicles.

**Transportation Enhancements (TE)**: Former federal funding program for pedestrians and bicycles facilities, scenic beautification, historic preservation, preservation of abandoned railway corridors, archaeological planning and research, and mitigation of water pollution due to highway runoff. Eliminated in 2012 and replaced by the Transportation Alternatives Program (TAP).

**Transportation Equity Act for the 21st Century (TEA-21):** Federal funding and authorization bill from 1998-2005 that governed federal surface transportation spending.

**Transportation Improvement Area (TIA)**: Area designated by a local jurisdiction where new development is required to pay fees based on the amount of traffic it is expected to generate.

**Transportation Management Association (TMA)**: An organized group that provides transportation services in a particular area, with a focus on TDM programs to facilitate the movement of people and goods within an area. TMAs are frequently led by the private sector in partnership with the public sector to solve transportation problems.

**Transportation System Management (TSM)**: Strategies that improve the efficiency of the existing transportation network such as signal synchronization, HOV queue jumps and signal priority, incident management and auxiliary lanes.

**Travel Time Index (TTI) -** A travel time index (TTI) is a way to normalize congestion levels across facilities with different free-flow speeds. A travel time index is determined by taking average travel time divided by the free flow travel time. The free flow speed assumed here is the posted speed limit (65 mph for highways). Similarly, the 95% travel time index is the 95% travel time divided by the free flow time.

**Travel Time Reliability:** The consistency or dependability in travel times, as measured from day-to-day and/or across different times of the day.

**Trip**: A one-way journey that proceeds from an origin to a destination by a single type of vehicular transportation.

**TSM**: see Transportation System Management

**TSM:** see Transportation Systems Management

**TTI:** see Travel Time Index

**U.S. DOT**: United States Department of Transportation. The federal agency responsible for highways, mass transit, aviation and ports and headed by the Secretary of Transportation. Includes the FHWA, FTA and FAA, among others.

**UCSC**: University of California, Santa Cruz

**Unconstrained**: Denotes a funding scenario not constrained by existing funding assumptions. New funds, above and beyond existing or anticipated revenues, would be needed to fund "unconstrained" projects in this RTP.

**Unmet Transit Needs Findings**: TDA funds can be used for local streets and roads in smaller counties only if the RTPA in their jurisdiction makes a finding that public transit service and operations in the county have no unmet needs that are reasonable to meet. RTPAs must hold public hearings prior to making such a determination.

**Urbanized Area**: An area with a population of 50,000 or more as designated by the U.S. Census.

**V/C Ratio - Volume to Capacity Ratio:** The volume of traffic divided by the capacity of a transportation facility. Traffic volume is defined as the number of vehicles passing (or projected to pass) a point or section of roadway in a given time interval. Capacity is defined as the maximum number of vehicles that reasonably can be expected to traverse that point or section of roadway during the same time period under prevailing roadway, traffic, and control conditions.

**Vanpool**: A group of seven to fifteen people traveling together to work or school in a van at set times. Many vans are leased from companies which include insurance, emergency services and maintenance in the monthly rental fees.

**Vehicle Miles Traveled (VMT)**: The term used for the total number of miles traveled by motor vehicles within a specified region during a particular time period.

**Vehicle Occupancy Rate**: Also known as Average Vehicle Occupancy or Ridership; the number of persons per vehicle on a given road at a given time without distinguishing trip purpose.

**Vehicle Trip:** A single vehicle movement from the beginning of travel to its destination, in a vehicle that is motor-driven (e.g., automobiles, motorcycles, trucks, buses, and vans).

**VMT**: see Vehicle Miles Traveled

**VTA**: Santa Clara Valley Transportation Authority

**Walkability:** A measure of how friendly an area is to walking. Walkability has many health, environmental, and economic benefits. Factors influencing walkability include the presence or absence and quality of footpaths, sidewalks or other pedestrian rights-of-way, traffic and road conditions, land use patterns, building accessibility, and safety, among others.

**WB**: Westbound

**Year of Expenditure (YOE):** Revenue and cost estimates for a project or program based on reasonable financial principles/information about the timeframe in which the expenditure is expected to occur.

# Appendix A

## Public Outreach

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# Public Involvement for the 2040 Regional Transportation Plan

The Santa Cruz County Regional Transportation Commission's (RTC) proactive community engagement process includes public notices, full public access to key decisions, and encourages early and continuing involvement of the public in developing plans and programming actions. Outreach for the 2040 Regional Transportation Plan (RTP) included a variety of public participation activities as outlined in the *2015 Public Participation Plan.* This public participation plan is prepared in collaboration with the Association of Monterey Bay Area Governments, the Transportation Agency of Monterey County and the San Benito Council of Governments. The RTC's public involvement process for the 2040 RTP included public meetings, workshops, news releases, online surveys, a plan website, social media notices (Facebook, Twitter), media interviews, and email notices to a broad range of over 1000 individuals, groups, agencies, and stakeholders. Following this overview is a summary of outreach activities and sample materials.

# Define Purpose & Identify Stakeholders

The RTC compiled a list of stakeholders and regularly solicited input on and disseminated Regional Transportation Plan milestone information. The list includes: interested residents, transportation partners, local jurisdictions, other public entities, technical partners, business interests, environmental groups, neighborhood/homeowner, land conservation/development interest group, environmental justice, representatives of pedestrian and bicycle transportation facilities users, advocacy, freight, non-profit, education, agriculture, youth/senior, media, state, federal and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation and other interested parties.

A Fact Sheet and webpage were developed to help the community understand more about the RTP, how the plan is developed, and about the sustainability framework approach used in this RTP update. Feedback was requested at key stages of development for the Regional Transportation Plan including the draft goals, targets and policies; and the projects, as well as the draft plan.

# Consultation & Coordination with other Agencies

The RTC worked closely with agencies responsible for planning and implementing transportation projects and programs. This included planning and public works representatives from each of the five jurisdictions, Caltrans, the Santa Cruz Metropolitan Transit District, the University of California-Santa Cruz, Community Bridges-Lift Line, the Volunteer Center, the Association for Monterey Bay Governments, and other transportation partners and nonprofits that provide employer transportation programs, bicycle programs, or endeavor to improve transportation options to improve the health of the community.

# Consultation with Interested Parties, Boards of Directors, Advisory Committees

Decisions at key steps of RTP development were made at noticed public board meetings. Prior to key decisions, materials were shared with the RTC's three advisory bodies (the Bicycle Advisory Committee, Elderly and Disabled Transportation Advisory Committee (E&D TAC), and Interagency Technical Advisory Committee (ITAC)) and comments were incorporated. Board and advisory committee materials

are posted on the RTC website and notices are sent to interested individuals that have signed up for RTC "enews".

Public Input on the project list is an important part of the RTP development process. Project ideas from the public were forwarded to potential project sponsors for their consideration. The preliminary project lists were reviewed by each of the RTC's advisory committees, posted on the RTC website and evaluated by the RTC at one of its televised meetings. The project list is also available for public review during circulation of the Draft RTP.

## Public Notice, Public Hearings, Comment Periods

All RTC board and advisory committees are held in accordance with the Brown Act; therefore, agendas are posted in a public location and on the RTC website at least 72 hours in advance of the meeting. The draft RTP was released on December 7th, 2017 for a 55 day public comment period. Comments are due on February 4th, 2018. A public hearing is scheduled for the January 11th, 2018 RTC meeting to receive comments on the draft 2040 RTP. Comments received and recommended updates in response to the comments will be presented to the RTC in Spring 2018. A public hearing will be held to consider adoption of the final 2040 Santa Cruz County Regional Transportation Plan and the environmental review findings, statement of overriding considerations, and mitigation monitoring program. Notices about public hearings are distributed to news media and the RTP "enews" subscribers in advance of the hearing. The RTC makes all decisions related to transportation planning and policy in open, noticed meetings, according to the Brown Act (California Code sections 54950-54960.5). The environmental review process, lead by AMBAG, follows requirements set forth by the California Environmental Quality Act (CEQA).

## Use of Media, Informational Materials, Visualization Techniques

A number of graphic materials were adapted and/or produced for the RTP. The RTP fact sheet contains information on how the plan is developed, the focus on sustainability and how to get involved. The RTC has a website (http://sccrtc.org/rtp) in which the 2040 Regional Transportation Plan process is described on a page with links to the various milestones of the project. New for the 2040 Regional Transportation Plan is the use of social media to get information out to the public on how to get involved in the long range transportation planning process. The RTC featured numerous discussions about the RTP on the agency's Nextdoor social media platform that reaches 77 neighborhoods and on Facebook which provides yet another avenue for providing information to the public.

## Encourage Bilingual Participation

Bilingual participation was encouraged by inviting the community to meetings, making an interpreter available, holding evening meetings at locations accessible by transit, and placing advertisements about the draft RTP availability in Spanish language media and including groups serving bilingual community members in the stakeholder list. The RTP Fact Sheet was also made available in Spanish.

## Responding to Public Input

With development of key elements of the Regional Transportation Plan (RTP), the RTC solicited and received public input. Comments were shared with the RTC board throughout the process and incorporated into elements of the document. For comments focused specifically on the project list, project ideas and comments on specific projects were forwarded to the appropriate jurisdiction for their consideration. Response to comments on the Environmental Impact Report (EIR) will be included in the Final EIR.

## Distribution of Final Documents

The final RTP and EIR will be available online at http://www.sccrtc.org/funding-planning/long-range-plans/rtp/, at local libraries, and at RTC offices in Santa Cruz and Watsonville.

# Figure A.1 – Public Outreach

## 2040 Regional Transportation Plan and Environmental Impact Report

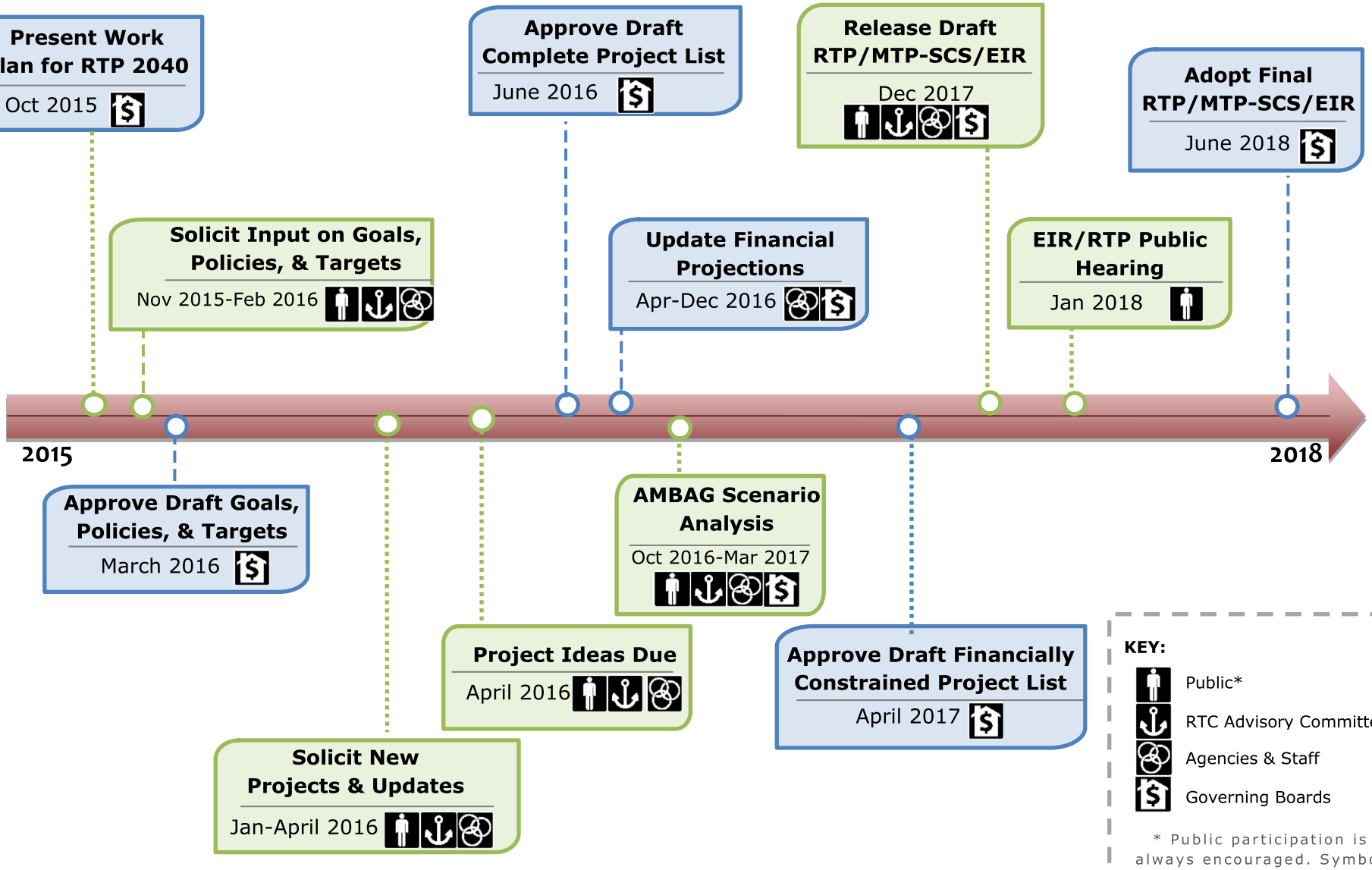
| | NOTICED PUBLIC MEETINGS | | | | | |
|---|---|---|---|---|---|---|
| | Board Meetings | | Advisory Committees | | | OTHER |
| | Regional Transportation Commission | Transportation Policy Workshop | Interagency TAC | Bicycle Committee | Elderly/ Disabled TAC | General Public |
| **Policy Element: Goals, Policies & Targets (Evaluation Measures)** | | | | | | |
| Preview goals, targets, policies | 10/2015 | | 11/2015 | 12/2015 | 12/2015 | 12/2015<br>1/2016 |
| **Draft policy element approved** | 3/2016<br>(rev) 4/2017 | | | | | |
| **Action & Financial Elements: Project List and Revenue Projections** | | | | | | |
| Solicit project ideas through email notification, Nextdoor, Facebook, Twitter and website | 10/2015 | | 11/2015 | 12/2015 | 12/2015 | 12/2015<br>1/2016 |
| **Approve complete list of projects** | | 8/2016 | | 6/2016 | 6/2016 | 3/2017 |
| AMBAG: Public workshop on transportation and land use scenarios held in Santa Cruz County | | | | | | 4/2017 |
| **Approve the financially constrained project list** | 4/2017 | | | 3/23/17 | | |
| AMBAG: Adoption of preferred scenario for SCS | | | | | | 5/2017 |
| **Environmental Review*** | | | | | | |
| AMBAG: Notice of Preparation | | | 1/2016 | | | 12/2015 |
| AMBAG: News release on scoping meetings | | | | | | 12/2015 |
| AMBAG: Scoping meeting in Santa Cruz County | | | | | | 1/26/2016 |
| AMBAG: Notices of availability of draft EIR in papers | | | | | | 12/2017 |
| AMBAG: Release of draft EIR | Email notice of availability are sent to all board and committee members | | | | | 12/4/2017 |
| AMBAG: Documents made available online at: www.ambag.org, www.sccrtc.org. and at local libraries | | | | | | 12/2017 |
| AMBAG: EIR public hearing notice published in papers | | | | | | 1/2018 |
| AMBAG: Public Hearing on draft EIR | | | | | | 1/2018 |
| AMBAG: Comments on the EIR Due | | | | | | 2/5/2018 |
| AMBAG: EIR notice of consideration published in papers | | | | | | 5/21-25/2018 |
| AMBAG: Final EIR available for public review | | | | | | 5/23/2018 |
| AMBAG: Adopt final MTP/SCS and certify EIR | | | | | | 6/13/2018 |
| RTC Adopt final EIR | | 6/14/2018 | | | | |

| | NOTICED PUBLIC MEETINGS | | | | | |
|---|---|---|---|---|---|---|
| | Board Meetings | | Advisory Committees | | | OTHER |
| | Regional Transportation Commission | Transportation Policy Workshop | Interagency TAC | Bicycle Committee | Elderly/ Disabled TAC | General Public |
| **Review of 2040 Regional Transportation Plan** | | | | | | |
| RTC approve release of draft RTP | 12/7/2017 | | | | | |
| Release of draft RTP | Email notice of availability are sent to all board and committee members | | | | | 12/8/2017 |
| Draft RTP available online at www.sccrtc.org, local libraries, and at RTC office | | | | | | 12/8/2017 |
| Email notices sent to over 1000 people, agencies, and community groups (see Appendix A for distribution list) | | | | | | 12/11/2017 |
| Draft RTP public hearing notice published in papers | | | | | | week of 12/11/2017 |
| Email notices sent to resource agencies and tribal representatives to solicit input on draft RTP | | | | | | 1/2/2018 |
| Press Release on draft RTP availability | | | | | | week of 12/11/2017 |
| **Public Hearing on draft RTP** | 1/18/2018 | | | | | |
| Input solicited on draft RTP from RTC Committees | | | 1/18/2018 | 12/11/2017 | 12/12/2017 | |
| Comments on the draft RTP Due | | | | | | 2/5/2018 |
| Approval of revisions for final RTP | 4/5/2018 | | | | | |
| **Adopt final RTP** | 6/14/2018 | | | | | |
| **Other Public Outreach Activities (some bilingual materials)** | | | | | | |
| Fact Sheets: online, distributed at community meetings | | | | | | ongoing |
| Presentations and/or announcements about the RTP | | | | | | ongoing |
| Electronic notices: Social media (e.g. Nextdoor, Facebook, Twitter updates), emails to distribution list, newsletters for other entities | | | | | | ongoing |
| RTP website updates: www.sccrtc.org | | | | | | ongoing |
| News releases | | | | | | ongoing |
| Communication to Tribal Interests | | | | | | 8/2016, 1/2018, 6/2018 |
| **Bold = Key Decision Points** | | | | | | |

*The CEQA required environmental review for the 2040 Regional Transportation Plan is included in the EIR for the 2040 MTP-SCS. AMBAG serves as the lead agency for the EIR and SCCRTC serves as a responsible agency.

# 2040 Regional Transportation Plan

## Key Milestones




**KEY:**

- Public*
- RTC Advisory Committees
- Agencies & Staff
- Governing Boards

* Public participation is always encouraged. Symbol indicates when public input is formally solicited and encouraged.


Santa Cruz County Regional Transportation Commission
1523 Pacific Ave | Santa Cruz, CA | 95060
831.460.3200 | www.sccrtc.org

*Santa Cruz County Regional Transportation Commission*

# Regional Transportation Plan

## Fact Sheet

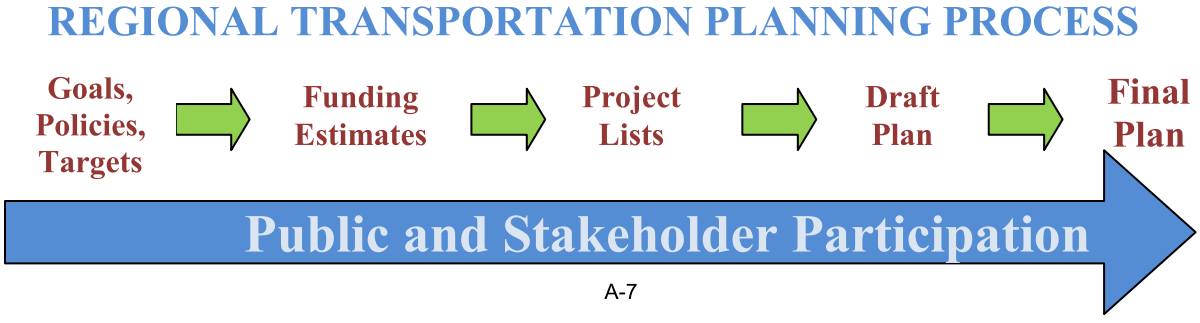
**July 2017**

### What is the RTP?

The Regional Transportation Plan (RTP) is a long range (20-25 year) transportation plan for the Santa Cruz County area. The long range transportation plan assesses the transportation challenges we face now and those we will face in the future. The plan includes strategies to address our transportation challenges, a list of unmet multimodal transportation needs (highway, road, transit, bicycle, pedestrian, freight, airport, etc.), and priorities for limited funds. The RTP is updated every four or five years to address new trends, issues, and priorities, and to incorporate new state and federal regulations. The last Santa Cruz County Regional Transportation Plan was adopted in June 2014. The next plan is scheduled for adoption in June 2018 and will be referred to as the 2040 RTP.

### How is the long range transportation plan developed?

The first step is to identify the objectives for the region's transportation system and craft overarching goals and policies, used to guide decisions. Performance measures or targets are also developed to track progress towards achieving the goals. Next, an estimate of all the potential local, state and federal funding available for transportation projects is developed. Projects that advance the goals and targets are then identified by transportation agencies, local jurisdictions, and the public. Based on the anticipated funding and the performance measures, the RTC prioritizes the projects that could be funded over the next 25 years. A list of additional projects that could be implemented should more funding become available is also identified. The priority project list is then reviewed to identify potential environmental impacts. There are opportunities at every stage of the development of the RTP for public, agency and committee input. The goals/policies, funding estimates and project lists build on each other and input at the early stages will shape the draft and final plan.



## The Regional Transportation Plan provides information on the following:

- Transportation needs in the region for 20 to 25 years, based on population growth, environmental, economic and other social trends.
- The amount of state, federal, and local funding available for transportation projects and new sources of funding needed to deliver high priority projects.
- Sustainability of the transportation system and sustainable outcomes.
- New legislative requirements, including SB375, which stipulate that regions must meet greenhouse gas reduction targets through a coordinated land use and transportation plan called the Sustainable Communities Strategy.
- "Complete Streets" as a tool for planning for a balanced and multi-modal transportation system, particularly for those transportation improvements needed to accommodate growth.

## Why a focus on sustainability?

The RTC represents diverse transportation interests and assesses the impacts of transportation investments on environmental, economic and social concerns. A focus on sustainability can assist in providing balanced evaluation of transportation projects and programs, recognizing that these areas are intertwined, not exclusionary. This approach evaluates how transportation investments impact people's health and safety, the economic vitality of the region, and the universal need for a healthy planet. Some investments are win/win, but some require trade-offs in the three areas of economy, environment and people. This focus on sustainability assists the RTC in identifying these trade-offs and achieving multiple long-term goals.

## How can you get involved?

Planning for the 2040 RTP is underway!

- Stay informed. Review materials on the RTP webpage and provide input as elements of the plan are developed: http://sccrtc.org/funding-planning/long-range-plans/2040-rtp/
- Ask to be added to the RTP E-news List by emailing info@sccrtc.org, calling 831-460-3200 or signing up on the RTC website www.sccrtc.org
- Send comments to SCCRTC: info@sccrtc.com or 1523 Pacific Avenue, Santa Cruz, CA 95060
- Participate in the development of the Association of Monterey Bay Area Governments' Sustainable Communities Strategy (SCS), www.ambag.org.

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*Comisión Regional de Transporte del Condado de Santa Cruz*

# Plan Regional de Transporte

## Hoja Informativa
## Julio 2017

### ¿Qué es el RTP?

El Plan Regional de Transporte (*RTP por sus siglas en inglés*) es un plan a largo plazo (20-25 años) de transporte para el condado de Santa Cruz. El plan de transporte a largo plazo evalúa los retosque enfrentamos ahora y en el futuro. El plan incluye estrategias para resolver los retos, un lista de no cumplido multimodal necesidades de transporte (autopista, carretera, tránsito, bicicleta, peatones, carga, aeropuerto, etc.) y prioridades para el uso de fondos limitados. El RTP se actualiza cada cuatro o cinco años para abordar las prioridades, problemas y nuevas tendencias e incorporar nuevas regulaciones estatales y federales. El último Plan Regional de Transporte del Condado de Santa Cruz se adoptó en junio 2014. Se espera que el siguiente plan se adoptará en junio 2018 y se hará referencia a él como 2040 RTP.

### ¿Cómo se desarrolla el plan de transporte a largo plazo?

El primer paso es identificar los objetivos para el sistema de transporte de la región y elaborar metas globales y normas que se usarán para guiar las decisiones. También se desarrollan medidas de desempeño o metas para seguir el progreso hacia el logro de las metas. Luego, se desarrolla un presupuesto de todos los posibles fondos locales, estatales y federales disponibles para proyectos de transporte. Se identifican aquellos proyectos que promueven las metas y objetivos por parte de las agencias de transporte, jurisdicciones locales y el público. Basado en los fondos que se anticipan y las medidas de desempeño, la RTC identifica qué proyectos pueden financiarse durante los próximos 25 años basado en prioridades y prevé su financiación. También se identifica una lista de proyectos adicionales que pudieran implementarse si hubiera fondos disponibles. Luego se revisa la prioridad de la lista de proyectos para identificar posibles impactos ambientales. En cada etapa del desarrollos del RTP hay oportunidades de aporte para el público, agencias y comités. Las metas/normas, presupuestos de fondos y listas de proyectos se crean progresivamente y el aporte en las etapas primarias moldeará el borrador y plan final.

## El Plan Regional de Transporte provee información sobre lo siguiente:

- Las necesidades de transporte en la región por un período de 20 a 25 años, basado en el crecimiento de la población, ambiental, económico y otras tendencias sociales.
- La cantidad de fondos estatales, federales y locales disponibles para proyectos de transporte y nuevos recursos de fondos necesarios para llevar a cabo proyectos de alta prioridad.
- Sostenibilidad del sistema de transporte y resultados sostenibles.
- Nuevos requisitos legales, incluyendo SB375, que estipula que las regiones deben cumplir con metas de reducción de gases causantes del efecto invernadero, por medio del uso coordinado del suelo y un plan de transporte llamado Estrategia de Comunidades Sostenibles.
- "Calles Completas" como herramienta de planeación para un sistema de transporte balanceado y multimodal, en particular para aquellas mejoras al transporte necesarias para acomodar el crecimiento.

## ¿Por qué un enfoque en sostenibilidad?

La RTC representa diversos intereses de transporte y evalúa los impactos de inversiones de transporte en cuanto a intereses ambientales, económicos y sociales. Un enfoque en sostenibilidad puede ayudar a proveer una evaluación balanceada de proyectos y programas de transporte, reconociendo que estas áreas están entrelazadas, no son exclusivistas. Este enfoque evalúa el impacto de la inversión en el transporte, la salud, la seguridad de la población, la vitalidad económica de la región y la necesidad universal de la salud del planeta. Algunas inversiones son beneficiosas para todos, mientras otras requieren concesiones en las tres áreas de economía, medio ambiente y población. Este enfoque en sostenibilidad ayuda a la RTC a identificar estas concesiones y alcanzar múltiples metas a largo plazo.

## ¿Cómo puede participar?

¡La planificación para el RTP 2040 está en marcha!

- Manténgase informado. Revise los materiales del RTP en la red: http://sccrtc.org/funding-planning/long-range-plans/2040-rtp/ y contribuya a medida que se desarrollen los elementos del plan.
- Solicite que le incluyan en la lista de E-news del RTP enviando un correo electrónico a info@sccrtc.org, llamando al 831-460-3200, o inscribiéndose en el sitio de la CRT en la red: www.sccrtc.org
- Envíe comentarios a SCCRTC: info@sccrtc.com, 1523 Pacific Avenue, Santa Cruz, CA 95060
- Participe en el desarrollo de Estrategias para Comunidades Sostenibles de la Asociación de Gobiernos del Área de la Bahía de Monterey (ECS), www.ambag.org.

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**2040 Regional Transportation Plan (RTP) Outreach Emails**

**From:** Regional Transportation Commission
**Sent:** Tuesday, December 08, 2015 10:45 AM
**To:** Interested Parties
**Subject:** RTC: 2040 Santa Cruz County Regional Transportation Plan

Interested Parties of the Regional Transportation Plan for Santa Cruz County:

The Regional Transportation Commission (RTC) has started work on the 2040 Santa Cruz County Regional Transportation Plan (RTP) and would like your input! The RTP is a long range transportation plan that identifies multi-modal transportation needs (highway, local road, transit, bicycle, pedestrian, etc), and identifies a financially constrained list of priority transportation projects. The 2040 RTP is scheduled to be completed in June 2018.

Your input on two items for the 2040 RTP would be greatly appreciated.

- Please provide your comments on the draft goals, policies, and targets of the 2040 RTP to achieve a sustainable transportation system. A major re-visioning of the goals, policies and targets took place in the 2014 Regional Transportation Plan. The draft goals, policies and targets for the 2040 RTP include only minor revisions to the 2014 RTP goals, policies and targets. Please provide your input by January 7, 2016.

- Share your ideas on specific transportation projects that you think could improve the transportation network (automobile, bus, bicycle, pedestrian, truck movement, etc) in Santa Cruz County. Your ideas will be sent to the project sponsor that would most likely construct/maintain/own the project to encourage them to add it to their list. Please provide your ideas for transportation projects by January 30, 2016.

This information will be used to help us determine which projects to prioritize for the 2040 Regional Transportation Plan in order to make the best use of limited transportation dollars. For more information about the 2040 Santa Cruz County Regional Transportation Plan, please go to http://sccrtc.org/funding-planning/long-range-plans/2040-rtp/.

Please share this email with others.

Thank you,

The RTP Project Team

. . . . . .

**Santa Cruz County Regional Transportation Commission**
1523 Pacific Avenue | Santa Cruz, CA 95060
Main Office 831.460.3200 | Watsonville 831.460.3205

***Follow our social networks for the latest RTC news***

**From:** Regional Transportation Commission
**Sent:** Thursday, January 21, 2016 9:06 AM
**To:** Interested Parties
**Subject:** RTC: Transportation Goals and Project ideas due 1/30/16

Greetings,

*This is a friendly reminder that there is still time to provide comments about long range **transportation goals and project ideas** for Santa Cruz County before the end of January, 2016.*

The Santa Cruz County Regional Transportation Commission (RTC) has begun work on the 2040 Santa Cruz County Regional Transportation Plan (RTP) and would like your input! The RTP is a long range transportation plan that identifies multi-modal transportation needs (highway, local road, transit, bicycle, pedestrian, etc), and a financially feasible list of priority transportation projects for our County.

Please share your thoughts on:

1. Draft goals, policies, and targets for the 2040 RTP to achieve a sustainable transportation system. Email comments to info@sccrtc.org.

2. Offer your ideas on priority transportation projects to improve the transportation network (automobile, bus, bicycle, pedestrian, truck movement, etc.) for everyone in Santa Cruz County that take into account the region's limited funding.

Your input will help determine which projects to prioritize in the 2040 Regional Transportation Plan that best uses our limited transportation dollars. For more information about the 2040 Santa Cruz County Regional Transportation Plan, please visit: http://sccrtc.org/funding-planning/long-range-plans/2040-rtp/.

Thank you,

The RTP Project Team

. . . . . .

**Cathy Judd**, Administrative Assistant, Art Exhibit Coordinator
**Santa Cruz County Regional Transportation Commission**
1523 Pacific Avenue | Santa Cruz, CA 95060
Main Office 831.460.3200 | Watsonville 831.460.3205

***Follow our social networks for the latest RTC news***

**From:** Regional Transportation Commission [mailto:info@sccrtc.org]
**Sent:** Thursday, February 09, 2017 3:59 PM
**Subject:** RTC: 2040 RTP

SCCRTC Santa Cruz County Regional Transportation Commission

Hello
Your input is being requested on the long range transportation plan update:
Project Prioritization Phase

# Santa Cruz County Regional Transportation Plan

## Priority Projects for the 2040 RTP

The RTP is a long range transportation plan that identifies multi-modal transportation needs (highway, local road, transit, bicycle, pedestrian, etc), and a financially feasible list of priority transportation projects for our County. The plan is updated every few years and is required in order to receive specific types of funding from state and federal sources.

The RTC has updated the list of transportation projects for Santa Cruz County for the 2040 Regional Transportation Plan. The project list now needs to be differentiated into those on the "financially constrained" list (priority projects that could be implemented within foreseeable revenues over a 22-year period) including voter-approved Measure D projects) or "unconstrained" list (projects that would need additional funding in order to be implemented). The RTC would like your feedback on the projects you would like to see prioritized.

Please visit the 2040 Regional Transportation Plan page on the RTC website to view the preliminary draft constrained project list and send an email to info@sccrtc.org (subject "2040 RTP") with your input by March 13, 2017. In your email, please specify the ID # of the project (as noted on the project list) that you would like to see prioritized.

Read more
Download the fact sheet

www.sccrtc.org

Santa Cruz County Regional Transportation Commission
email: info[at]sccrtc.org

**Meetings** **Funding & Planning** **Projects** **Services** **About the RTC**

**From:** Regional Transportation Commission [mailto:info@sccrtc.org]
**Sent:** Monday, December 11, 2017 10:21 AM
**Subject:** 2040 RTP Santa Cruz County Regional Transportation Plan – Draft

SCCRTC Santa Cruz County Regional Transportation Commission

**The [Draft 2040 Santa Cruz County Regional Transportation Plan] (RTP) is available for public review and comment from December 8, 2017 to February 5, 2018.**

A **public hearing** for the Draft 2040 RTP will be held at **9:30 am on Thursday, January 18, 2018** at the Santa Cruz County Regional Transportation Commission meeting located at the City of Santa Cruz Council Chambers, 809 Center St, Santa Cruz, CA 95060.

The 2040 RTP is a long range (22 year) transportation plan for the Santa Cruz County area. The plan assesses the transportation challenges we face now and those we will face in the future. The plan includes strategies to address our transportation challenges, a list of transportation needs (highway, road, transit, bicycle, pedestrian, freight, airport, etc.), and priorities for limited funds. The RTP is updated every four or five years to address new trends, issues, and priorities, and to incorporate new state and federal regulations.

The potential environmental impacts of the Draft 2040 RTP are collectively detailed in one Draft Environmental Impact Report (EIR) for the Draft 2040 Metropolitan Transportation Plan (MTP) and its Sustainable Communities Strategy (SCS), which encompasses the three RTPs for Santa Cruz, Monterey and San Benito Counties. The **Draft EIR is available for public review and comment from December 4, 2017 to February 5, 2018**. A **public hearing** for the Draft EIR will be held **Tuesday, January 30, 2018** at the Live Oak Community Complex (Simpkins), 979 17th Street, Santa Cruz.

The Draft 2040 RTP and the Draft EIR can be found at **www.sccrtc.org/2040-rtp** and copies will be available at Santa Cruz

County libraries.

Written comments on the Draft 2040 RTP for Santa Cruz County can be submitted to **Draft2040RTP@sccrtc.org**.

Written comments on the Draft EIR for the 2040 MTP/SCS which includes the environmental review for the 2040 RTP can be submitted to **hadamson@ambag.org**.

**www.sccrtc.org/2040-rtp**

Santa Cruz County Regional Transportation Commission
email: info[at]sccrtc.org

**Website** **Funding & Planning** **Projects** **Services** **About the RTC**

**From:** Regional Transportation Commission [mailto:info@sccrtc.org]
**Sent:** Tuesday, January 16, 2018 3:20 PM
**Subject:** Reminder: Comments Due for Draft 2040 RTP by Feb. 5th

**This is a friendly reminder that the Draft 2040 Santa Cruz County Regional Transportation Plan (RTP) is available for public review and comment from December 8, 2017 to February 5, 2018.**

A **public hearing** for the Draft 2040 RTP will be held at **9:30 am on Thursday, January 18, 2018** at the Santa Cruz County Regional Transportation Commission meeting located at the City of Santa Cruz Council Chambers, 809 Center St, Santa Cruz, CA 95060.

The 2040 RTP is a long range (22 year) transportation plan for the Santa Cruz County area. The plan includes strategies to address our transportation challenges, a list of transportation needs (highway, road, transit, bicycle, pedestrian, freight, airport, etc.), and priorities for limited funds.

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**www.sccrtc.org**

Santa Cruz County Regional Transportation Commission
email: info[at]sccrtc.org

# Public Outreach for the 2040 RTP

Notices or copies of the 2040 Regional Transportation Plan were distributed to the following organizations:

## Partners/Resource Agencies/Media

- Association of Monterey Bay Area Governments
- Bureau of Land Management
- CA Dept. Conserv State Mining & Geology Board
- California Air Resources Board
- California Coastal Commission
- California Department of Fish and Wildlife
- California Department of Parks and Recreation
- California Dept of Resources, Recycling, and Recovery
- California Energy Commission
- California Environmental Protection Agency
- California Governor's Office of Planning & Research
- California Public Utilities Commission
- California Natural Resources Agency
- California State Transportation Agency
- California Transportation Commission
- Caltrans District 5
- Caltrans Headquarters
- Central Coast Energy Services, Inc.
- Central Coast Regional Water Quality Control
- Chambers of Commerce, Executive Directors
- Downtown Association
- Ecology Action
- Federal Highway Administration
- Federal Transit Administration
- Legislators, Federal
- Legislators, State
- Libraries, Main Branches
- Local Jurisdiction, City Clerks
- Local Jurisdiction, City Managers
- Local Jurisdiction, City Mayors
- Local Jurisdiction, Planning Directors
- Local Jurisdiction, Public Works Directors
- Media, Newspapers
- Media, Radio
- Media, TV
- Metropolitan Transportation Commission
- Monterey Bay National Marine Sanctuary
- Monterey Bay Unified Air Pollution Control District
- Natural Resources Conservation Service
- NOAA Fisheries West Coast Region
- San Benito Council of Governments

San Francisco Bay Conservation & Development
Santa Cruz County Business Council
Santa Cruz County Libraries
Santa Cruz County Schools, K-12
Santa Cruz County Sheriff
Santa Cruz County Central Fire District
State Water Resources Control Board
Transportation Agency for Monterey County
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
U.S. National Park Service

## RTC Board & Committees

Commission Members
Interagency Technical Advisory Committee

- Association of Monterey Bay Area Governments
- Cabrillo College
- Caltrans
- City of Capitola
- City of Santa Cruz
- City of Scotts Valley
- City of Watsonville
- County of Santa Cruz
- Ecology Action
- Monterey Bay Unified Air Pollution Control District
- Santa Cruz Metropolitan Transit District
- University of California, Santa Cruz

Bike Committee
Elderly and Disabled Transportation Advisory Committee
Safe on 17

- California Highway Patrol
- California Office of Traffic Safety
- Caltrans
- Caltrans, District 4
- Caltrans, District 5
- City of San Jose
- City of Santa Cruz
- City of Scotts Valley
- County of Santa Clara
- County of Santa Cruz
- Ladd's Auto Body & Towing/AAA
- Monterey Bay Unified Air Pollution Control District
- Metropolitan Transportation Commission-SAFE
- Mountain Network News
- Office of Assemblymember Mark Stone
- Office of Assemblymember Paul Fong

- San Jose Mercury News
- San Jose Police Department
- Santa Clara County Airports and Roads
- Santa Cruz Sentinel
- Santa Cruz Metropolitan Transit District
- Town of Los Gatos
- Santa Clara Valley Transportation Authority

Transportation Operations System

- Association of Monterey Bay Area Governments
- American Medical Response
- California Highway Patrol
- Caltrans
- Caltrans, District 4
- Caltrans, District 5
- City of Santa Cruz
- City of Scotts Valley
- County of Santa Cruz
- Ladd's Auto Body & Towing/AAA
- Metropolitan Transportation Commission
- Monterey Salinas Transit
- Santa Clara Valley Transportation Authority
- Santa Cruz Metropolitan Transit District
- Santa Cruz & Monterey Bay Railroad
- Santa Cruz Regional 911
- Santa Cruz Yellow Cab

Transportation Funding TF Members

## Stakeholders, Elderly & Disabled

- Alcoholics Anonymous
- Alzheimer's Association
- Apria Healthcare
- Big Brothers Big Sisters of Santa Cruz
- Cabrillo College
- Cabrillo College Stroke
- California Grey Bears
- Californians for Disability Rights
- California Senior Alliance
- Central Coast Alliance for Health
- Central Coast Center for Independent Living
- Cindy's Celebrations Inc
- Coastwalk California
- Community Action Board of Santa Cruz County, Inc.
- Community Bridges (Meals on Wheels)
- Community Foundation of Santa Cruz County
- Community Life Services
- Conflict Resolution Center
- County of Monterey
- County of Santa Cruz
- County of Santa Cruz / HRA
- Del Mar Caregiver Resource Center
- Dominican Hospital
- Easter Seals Central California
- Elderday
- ETR Associates
- Family Service Agency of the Central Coast
- Goodwill Industries
- Greenways to School
- Hope Services
- Imagine Supported Living Services
- Lifespan Care
- Louden Nelson Community Center
- Metro Advisory Committee
- Ombudsman Advocate, Inc.
- Pajaro Valley Community Health Trust
- Pajaro Valley Unified School District Office
- Pula Services
- San Lorenzo Valley Unified School District
- Santa Cruz County
- Santa Cruz County Commission on Disabilities
- Santa Cruz County Cycling Club
- Santa Cruz County Immigration Project
- Santa Cruz County Office of Education
- Santa Cruz County Veterans Center
- Santa Cruz County Health Service Agency
- Santa Cruz Healthcare Center
- Santa Cruz Host Lions Club
- Santa Cruz Metropolitan Transit District
- Second Harvest Food Bank
- Senior Citizens Legal Services
- Senior Living Centers
- Senior Network Services
- Seniors Council of Santa Cruz and San Benito Counties
- United Way of Santa Cruz County
- Valley Convalescent Hospital
- Veterans Services Office Watsonville
- Vista Center
- Volunteer Center of Santa Cruz County
- Watsonville Community Hospital
- WomenCARE
- Watsonville Dialysis Center
- Women's Crisis Support/Defensa De Mujeres
- Youth Services

## Stakeholders, Environmental

- Agricultural History Project (AHP) Museum
- Arana Gulch Watershed Alliance (AGWA)
- California Center for Land Recycling
- California Coastal Commission
- California Native Plant Society (CNPS)
- California Rural Legal Assistance
- California State Coastal Conservancy

California Sustainable Agricultural Working Group
CalPIRG at UCSC
Camp Joy Gardens
California State Clearing House (CEQA)
Campaign for Sensible Transportation
Central Coast Water Quality Preservation, Inc.
City of Santa Cruz
Coastal Watershed Council
Community Action Board of Santa Cruz County
Community Alliance with Family Farmers
Communities for Sustainable Monterey County
County of Santa Cruz
Ducks Unlimited, Inc.-Santa Cruz Chapter
Earth First!
Ecology Action
Elkhorn Slough Foundation
Farmer Veteran Coalition
Friends of Arana Gulch
Friends of Moss Landing Marine Laboratories
Friends of Santa Cruz State Parks
Friends of Soquel Creek
Friends of the North Coast
Friends of the Sea Otter
Groundswell Coastal Ecology
International Institute for Ecological Agriculture
Island Conservation
Keep the Green Belt Green
La Selva Recreation District
Land Watch Monterey County
Land Trust of Santa Cruz County
Life Lab Science Program
Local Farmers
Marine Mammal Center-Monterey Bay Operations
Mission Pedestrian
Mission Springs Camps and Conference Center
Monterey Bay Aquarium
Monterey Bay National Marine Sanctuary
Monterey Bay Salmon and Trout Project
Mountain Bikers of Santa Cruz
Mountain Parks Foundation
Muwekma Ohlone Indian Tribe/SF Bay Area
National Environmental Directory
Nisene 2 Sea
Ocean Conservancy
Open Space Alliance
Open Space Authority
Organic Farming Research Foundation
Outdoor Science Exploration and Classroom Science Fun
Otter Project, Inc.
Pelagic Shark Research Foundation
Redwood Empire
Rails to Trails Conservancy
Rising Sun Energy Center
San Andreas Land Conservancy
Santa Cruz Bird Club
Santa Cruz County Cycling Club
Santa Cruz County Farm Bureau
Santa Cruz County Horsemen's Association
Santa Cruz County Res Conservation District
Santa Cruz Hub for Sustainable Living
Santa Cruz Mountains Bioregional Council
Santa Cruz Museum of Natural History
Save Our Agricultural Land
Save Our Shores
Scotts Creek Watershed Council
Sempervirens Fund
Seymour Marine Discovery Center
Sierra Club
Surfrider Foundation
Sustainable Conservation
Sustainable Fishery Advocates
Swanton Pacific Ranch-CalPoly
The Monterey Bay Conservancy
UCSC
UCSC Institute of Marine Sciences
US Geological Survey
Valley Women's Club of the San Lorenzo Valley
Ventana Wilderness Alliance
Watsonville Waste & Recycle
Watsonville Wetlands Watch
Wild Farm Alliance
YES! Helping Outstanding Young Leaders
Zero Population Growth

## Stakeholders, Transportation Groups

AAA Northern California
Bike Santa Cruz County
CalVans
California Trucking Association
Campaign for Sensible Transportation
Carpooltoschool.com
City of Santa Cruz
Community Bridges (CTSA)
Courtesy Cab
Ecology Action
Enterprise Rideshare
First Transit Services, Inc
Monterey Bay Electric Vehicle Alliance
Monterey Bay Unified Air Pollution Cntrl District
Mission Pedestrian
Mountain Bikers of Santa Cruz
Santa Cruz County Cycling Club

Santa Cruz County Greenway
Santa Cruz County Railroad Historical Society
Trail Now
Trail People
Train Riders Association of California
UCSC/Transportation and Parking Services
Watsonville Bike Shack Cooperative

## Stakeholders, Community

Action Pajaro Valley
Agri-Culture
Arts Council Santa Cruz County
Barios Unidos
California Native Plants Society
California Art Education Association
Capitola Walks
Central Coast Agricultural Task Force
City of Santa Cruz
City of Seaside
City of South San Francisco
Community Foundation of Santa Cruz County
The Corralitos Cultural Center
County of Santa Cruz
Santa Cruz County Office of Education
Employers over 100
Friends of the Santa Cruz Public Library
Happy Valley Conference Center
Japanese Cultural Fair Committee
League of Women Voters of Santa Cruz
Live Oak Family Resource Center
Live Oak Neighbors
Metro Advisory Committee
Michael's Transportation Service
Mission Pedestrian
Monterey Bay Central Labor Council
Mountain Parks Foundation
Neighbors of Lower Ocean
Open Space Alliance Santa Cruz
Organic Farming Research Foundation
Pleasure Point Business Association
Redwood Estates Service Association
Rio Del Mar Improvement Association
Roaring Camp Railroads
Rotary Club of San Lorenzo Valley
Rotary Club of Santa Cruz
Rotary Club of Scotts Valley
Rotary Club of Watsonville
Santa Cruz County Business Council
Santa Cruz County Confer & Visitors Council
Santa Cruz County Farm Bureau
Santa Cruz County Immigration Project
Santa Cruz Museum of Natural History
Santa Cruz Regional 911
Santa Cruz Neighbours
Santa Cruz Seaside Company
Seymour Marine Discovery Center
Surfrider Foundation (SC)
Sumner Woods HOA
UCSC
Valley Women's Club of the San Lorenzo Valley
Watsonville Women's Club

## Stakeholders, Economic Justice

Arts Council Santa Cruz County
Cabrillo College Stroke
California Public Interest Research Group
Child Development Resource Center
City of Capitola
Community Action Brd of Santa Cruz Cnty, Inc.
Communities Organized for Power in Action
Conflict Resolution Center
Family Service Agency of the Central Coast
Foster Grandparent Senior Companion Program
Homeless Community Resource Center
League of Women Voters
Lomak Property Group
Mission Pedestrian
Monarch Services/Servicios Monarca
Monterey Bay Central Labor Council
Pajaro Valley Ohlone Indian Council
Pajaro Valley Shelter Services
Peace Coalition of Monterey County
Santa Cruz County Farm Bureau
Santa Cruz Metropolitan Transit District
Senior Network Services
Seniors Council
United Way of Santa Cruz County
Valley Churches United
Volunteer Center
Youth Services

Aptos Time, February 2017

Serving Our Community For 25 Years • Aptos, La Selva Beach, Corralitos, Freedom & Watsonville

Aptos Times

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February 15 2017 • Vol 26 No. 4 • www.tpgonlinedaily.com

## Regional Transportation Plan Fact Sheet

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***Full Story page 5***

Aptos Times, February 2017 (cont'd)

*Community News*

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**What is The Regional Transportation Plan?**

The Regional Transportation Plan (RTP) is a long-range (20-25 year) transportation plan for the Santa Cruz County area. The long-range transportation plan assesses the transportation challenges we face now and those we will face in the future. The plan includes strategies to address our transportation challenges, a list of unmet multimodal transportation needs (highway, road, transit, bicycle, pedestrian, freight, airport, etc.), and priorities for limited funds.

The RTP is updated every four or five years to address new trends, issues, and priorities, and to incorporate new state and federal regulations. The last Santa Cruz County Regional Transportation Plan was adopted in June 2014. The next plan is scheduled for adoption in June 2018 and will be referred to as the 2040 RTP.

**How is the long-range transportation plan developed?**

The first step is to identify the objectives for the region's transportation system and craft overarching goals and policies, used to guide decisions. Performance measures or targets are also developed to track progress towards achieving the goals.

Next, an estimate of all the potential local, state and federal funding available for transportation projects is developed. Projects that advance the goals and targets are then identified by transportation agencies, local jurisdictions, and the public.

Based on the anticipated funding and the performance measures, the RTC prioritizes the projects that could be funded over the next 25 years. A list of additional projects that could be implemented should more funding become available is also identified. The priority project list is then reviewed to identify potential environmental impacts. There are opportunities at every stage of the development of the RTP for public, agency and committee input. The goals/policies, funding estimates and project lists build on each other and input at the early stages will shape the draft and final plan.

The Regional Transportation Plan provides information on the following:

- Transportation needs in the region for 20 to 25 years, based on population growth, environmental, economic and other social trends.
- The amount of state, federal, and local funding available for transportation projects and new sources of funding needed to deliver high priority projects.
- Sustainability of the transportation system and sustainable outcomes.
- New legislative requirements, including SB375, which stipulate that regions must meet greenhouse gas reduction targets through a coordinated land use and transportation plan called the Sustainable Communities Strategy.
- "Complete Streets" as a tool for planning for a balanced and multimodal transportation system, particularly for those transportation improvements needed to accommodate growth.

*"RTP" page 13*

"RIP" from page 5

**Why a focus on sustainability?**

The RTC represents diverse transportation interests and assesses the impacts of transportation investments on environmental, economic and social concerns. A focus on sustainability can assist in providing balanced evaluation of transportation projects and programs, recognizing that these areas are intertwined, not exclusionary.

This approach evaluates how transportation investments impact people's health and safety, the economic vitality of the region, and the universal need for a healthy planet.

Some investments are win/win, but some require trade-offs in the three areas of economy, environment and people. This focus on sustainability assists the RTC in identifying these trade-offs and achieving multiple long-term goals.

**How can you get involved?**

Planning for the 2040 RTP has begun!

- Provide input as elements of the plan are developed. Tell us what projects you think should be considered for the transportation system. http://sccrtc.org/funding-planning/long-range-plans/new-project-ideas/
- Stay informed. Review materials on the RTP webpage: http://sccrtc.org/funding-planning/long-range-plans/2040-rtp/
- Ask to be added to the RTP E-news List by emailing info@sccrtc.org, calling 831-460-3200 or signing up on the RTC website www.sccrtc.org
- Send comments to SCCRTC: info@sccrtc.com or 1523 Pacific Avenue, Santa Cruz, CA 95060
- Participate in the development of the Association of Monterey Bay Area Governments' Sustainable
- Communities Strategy (SCS), www.ambag.org. ■

Capitola Times (March 2017) and Scotts Valley Times (March 2017)

Community News

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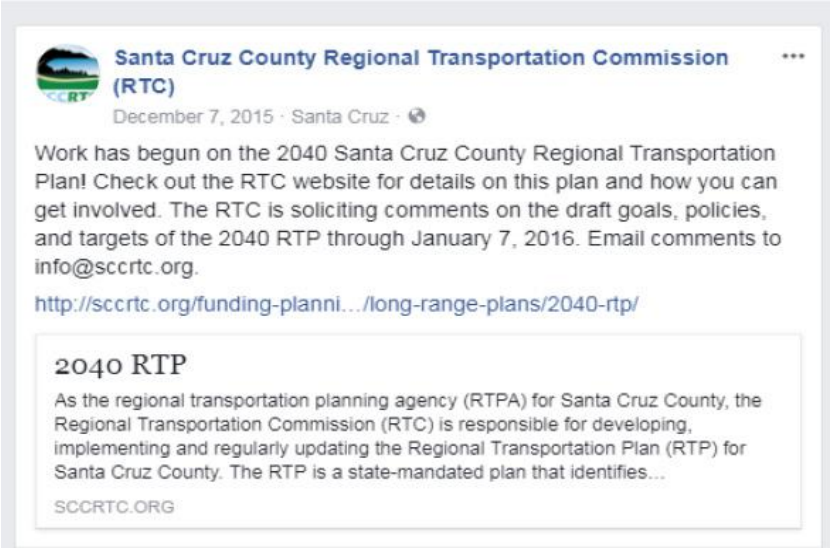
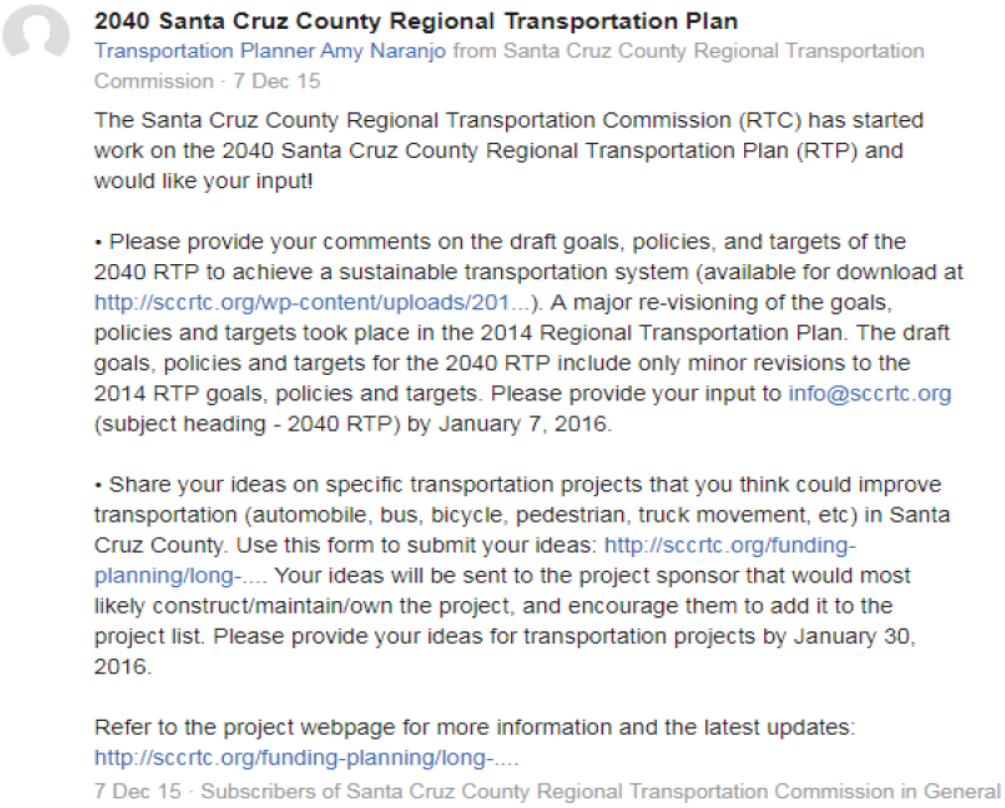
- Communities Strategy (SCS), www.ambag.org. ■

Facebook example from December 2015




Nextdoor example from December 2015



Twitter example from March 2017

**Santa Cruz Sentinel -** POSTED: 08/02/16

# Santa Cruz County transportation commission considers $6.1B of projects

## Transportation Commission meeting

What: Consideration of a list of $6.1 billion worth of projects to be completed by 2040.

When: 9 a.m. Thursday.

Where: Scotts Valley City Council Chamber, 1 Civic Center Drive, Scotts Valley.

Details: Visit sccrtc.orgor call 831-460-3200.

Morning commuters on northbound Highway 1 head for Santa Cruz while others veer off to Highway 17 and San Jose. (Dan Coyro -- Santa Cruz Sentinel file)

*By* **Kara Guzman**, *Santa Cruz Sentinel*

SCOTTS VALLEY >> Thursday, the Santa Cruz County Regional Transportation Commission will consider its list of projects over the next two decades, in which its biggest expense likely will be road maintenance.

The draft 2040 Santa Cruz County Regional Transportation Plan has $6.1 billion worth of projects, ranging from highway updates to bike lane construction and bus system operations. If approved Thursday, the 34-page list then will be prioritized, based on what's financially feasible. The final list will be approved in June 2018.

The project list was last updated in 2014, and at that time only $2.8 billion of funding was identified. And that assumes that the half-cent sales tax measure supporting transportation passes in November, said Ginger Dykaar, transportation planner for the commission.

“(A sales tax) is something most other counties in California have to support their transportation systems,” said Dykaar.

The biggest expense on the 2040 plan is road maintenance.

For example, maintaining Highways 1, 17, 9, 152 and 129 is estimated to cost $542 million over 22 years. Road maintenance in unincorporated county is estimated at $489 million for the same time frame, according to Karena Pushnik, the commission’s senior transportation planner.

“That’s what it costs to keep what we have in good working order and safe,” Pushnik said.

Each of the county’s four cities listed their street maintenance costs through 2040: $163.6 million for Santa Cruz, $56.8 million for Watsonville, $17.6 million for Capitola and $14.7 million for Scotts Valley.

The county’s pavement conditions are among the worst in the state, according to a 2014 report ranking the county in the bottom third.

“The more maintenance is deferred, the higher the cost goes,” Pushnik said.

The 2040 project list also includes construction of the $121 million coastal rail trail, a network of bike and pedestrian trails.

A $283 million public rail system connecting Santa Cruz and Watsonville is also on the list, but that doesn’t necessarily mean the project will be pursued, said Pushnik. It depends on the funding and support, she said.

The sales tax measure on the November ballot will not fund passenger rail operations, only an environmental review of the rail corridor.

Public comment on the project list will be factored into the commission’s decisions, and already more than 225 written comments have been filed. More than 90 percent of projects listed by the public already were part of the plan, but these comments help the commission prioritize. For example, many complained about congestion on Highways 1 and 9, and that was addressed in both the 2040 plan and the sales tax measure expenditure plan, Pushnik said.

Advertisement

“It helps to hear from the public and get a reality check on what’s important for the community,” she said.

The commission will accept written comments via email to info@sccrtc.org until noon Wednesday. The public is also invited to attend the commission meeting on Thursday, and subscribe to the commission’s email list.

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# Appendix B

## Regional Transportation Commission and Partner Agency Coordination

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Below is a description of the RTC, member agencies, advisory committees and related partners. A summary chart can be found at the end of this appendix.

# Santa Cruz County Regional Transportation Commission (RTC)

The RTC is responsible for delivering a full range of convenient, reliable and efficient transportation choices for the community. While promoting long-term sustainability, the RTC provides transportation services, construction management, planning and funding for all travel modes. The RTC is designated in state statute as the Regional Transportation Planning Agency for Santa Cruz County. Responsibilities of this designation include preparation of the long range Regional Transportation Plan (this document), dissemination of state and federal funding, and setting local transportation policy. At the time of this writing, there are twelve (plus one ex-officio) board members and seventeen full-time equivalent staff. The RTC board meets once per month for their regular televised meetings and as needed for a Transportation Policy Workshop (TPW).

The RTC also serves as the Service Authority for Freeway Emergencies (SAFE) for Santa Cruz County. The RTC SAFE is one of 18 SAFE programs in California to reduce congestion, improve public safety, and enhance air quality. On Highway 1 and 17, the RTC SAFE provides roadside call box services and Freeway Service Patrol tow trucks that quickly respond to and clear highway incidents.

In addition, the RTC serves as the "Local Transportation Authority" responsible for implementation of Measure D, the Santa Cruz County Transportation Improvement Plan Measure, which was approved in November 2016 by over two-thirds of Santa Cruz County voters.

# RTC Member Agencies

## Local Jurisdictions

- City of Capitola – The RTC Board includes one member from this city of about 10,180 people occupying a coastal village of approximately 2 square miles.
- City of Santa Cruz – The RTC Board includes one member from this city of about 64,465 people occupying a coastal area of approximately 16 square miles, including the University of California, Santa Cruz.
- City of Scotts Valley – The RTC Board includes one member from this city of about 11,930 people occupying a mountainous area approximately 4.6 miles square located about 6 miles north of the City of Santa Cruz.
- City of Watsonville - The RTC Board includes one member from this city of about 53,800 people occupying a valley of approximately 6.8 square miles adjacent to agriculture lands.
- County of Santa Cruz – The RTC Board includes all five supervisors representing the unincorporated, rural, and urban areas of the county with a total population of 274,673.

### Santa Cruz Metropolitan Transit District (METRO)

The RTC Board includes three members from the Metro Board. The METRO operates in Santa Cruz County with connections to transit in neighboring counties, providing both fixed route local and express bus service, and paratransit as mandated by the Americans with Disabilities Act. The METRO is a recipient of RTC-administered Transportation Development Act funds as designated by the RTC's Rules and Regulations, and is a member of the RTC's Elderly & Disabled Transportation Advisory and Interagency Technical Advisory Committees.

### Caltrans/State Department of Transportation

The RTC Board includes one ex-officio (non-voting) member from Caltrans. Santa Cruz County is in Caltrans District 5, headquartered in San Luis Obispo and covering 5 counties. Caltrans is the state agency responsible for highway, bridge, and rail transportation planning, construction, and maintenance. The RTC coordinates with Caltrans on all issues related to their role as the owner and operator of state highways. Caltrans is also a member of the RTC's Interagency Technical Advisory Committee and the "Safe on 17" Task Force.

## RTC Advisory Committees

### Budget & Administration/Personnel Committee

The committee consists of 5 commissioners selected annually by the RTC and provides oversight and recommendations on Commission administration, budget, policy, finance, audit, and personnel issues.

### Bicycle Committee

The committee advises the Regional Transportation Commission and its member agencies on bicycle related issues, including: review of proposed bicycle related policies, programs, projects, plans, funding applications, and legislation; input on existing and future roadway/bikeway conditions affecting cycling; coordination with local jurisdictions and bicycle related organizations to promote cycling projects and programs.

### Elderly & Disabled Transportation Advisory Committee (E&D TAC)

The committee advises the Regional Transportation Commission and other transportation agencies on the network of specialized transportation services for seniors and people with disabilities in Santa Cruz County as well as about the transportation needs of these members of our community. In addition, the committee serves as the local Social Services Transportation Advisory Council (SSTAC), a state-required entity and the Paratransit Advisory Council (PAC).

### Interagency Technical Advisory Committee (ITAC)

Made up of staff from a variety of jurisdictions and agencies including local jurisdiction public works and planning departments, the Metro, Caltrans District 5, and Association of Monterey Bay Area Governments (AMBAG), the ITAC reviews and provides technical advice on transportation projects and programs in the region; coordinates and provides recommendations to the RTC on the use of

transportation funds; and serves as a forum for sharing information on transportation projects and federal and state requirements for project implementation.

# Partner Transportation Agencies

## Association of Monterey Bay Area Governments (AMBAG)

AMBAG is a voluntary association of 20 local jurisdictions in Santa Cruz, Monterey, and San Benito Counties and one associate member representing the Council of San Benito County Governments (SBCOG). AMBAG serves as a forum for discussing and making recommendations on issues of regional significance. The agency serves as the region's Metropolitan Planning Organization, a federal designation that carries with it the responsibility for developing federally-mandated transportation plans and funding programs. The agency also has the responsibility for coordinating and analyzing the Regional Travel Demand Model, and ascertaining the air quality impacts of the projects within transportation plans and programs.

## California Highway Patrol (CHP)

The CHP provides "Safety, Service, and Security" to Californians through active programs, task forces, community outreach, and communication. In addition, the CHP provides enforcement of traffic laws on roads and highways and safety training for all ages, including youth and seniors. The CHP are members of the 'Safe on 17' Task Force.

## California Transportation Commission (CTC)

The California Transportation Commission is a policy-making body appointed by the Governor and Legislature. The CTC works closely with Caltrans and oversees state-level transportation planning, policy and funding decisions. The California Transportation Commission, in consultation with Caltrans, decides how and when to allocate state funds for transportation projects through a variety of programs including the State Transportation Improvement Program (STIP), and State Highway Operation Protection Program (SHOPP) programs. One of the main sources of discretionary transportation funds available for our region is from the STIP, of which 75 percent is allocated to Regional Transportation Planning Agencies (RTPA) for regionally significant projects, and 25 percent is allocated to state highway and intercity rail programs selected by Caltrans. The CTC has final approval on local funding plans for the STIP.

## Community Bridges

Community Bridges operates transportation services under the brand of Lift Line for seniors and people with disabilities; is the locally designated Consolidated Transportation Services Agency; is a recipient of RTC-administered Transportation Development Act funds as designated by the RTC's Rules and Regulations; and is a member of the RTC's Elderly & Disabled Transportation Advisory Committee.

## Community Traffic Safety Coalition (CTSC)

The CTSC and its South County Bicycle/Pedestrian Work Group operate under the Santa Cruz County Health Services Agency. These groups represent a coalition of agencies and individuals that promote

bicycle and pedestrian safety, particularly for school children. The CTSC is a member of the RTC's Bicycle Committee.

### Ecology Action's Transportation Program

The former Santa Cruz Area Transportation Management Association merged with the non-profit organization Ecology Action in 2005 which continues to offer workplace-based commute programs to its member employers. Ecology Action also coordinates a wide range of bike and pedestrian safety education, marketing and incentive programs including Bike to Work/School. This organization has members on both the RTC's Bicycle Committee and Interagency Technical Advisory Committee.

### Federal Highway Administration (FHWA)

This agency is within the U.S. Department of Transportation and supports State and local governments in the design, construction, and maintenance of the Nation's highway system (Federal Aid Highway Program) and various federal and tribal owned lands (Federal Lands Highway Program). The RTC coordinates with the FHWA on all state highway projects.

### Federal Railroad Administration (FRA)

The FRA was created by the Department of Transportation Act of 1966 and is one of ten agencies within the United States Department of Transportation working on intermodal transportation. The RTC coordinates with the FRA on rail issues.

### Federal Transit Administration (FTA)

The FTA is one of ten agencies within the United States Department of Transportation, and provides financial and technical assistance to local public transit systems. Public transportation includes buses, subways, light rail, commuter rail, monorail, passenger ferry boats, trolleys, inclined railways, and people movers. The RTC coordinates with the FTA on financial assistance to operate existing systems and to secure new transit grant funding.

### Metropolitan Transportation Commission (MTC)

This Regional Transportation Planning Agency provides similar functions as the RTC for the nine-county San Francisco Bay Area. The RTC coordinates with MTC on issues related to coordination with the Bay Area (Highway 17 "Safe on 17" Task Force, commuters/rideshare, etc), funding, and statewide matters.

### Monterey Bay Unified Air Pollution Control District (MBUAPCD)

The Air District oversees state and federal ambient air quality control in the Monterey Bay region. The agency develops transportation regulations and control measures to reduce vehicle emissions; helps determine whether the region is meeting and maintaining state and federal air quality standards; and ensures that state Air Resources Board regulations are followed. The air district also distributes funds from a $4 per vehicle registration fee collected by the Department of Motor Vehicles (known as AB 2766 funds) and Carl Moyer Funds, and channels them back to the region as grants for emissions-reducing transportation projects. The MBUAPCD is a member of the RTC's Interagency Technical Advisory Committee.

## Safe on 17/Traffic Operations Systems (TOS) Committee

In 1998, Highway 17 was identified as a high collision corridor. The Safe on 17 task force was formed to develop strategies for improving safety and reducing collisions through education, enforcement and engineering. The Traffic Operations Systems Committee focuses on technological systems to improve highway operations throughout Santa Cruz County. Because these two committees have similar membership, they meet at the same time. Since Highway 17 straddles two counties, the members that attend these meetings consists of two regional transportation planning agencies, two California Highway Patrol divisions, two Caltrans districts, and two transit districts.

## San Benito Council of Governments (SBCOG)

This Regional Transportation Planning Agency provides similar functions to the RTC in San Benito County. The agencies coordinate on Monterey Bay regional issues.

## Transportation Agency for Monterey County (TAMC)

This Regional Transportation Planning Agency provides similar functions to the RTC in Monterey County. The agencies coordinate on Monterey Bay regional transportation issues.

## University of California, Santa Cruz (UCSC)

One of the University of California's ten campuses, UCSC aggressively encourages use of alternatives to driving alone. UCSC charges for on-campus parking and uses the funds to subsidize vanpool programs for their employees. They collect a fee from all students as part of registration and provide "free" year-long bus passes for all students for the Metro buses anywhere in the county and free shuttle service on campus. UCSC prepares a Long Range Development Plan (LRDP), which includes a transportation element, and is similar to a city General Plan. UCSC is a member of the RTC's Interagency Technical Advisory Committee

## Valley Transportation Authority (VTA)

This agency provides oversight of transportation in Santa Clara County including operation of bus and light rail transit. Coordination with this agency is primarily focused on cross-county transit such as the Highway 17 Express and connections to Bay Area transit.

## Volunteer Center's Transportation Program

This agency oversees a transportation program using volunteer drivers to provide rides and companionship to many in the county who are ineligible for other transportation services. The Volunteer Center provides insurance coverage and reimburses gasoline costs, although many also volunteer this cost. The Volunteer Center is a recipient of RTC-administered Transportation Development Act funds as designated by the RTC's Rules and Regulations, and is a member of the RTC's Elderly & Disabled Transportation Advisory Committee.

## Summary Information for the Regional Transportation Commission, Advisory Committees, and other related agencies

(agency descriptions can be found in pages before this summary)

| *Agency* | *Board or Members* | *General Meeting Times* (please confirm actual) | *Contact Phone & Website* |
|---|---|---|---|
| **Santa Cruz County Regional Transportation Commission (SCCRTC)** | 12 Commissioners, 1 ex-officio | 1st Thursdays, 9:00 am, excluding July 3rd Thursdays, as needed 9:00 am | 831/460-3200 www.sccrtc.org |
| ***Member Agencies:*** | | | |
| City of Capitola | 5 council members, 1 on RTC; DPW and Plng on ITAC | 2nd & 4th Thursdays, 7:00 pm | 831/475-7300 www.cityofcapitola.org |
| City of Santa Cruz | 7 council members, 1 on RTC; DPW and Plng on ITAC | 2nd & 4th Tuesdays, 3:00 pm & 7:00 pm | 831/420-5030 www.cityofsantacruz.com |
| City of Scotts Valley | 5 council members, 1 on RTC; DPW and Plng on ITAC | 1st & 3rd Wednesdays, 6:00 pm | 831/440-5602 www.scottsvalley.org |
| City of Watsonville | 7 council members, 1 on RTC; DPW and Plng on ITAC | 2nd & 4th Tuesdays, 4:30 or 6:30 pm | 831 768 3040 www.cityofwatsonville.org |
| County of Santa Cruz | 5 supervisors, all 5 on RTC; DPW and Plng on ITAC | Tuesdays, 9:00 am | 831/454-2200 www.co.santa-cruz.ca.us |
| Santa Cruz Metropolitan Transit District (METRO) | 11 directors + 1 ex-officio, 3 on RTC; 2 staff on ITAC | 4th Fridays, 9:00 am | 831/426-6080 www.scmtd.com |
| Ex-Officio: Caltrans District 5 | | | Local: 831/423-0396 www.dot.ca.gov |
| ***RTC Committees:*** | | | |
| Budget, Administration, and Personnel Committee | 6 Commissioners | 2nd Thursday, 3:30 pm, as needed | 831/460-3200 www.sccrtc.org |
| Transportation Policy Workshop | 12 Commissioners | 3rd Thursdays, 9:00 am, as needed | 831/460-3200 www.sccrtc.org |
| ***RTC Advisory Committees:*** | | | |
| Bicycle Committee | 11 members | 2nd Monday, 6:00 pm, even numbered months | 831/460-3200 www.sccrtc.org |
| Elderly & Disabled Advisory Committee (E&DTAC) | 16 members | 2nd Tuesday, 1:30 pm, even numbered months | 831/460-3200 www.sccrtc.org |
| Interagency Technical Advisory Committee (ITAC) | 19 members, 1 ex-officio | 3rd Thursday, 1:30 pm, as needed | 831/460-3200 www.sccrtc.org |
| ***Partner Agencies/Committees:*** | | | |
| Association of Monterey Bay Area Governments (AMBAG) | 24 members, 1 associate | Typically 2nd Wednesday, 6:00 pm | 831/883-3750 www.ambag.org |
| California Highway Patrol (CHP) | n/a | | 831/662-0511 www.chp.ca.gov |
| California Transportation Commission (CTC) | 11 members + 2 ex-officio | varies | www.catc.ca.gov |
| Community Bridges/Lift Line | 13 members | | www.communitybridges.org/liftline |
| Community Traffic Safety Coalition (CTSC) & South County Bicycle & Pedestrian Work Group (SCBPWG) | varies | CTSC: 1st Tue, 2:00 pm, even # months. SCBPWG: 1st Tue, 10:30 am, odd # months | 831/454-4312 www.sctrafficsafety.org |
| Ecology Action's Transportation Program | 9 members | | ecoact.org/Programs/Transportation |
| Federal Highway Administration (FHWA) | n/a | | www.fhwa.dot.gov |
| Federal Railroad Administration (FRA) | n/a | | www.fra.dot.gov |
| Federal Transit Administration (FTA) | n/a | | www.fta.dot.gov |
| Metropolitan Transportation Commission (MTC) | 21 members | | www.mtc.ca.gov |
| Monterey Bay Unified Air Pollution Control District (MBUAPCD) | 11 members | 3rd Wednesday, 1:30 pm | 831/647-9411 www.mbuapcd.org |
| SAFE on 17/Traffic Operations Systems Committee | varies | March and September | 831/460-3200 www.sccrtc.org |
| San Benito Council of Governments (SB COG) | 5 members | 3rd Thursday, 3:00 p.m. | 831/637-7665 www.sanbenitocog.org |
| Transportation Agency for Monterey Counties (TAMC) | 12 members + 6 ex-officio | 4th Wednesday, 9:00 am | 831/775-0903 www.tamcmonterey.org |
| University of California at Santa Cruz (UCSC) | n/a | | www2.ucsc.edu/taps/ |
| Valley Transportation Authority (VTA) | n/a | | www.vta.org/ |
| Volunteer Center's Transportation Program | n/a | | www.scvolunteercenter.com/ |

# Appendix C

## 2040 RTP Goals, Policies and Targets

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# 2040 Santa Cruz County Regional Transportation Plan Goals, Targets[1] and Policies

## GOAL 1. Establish livable communities that improve people's access to jobs, schools, recreation, healthy lifestyles and other regular needs in ways that improve health, reduce pollution and retain money in the local economy.

There is a strong relationship between meeting targets and achieving access, health, economic benefit, and climate and energy goals. In many cases actions to achieve one goal or target will assist in achieving other goals and targets. For example, providing more carpool, transit and bicycle trips reduces fuel consumption, retains money in the local Santa Cruz County economy and reduces congestion.

### TARGETS:

Improve people's ability to meet most of their daily needs without having to drive. Improve access and proximity to employment centers.

**1A.** Increase the percentage of people that can travel to key destinations[2] within a 30-minute walk, bike or transit trip by 20 percent by 2020 and 47 percent by 2040.[3]

Re-invest in the local economy by reducing transportation expenses from vehicle ownership, operation and fuel consumption. Reduce smog-forming pollutants and greenhouse gas emissions.

**1Bi.** Reduce per capita fuel consumption and greenhouse gas emissions by 1 percent by 2020, 5 percent by 2035 and 6 percent by 2040 through a reduction in vehicle miles traveled and improved speed consistency.[4]

**1Bii.** Reduce total greenhouse gas emissions from transportation by 1 percent by 2020 and 60 percent by 2040[5] (compared to 2005) through electric vehicle use, other emerging technologies, reduction in vehicle miles traveled and improved speed consistency.

**1C.** Re-invest in the local economy $5 million/year[6] by 2020 and $12 million/year by 2040 from savings resulting from lower fuel consumption due to a reduction in vehicle miles traveled.[7]

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[1] Base years have been identified for most targets to allow for a comparative analysis. Base years vary by target between 2001 and 2010, depending on available data. Base years for the 2040 RTP are the same as the base years determined for the 2014 RTP.

[2] Key destinations consider employment and population centers, and multimodal trip destinations.

[3] The targets are relative to the 2010 maximum population within the key destinations and will close the gap between the baseline population and maximum population by 20% by 2020 and 47% by 2040.

[4]. A reduction in vehicle miles traveled is based on coordinated transportation and land use planning that strives to reduce length and number of vehicle trips. These target values may change based on the requirements of the California Air Resources Board for the AMBAG region.

[5] This target is based on the California Executive Order B-16-12 - reduce greenhouse gas emissions from transportation by 80 percent below 1990 levels by 2050, and California Executive Order B-30-15 - reduce greenhouse gas emissions by 40 percent below 1990 levels by 2030.

Improve the convenience and quality of trips, especially for walk, bicycle, transit, freight and carpool/vanpool trips.

**1Di.** Improve travel time reliability[8] for vehicle trips.[9]

**1Dii.** Improve multimodal network quality[10] for walk and bicycle trips to and within key destinations.[11]

Improve health by increasing the percentage of trips made using active transportation options, including bicycling, walking and transit.

**1E.** Decrease single occupancy trip mode share by 4 percent by 2020 and by 9 percent by 2040.

**1F.** Increase the number of active transportation trips by 5 percent of total trips by 2020 and by 18% of total trips by 2040.[12]

POLICIES:

1.1 *Transportation Demand Management* (TDM)*:* Expand demand management programs that decrease the number of vehicle miles traveled and result in mode shift.

1.2 *Transportation System Management*: Implement Transportation System Management programs and projects on major roadways across Santa Cruz County that increases the efficiency of the existing transportation system.

1.3 *Transportation Infrastructure:* Improve multimodal access to and within key destinations.

1.4 *Transportation Infrastructure:* Ensure network connectivity by closing gaps in the bicycle, pedestrian and transit networks.

1.5 *Land Use:* Support land use decisions that locate new facilities close to existing services, particularly those that service transportation disadvantaged populations.

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[6] 2012 dollars.

[7] 10 million per year equates to $\underline{100}$ per household per year. Assumes $4 per gallon.

[8] Travel time reliability is important since being late to work, an appointment, or for a delivery has substantial repercussions for travelers and businesses. Literature from the Federal Highway Administration (FHWA) and many academic journals cite travel time reliability as a more important measure than average travel time between destinations because people must try to plan around the unpredictable nature of travel.

[9] Qualitative target to be further developed in future planning effort.

[10] Multimodal network quality for walk and bike trips considers roadway speeds, presence of bicycle and pedestrian facilities and buffers from traffic.

[11] Qualitative target to be further developed in future planning effort.

[12] The active transportation trip mode share for Santa Cruz County estimated from the 2012 California Household Travel Survey for all trips is 16% (10.2% walk, 2.5% bike and 2.8% transit). The targets are to increase the total active transportation mode share to 21% by 2020 (13% Walk, 4% bike and 4% transit) and increase the active transportation mode share to 34% by 2040 (18% Walk, 9% bike and 7% transit).

## GOAL 2. Reduce transportation related fatalities and injuries for all transportation modes.

Safety is a fundamental outcome from transportation system investments and operations. Across the United States, pedestrians and bicyclists (vulnerable users) are killed and injured at a significantly higher rate than the percentage of trips they take.

**TARGETS:**

Improve transportation safety, especially for the most vulnerable users.

**2A.** Reduce injury and fatal collisions by mode by 20 percent by 2020 and by 60 percent by 2040.

**2B.** Reduce total number of high collision locations.[13]

POLICIES:

2.1 *Safety:* Prioritize funding for safety projects and programs that will reduce fatal or injury collisions.

2.2 *Safety:* Encourage projects that improve safety for youth, vulnerable users, and transportation disadvantaged.

2.3 *Emergency Services:* Support projects that provide access to emergency services.

2.4 *System Design:* Reduce the potential for conflict between bicyclists, pedestrians and vehicles.

## GOAL 3. Deliver access and safety improvements cost effectively, within available revenues, equitably and responsive to the needs of all users of the transportation system, and beneficially for the natural environment.

The manner in which access and safety outcomes referenced in Goal 1 and Goal 2 are delivered can impact cost-effectiveness, distribution of benefits amongst population groups, and ecological function.

**TARGETS:**

Maintain the existing system and improve the condition of transportation facilities.

**3A.** Increase the average local road pavement condition index to 57 by 2020 and 72 by 2040.

**3B.** Reduce the number of transportation facilities in "distressed" condition[14] by 3 percent by 2020 and 5 percent by 2040.

[13] Qualitative target to be further developed in future planning effort.

[14] Includes street (pavement, sidewalks, bike lanes, and other road components) and transit facilities. "Distressed" pavement has a Pavement Condition Index under 50.

Enhance healthy, safe access to key destinations for transportation-disadvantaged populations.

**3C.** Reduce travel times and increase travel options for people who are transportation disadvantaged[15] due to income, age, race, disability or of limited English proficiency by increasing the percentage that are within a 30-minute walk, bike or transit trip to key destinations by 20% by 2020 and 47% by 2040.[16]

**3Di.** Ensure transportation services are equitably distributed to all segments of the population.

**3Dii.** Ensure that transportation impacts do not disproportionally affect transportation-disadvantaged populations.

Solicit broad public input.

**3E.** Maximize participation from diverse members of the public in RTC planning and project implementation activities.[17]

Increase transportation revenues.

**3F.** Increase the amount of transportation funding by 20% by 2020 to provide a local and reliable source of funding that can leverage larger amounts of state and federal funding.

POLICIES:

3.1 *Cost Effectiveness & System Maintenance:* Maintain and operate the existing transportation system cost-effectively and in a manner that adapts the current transportation system to maximize existing investments.

3.2 *Coordination:* Improve coordination between agencies in a manner that improves efficiencies and reduces duplication (e.g. paratransit and transit; road repairs; signal synchronization; TDM programs).

3.3 *System Financing:* Support new or increased taxes and fees that reflect the cost to operate and maintain the transportation system.

3.4 *Equity:* Demonstrate that planned investments will reduce disparities in safety and access for transportation disadvantaged populations.

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[15] Transportation disadvantaged households are defined as non-white, low-income, or poverty. Transportation disadvantaged communities are defined as census tracts where greater than 65% of the total population is non-white; census tracts where greater than 65% of households are low income or poverty is defined as census tracts where greater than 20% of households are in poverty. These definitions were determined by AMBAG for the Monterey Bay region in the 2035 Metropolitan Transportation Plan- Sustainable Communities Strategy. Transportation disadvantaged communities are also defined using the CA Assembly Bill 1550 definition for census tracts that are at or below the threshold designated as low income by the California Department of Housing and Community Development's income limits.

[16] The targets are relative to the 2010 maximum population within the key destinations and will close the gap between the baseline population and maximum population by 20% by 2020 and 47% by 2040.

[17] Qualitative target to be further developed in future planning effort.

3.5 *Ecological Function:* Deliver transportation investments in a way that increases tree canopy, where appropriate, improves habitat and water quality, and enhances sensitive areas.

3.6 *Public Engagement:* Solicit broad public input on all aspects of regional and local transportation plans, projects and funding actions.

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# Appendix D

## 2014 RTP Performance Measure Analysis

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# Introduction

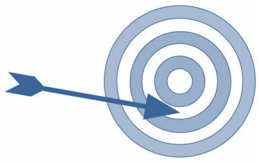
The performance of the 2014 RTP has been analyzed to determine how well the constrained list of transportation projects and programs advance the goals established for this RTP and affect the region's future. RTP performance can be assessed by setting targets and developing methodologies for forecasting how the projects on the constrained list, if implemented by 2035, will advance these targets. The adopted targets were intended to be aggressive, but reasonably obtainable.

The plan makes progress towards and meets many of the targets set forth for the RTP, though funding constraints make it impossible to fully meet all of the targets. The greenhouse gas emissions target as well as the economic benefit target have not only been met but exceeded. The discussion below describes how well the Santa Cruz County 2014 RTP performs for each of the targets. More detailed information on the analysis used to determine target performance can be found in the following sections. A summary of the performance results are outlined in **Figure D.2**. Performance in year 2035 is measured against base years as noted below.

# GOAL 1. Improve people's access to jobs, schools, health care and other regular needs in ways that improve health, reduce pollution and retain money in the local economy.

## Improve people's ability to meet most of their daily needs without having to drive. Improve access and proximity to employment centers.

- **Target 1A**. Increase the percentage of people that can travel to key destinations within a 30-minute walk, bike or transit trip by 20 percent by 2020 and 40 percent by 2035.[1]
- Base year: 2010
- Outcomes Advanced: Access & Mobility, Health, Safety, Equity, Economic Benefit, Cost Effectiveness, Climate &Energy



*Plan falls short of target*

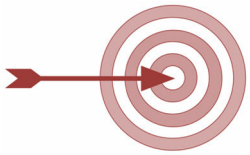
By improving people's ability to meet most of their daily needs without having to drive, this plan is improving access. New multimodal facilities placed near key destinations, which include residential, employment, and commercial centers, have the greatest potential to replace vehicle trips with walk, bicycle and transit trips. Bicycle and pedestrian facility improvements can create a safer environment for biking and walking. Placing these improvements near key destinations makes biking and walking more convenient for short trips. Projects that close the gaps in the bicycle and pedestrian network and shorten biking and walking routes

provide the greatest benefit in advancing this target. Transit projects that increase service frequency will also advance this target.

The percentage of the total county population within a 30 minute walk, bike or transit trip from a key destination in 2010 was already significant (73.9% for bike, 32.7% for walk, 54.6% for transit). This plan increases the population that is within a 30 minute bike or walk of key destinations to 74.3% for bike and 33.8% for walk but does not meet the established target of 75.9% of population with 30 minute bike access and 39.2% of the population with 30 minute walk access to key destinations. The gap between the 2010 baseline and the maximum population was closed by 9% for bike and 6% for walk compared to the 40% target (**Appendix C**).

### Re-invest in the local economy by reducing transportation expenses from vehicle ownership, operation and fuel consumption. Reduce smog-forming pollutants and greenhouse gas emissions.

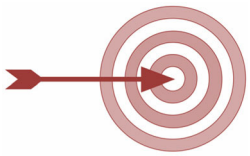
- **Target 1B.** Reduce per capita fuel consumption and greenhouse gas emissions by 1 percent by 2020 and 5 percent by 2035.
- Base year: 2005
- Outcomes Advanced: Access & Mobility, Health, Equity, Economic Benefit, Climate &Energy



*Plan meets target*

A reduction in greenhouse gas emissions from transportation will help to alleviate the effects of transportation on climate change. GHG emission reductions of 5% per capita by 2035 through land use and transportation investments have been mandated for the AMBAG region through the California Air Resources Board (CARB) and Senate Bill 375. The target identified for the Santa Cruz County 2014 RTP is a voluntary target of 5% per capita GHG emissions reduction based on transportation improvements that was developed to be consistent with regional efforts. The average Santa Cruz County resident travels approximately 15.3 miles per day. A five percent reduction by 2035 equates to shifting approximately 1 mile per day of motor vehicle travel to active transportation or reducing trip distances. Through prioritization of projects that promote transit use, biking, and walking, as well as changes in land use that shorten the distance people travel from home to work and home to shopping, per capita $CO_2$ emissions are reduced by 17.9% by 2035. Assuming that half of this reduction is due to transportation improvements (9.0%), this result not only meets but surpasses the Santa Cruz County 2014 RTP 5% reduction target.

- **Target 1C.** Re-invest in the local economy $5 million/year by 2020 and $10 million/year by 2035 from savings resulting from lower fuel consumption due to a reduction in vehicle miles traveled.
- Base year: 2005
- Outcomes Advanced: Access & Mobility, Economic Benefit, Cost Effectiveness, Climate &Energy

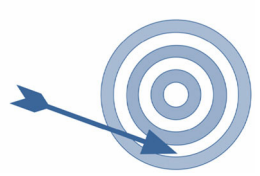


*Plan meets target*

Local economies benefit from less fuel consumption. A significantly greater proportion of household income is spent on transportation now than in the previous decade as a result of increases in vehicle, gasoline, and vehicle maintenance costs.[2] By reducing fuel consumption by reducing trip distances, idling, and through greater use of transit, bicycling and walking, and carpooling, the proportion of household income that is spent on transportation is reduced. Money otherwise spent on fuel is available for other expenditures. Research suggests that seventy three cents for every dollar not spent on fuel is reinvested locally.[3] Projects that provide travelers with convenient, safe, and competitive alternatives to the private automobile help advance this target. The plan exceeds the economic benefit target by reducing per capita fuel consumption by 17.9% allowing for $13 million/year to be reinvested in the local economy by 2035.

## Improve the convenience and quality of trips, especially for walk, bicycle, transit, freight and carpool/vanpool trips.

- **Target 1Di.** Improve travel time reliability for vehicle trips, especially for transit, freight, carpool/vanpool.
- Base year: 2010
- Outcomes Advanced: Access & Mobility, Economic Benefit, Climate & Energy



*Measure has not improved relative to existing conditions but has improved relative to 2035 no project*

The 2014 RTP strives to minimize congestion challenges in our region through a travel time reliability target. Travel time reliability is a measure of how consistent the time is to drive from your origin to your destination and is an important measure of transportation service quality. Travel time reliability matters since being late to work, an appointment, or for a delivery have substantial repercussions for travelers and businesses. Improvements in travel time reliability for autos and transit allow people to better predict how long their trip will take even on regularly congested routes. For example, traffic management and operations projects and programs can significantly improve travel time reliability while improvements in average travel times from these types of projects may be modest **(Figure D.1**). Reliability measures will show a much greater improvement because they show the effect of improving the worst few days of unexpected delay.

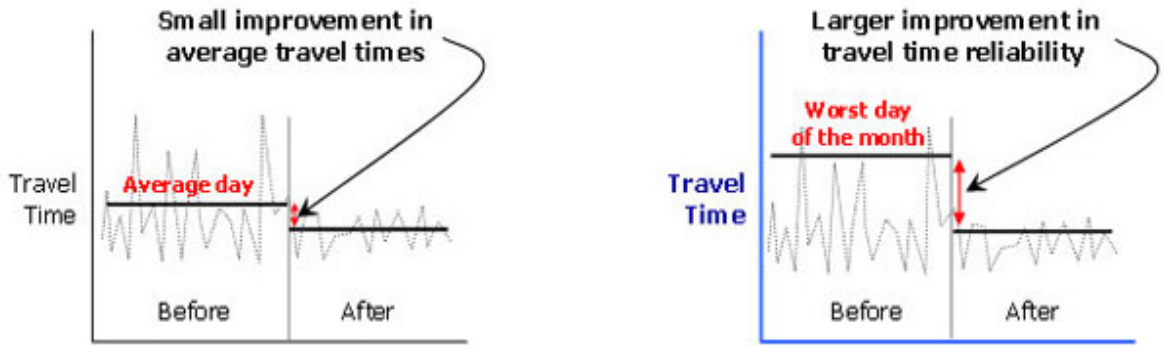
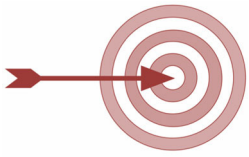



**Figure D.1 – Reliability measures capture the benefits of traffic management**

*Source: Federal Highway Administration4*

Projects in this plan that can improve travel time reliability include traffic signal synchronization, transit signal priority and queue jumps, incident management, and traveler information services. The performance analysis evaluated travel time reliability countywide, as well as for individual segments of Highway 1 and Highway 17. Forecasts of travel time reliability for 2035 based on project implementation do not improve the travel time reliability relative to the existing conditions but does make improvements relative to a no project alternative. The auxiliary lane projects planned for Highway 1 will allow vehicles more room to merge into traffic, smoothing the traffic flow. Although the full list of Highway 1 Corridor Program projects are not on the constrained list for the 2014 RTP, continual progress towards HOV lanes that allow for carpool and transit service to reduce travel times on Highway 1 will likely bring the greatest benefit to travel time reliability in the future.

- **Target 1Dii.** Improve multimodal network quality for walk and bicycle trips to and within key destinations.
- Base year: 2012
- Outcomes Advanced: Access & Mobility, Health, Safety, Equity, Economic Benefit, Cost Effectiveness, Climate & Energy

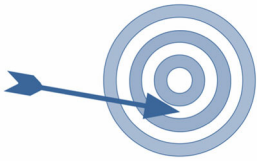


*Plan meets target*

While the network of bicycling and walking facilities throughout much of Santa Cruz County is substantial, improvements to the quality of this network could promote greater use. Separated or buffered bicycle facilities, wider bike lanes, lanes designed outside of the door zone of parked cars, all encourage use of bicycles as a means of travel. Sidewalks exist in much of the more populated areas of Santa Cruz County but there are gaps, which limit access for people with disabilities and are not always attractive due to proximity to heavy automobile volumes or speeds with little or no buffer between pedestrians and traffic. The quality of the multimodal network for bicycles and pedestrians, referred to as Multimodal Network Quality (MMNQ), provide both a qualitative and quantitative measure for the degree to which the active transportation options are safe and enjoyable (**Appendix C**). The projects in this plan improve the MMNQ and thus advance the target for both walk and bicycle trips within key destinations by designing facilities that are safe, convenient and comfortable to the user.

## Improve health by increasing the percentage of trips made using active transportation, including bicycling, walking and transit.

- **Target 1E**. Decrease single occupancy vehicle (SOV) mode share by 4 percent by 2020 and by 8 percent by 2035.
- Base year: 2010
- Outcomes Advanced: Access & Mobility, Health, Safety, Equity, Economic Benefit, Cost Effectiveness, Climate & Energy



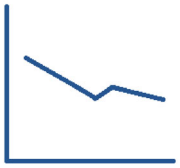
*Plan falls short of target*

Replacing trips traditionally made in a vehicle with walking or bicycling can lead to regular physical activity. Regular physical activity leads to improved public health and reduced obesity rates. Since the regional travel demand model can provide a more accurate percent reduction in single occupancy vehicle (SOV) mode share rather than a percent increase in active transportation mode share, the target is written as a reduction in SOV. This plan invests in bicycle and pedestrian trails that are separate from vehicle traffic to promote use by the beginning rider as well as increases/improvements in bicycle lanes, sidewalks and transit. While these investments do forecast an increase in the number of trips and miles people are walking and biking, forecasts predict a SOV mode share reduction of 6.4% based on vehicle miles traveled which falls short of the public health target of 8% reduction in SOV by 2035.

## GOAL 2. Reduce transportation related fatalities and injuries for all transportation modes.

### Improve transportation safety, especially for the most vulnerable users.

- **Target 2A.** Reduce injury and fatal collisions by mode by 20 percent by 2020 and by 50 percent by 2035.
- Base year: 2009-2011 average
- Outcomes Advanced: Health, Safety, Equity, Economic Benefit



*Measure will be monitored over time to assess progress*

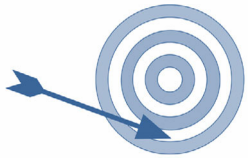
- **Target 2B.** Reduce total number of high collision locations.
- Outcomes Advanced: Health, Safety, Equity, Economic Benefit

Improving the safety of transportation users, especially for the most vulnerable users, such as bicyclists and pedestrians, is a priority for Santa Cruz County as well as across California and the nation. Because approximately half of collisions nationwide take place at intersections[5], emphasis was placed on investing in transportation projects that would improve intersections with consideration for bicyclists and pedestrians. State Highway Operation and Protection Program (SHOPP) projects which are implemented by Caltrans on Santa Cruz County Highways (1, 9, 17, 129, 152, 236) focus on reducing collisions. Extra enforcement on Highway 17 through the Safe on 17 program, as well as separated or buffered bicycling and pedestrian facilities implemented by local jurisdictions have also been prioritized in this plan to improve safety. Although it has not been forecast how the projects will advance the safety target, the Statewide Integrated Traffic Records System (SWITRS) collision database will allow the RTC to monitor the number of collisions over time to assess how the investment of projects are advancing this target.

## GOAL 3. Deliver access and safety improvements cost effectively, within available revenues, equitably and responsive to the needs of all users of the transportation system, and beneficially for the natural environment.

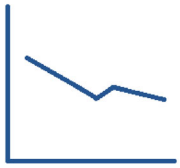
### Maintain the existing system and improve the condition of transportation facilities.

- **Target 3A.** Increase the average local road pavement condition index (PCI) to 57 by 2020 and 70 by 2035.
- Base year: 2013
- Outcomes Advanced: Safety, Economic Benefit, Cost Effectiveness



*Measure has improved relative to status quo levels of funding but has moved in opposite direction relative to existing conditions*

- **Target 3B.** Reduce the number of transportation facilities in "distressed" condition by 3 percent by 2020 and 5 percent by 2035.
- Base Year: 2013
- Outcomes Advanced: Safety, Economic Benefit, Cost Effectiveness



*Measure will be monitored over time to assess progress*

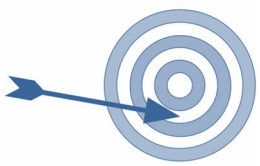
| Pavement Condition Index |
|---|
| Good 70-100 |
| Fair 50-69 |
| Poor 25-49 |
| Failed 0-24 |

A key focus of this RTP is on preserving the existing transportation infrastructure. Unfortunately, even with a significant share of the discretionary funding allocated for maintenance of local streets and roads (an increase of 10 million per year above typical status quo budget of $13 million), there are insufficient funds to bring the entire system into a state of good repair. Pavement, bicycle lanes, sidewalks, street lights, buses, and rail lines all require ongoing maintenance. The current pavement condition index of 53 ("At Risk" rating) for local streets and roads in Santa Cruz County indicates the need for substantial investment in maintenance. The transit system is also in need of maintenance and/or replacement to ensure continued and cost-effective service. This plan invests in pavement repairs, sidewalk and bicycle lane maintenance, bus replacements, transit centers in need of renovation, bus stops, transit service vehicles, and physical plants that need upgrades and maintenance. Despite these investments in maintaining existing transportation facilities or other maintenance activities, the local street and road pavement condition index is forecasted to drop to 43 by 2035 and thus the PCI target of 70 is not met. If only the status quo amount of the budget is spent on pavement maintenance, the PCI is expected to drop as low as 28 by 2035. This plan improves the PCI relative to status quo budget. See **Appendix C** for details on analysis and additional information on costs required for maintenance to advance target. Although it has not been forecast how the projects will reduce the number of transportation facilities in "distressed" condition, the local jurisdictions and the METRO track the

condition of their facilities which will allow the RTC to monitor how the investment of projects are advancing this target.

## Enhance healthy, safe access to key destinations for transportation-disadvantaged populations.

- **Target 3C.** Reduce travel times and increase travel options for people who are transportation disadvantaged (TD) due to income, age, race, disability or limited English proficiency by increasing the percentage that are within a 30-minute walk, bike or transit trip to key destinations by 20% by 2020 and 40% by 2035 (relative to population in maximum buffer).



*Plan falls short of target*

- Base year: 2010
- Outcomes Advanced: Access & Mobility, Health, Safety, Equity, Economic Benefit, Cost Effectiveness, Climate &Energy

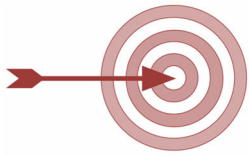
In advancing the goals of the RTP, the RTP works to ensure that diverse members of the region are able to equitably benefit from transportation investments. One measure analyzed was the percentage of transportation disadvantaged individuals (e.g. youth, elderly, minorities or low income) that can walk, bike, or take transit to key destinations within 30-minutes. Transportation-disadvantaged individuals are oftentimes unable to provide their own transportation or have difficulty accessing public transportation and are overrepresented in households without access to a vehicle. Lack of transit service, curb ramps or safe street crossings can create extra barriers that may prevent individuals from accessing jobs, housing, medical services, groceries, and other key destinations. Bicycle, pedestrian and transit facility improvements close to and within key destination areas will make biking, walking and riding transit safer, more convenient and thus more accessible to transportation disadvantaged populations.

The percentage of the transportation disadvantaged population within a 30 minute walk, bike or transit trip from a key destination in 2010 was already significant (78.7% for bike, 38.5% for walk, 58.8% for transit) and is greater than the total population by approximately 4 to 6% (**Appendix C**).

This plan increases the population that is within a 30 minute bike or walk of key destinations to 78.9% for bike (5.9% increase) and 39.6% for walk (6.4% increase) but does not meet the established target of 80.8% of population with 30 minute bike access (40% increase) and 45.2% of the population with 30 minute walk access (40% increase) to key destinations (**Appendix C**).

- **Target 3D.** Ensure transportation services (and impacts) are equitably distributed to all segments of the population.

- Outcomes Advanced: Access & Mobility, Health, Safety, Equity, Economic Benefit, Cost Effectiveness



*Plan meets target*

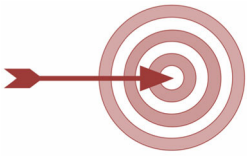
A key component of development and evaluation of the RTP was inclusion and consideration of the entire community to determine if the plan has the potential to affect certain neighborhoods and population groups in a disproportionate manner. Consistent with Title VI of the federal Civil Rights Act of 1964, Section 11135 of the California Government Code, and Executive Order 12898 on Environmental Justice, RTPs are required to ensure that any planned regional transportation improvements do not have a disproportionate adverse impact on low income or other under-represented groups and that minority and low-income populations receive equal benefits, on an equally timely basis, as other populations.

Planned regional transportation improvements were evaluated to ensure that they were equitably distributed to all segments of the population. Greater than 80% of the regional projects were found to benefit areas of the county with low income and minority populations. This analysis showed that new investments in transportation services are equitably distributed to all segments of the population and thus the target has been met.

## Solicit Broad Public Input

- **Target 3E.** Maximize participation from diverse members of the public in RTC planning and project implementation activities.

- Outcomes Advanced: Equity



*Plan meets target*

The inclusion of the entire range of community interests in the development of the RTP is both best practice and required by both federal and state law. In order to ensure that transportation planning and projects reflect community interests, the RTC makes consistent efforts to include all county residents in the transportation discussions and decisions. The RTC joined AMBAG, Monterey and San Benito Counties to develop a public participation plan for the region that identifies options and opportunities for extensive outreach. Components of the plan include, but are not limited to:

- Contacts for community-based groups throughout the county, including neighborhood, health, senior, faith, environmental, low-income, and other social support groups

- Consultation with citizen and advisory committees

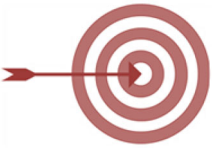
- Wide spread and easy access to transportation planning activities, including sections of the RTP as developed, through the RTC's website and social media

- Notifications about public hearings
- Bulletins to media partners
- Making documents available at local libraries
- Bilingual translation of materials, as appropriate

Development of the 2014 RTP has included participation by individuals and groups that represent our diverse community, consistent with the adopted Public Participation Plan, available online at www.ambag.org. At every juncture in developing the RTP, public participation was sought. This planning process meets the target for maximizing participation from the public. **Appendix A** provides a sample of the extensive public outreach done in developing the RTP.

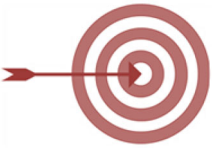
# Access and Environment

**GOAL 1. Improve people's access to jobs, schools, health care and other regular needs in ways that improve health, reduce pollution and retain money in the local economy.**

| Target | Projects on Constrained List that can Advance Target | Findings | Score |
|---|---|---|---|
| **Target 1A** - Increase the percentage of people that can travel to key destinations within a 30-minute walk, bike or transit trip by 20 percent by 2020 and 40 percent by 2035. | • Bicycle and pedestrian facilities near major activity centers with emphasis on filling gaps in the network<br>• Bicycle and pedestrian bridges over Highway 1<br>• Transit level of service improvements<br>• Curb ramps | The percentage of the population that are within a 30 minute bike or walk of key destinations increase with implementation of the RTP but falls short of the target. | <br>*Plan falls short of target* |
| **Target 1B** - Reduce per capita fuel consumption and greenhouse gas emissions by 1 percent by 2020 and 5 percent by 2035. | • Bicycle, pedestrian, and transit facility improvements with emphasis on separated facilities<br>• Bicycle, pedestrian, and transit amenities such as bus shelters and benches, signage, bike maps, bike parking<br>• Bus rapid transit, such as transit priority<br>• Educational and incentive programs to encourage and facilitate shifts to carpool, bike, walk, transit, telecommuting<br>• Park and ride lots<br>• Intersection Improvements that reduce idling | A reduction in per capita GHG emissions of 9% by 2035 from transportation improvements (assuming half of the 17.9% per capita GHG reductions from both land use and transportation improvements) has met and surpassed the 5% target. | <br>*Plan meets target* |
| **Target 1C** - Re-invest in the local economy $5 million/year by 2020 and $10 million/year by 2035 from savings resulting from lower fuel consumption due to a reduction in vehicle miles traveled. | • Bicycle, pedestrian, and transit facility improvements with emphasis on separated facilities<br>• Bicycle, pedestrian, and transit amenities such as bus shelters and benches, signage, bike maps & racks<br>• Bus rapid transit, such as transit priority<br>• Educational and incentive programs to encourage shifts to carpool, bike, walk, transit<br>• Park and ride lots | A reduction in fuel consumption allows $13 million to be re-invested into the local economy and thus the target has been met. |  <br>*Plan meets target* |

# Access and Environment

**GOAL 1. Improve people's access to jobs, schools, health care and other regular needs in ways that improve health, reduce pollution and retain money in the local economy.**

| Target | Projects on Constrained List that can Advance Target | Findings | Score |
|---|---|---|---|
| **Target 1Di** - Improve travel time reliability for vehicle trips. | • Hwy 1 Auxiliary Lanes<br>• Intersection operational improvements<br>• Roadway improvements such as merge lanes, transit turnouts<br>• Signal synchronization<br>• HOV signal priority and queue jumps<br>• Bus rapid transit, such as transit priority<br>• Freeway Service Patrol | Travel time reliability has decreased relative to existing conditions but has improved in comparison to 2035 no project. | <br>*Measure has decreased relative to existing conditions but has improved in comparison to 2035 no project* |
| **Target 1Dii** - Improve multimodal network quality for walk and bicycle trips to and within key destinations. | • Bicycle and pedestrian facilities in key destination areas with emphasis on filling gaps in the network<br>• Two bicycle and pedestrian bridges over Highway 1<br>• Bicycle/pedestrian separated facilities<br>• Bicycle and pedestrian treatments at intersections (e.g. crossing islands, painted boxes, bike signals etc)<br>• Wider sidewalks buffered from automobile traffic<br>• Traffic calming and greenways<br>• Curb ramps | Bicycle and pedestrian network quality has improved with this plan. |  <br>*Plan meets target* |
| **Target 1E** - Decrease single occupancy mode share by 4 percent by 2020 and by 8 percent by 2035. | • Bicycle, pedestrian, and transit facility improvements<br>• Bus rapid transit, such as transit priority<br>• Educational and incentive programs to encourage shifts to carpool, bike, pedestrian and , transit<br>• Bicycle, pedestrian, and transit amenities such as bus shelters and benches, signage, bike maps, bike parking | Single occupancy vehicle mode share has decreased with this plan by 6.4% but falls short of the 8% target. | <br>*Plan falls short of target* |

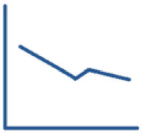
# Safety

**GOAL 2. Reduce transportation related fatalities and injuries for all transportation modes**

| Target | Projects on Constrained List that can Advance Target | Findings | Score |
|---|---|---|---|
| **Target 2A** - Reduce injury and fatal collisions by mode by 20 percent by 2020 and by 50 percent by 2035. | • Auxiliary lanes on Highway 1<br>• Intersection improvements with consideration for bicyclists and pedestrians<br>• Bicycle and pedestrian treatments at intersections (e.g. crossing islands, painted boxes and bike signals)<br>• Bicycle and pedestrian facility improvements with emphasis on separated facilities<br>• Two bicycle and pedestrian bridges over Highway 1<br>• Traffic calming and greenways<br>• Pedestrian crossings near schools and high pedestrian traffic areas | Due to the challenge of being able to forecast injuries and fatalities based on projects implemented, the number of injuries and fatalities for each mode can be monitored over time to assess progress. | <br>*Measure will be monitored over time to assess progress* |
| **Target 2B** - Reduce total number of high collision locations. | • Auxiliary lanes on Highway 1<br>• Intersection improvements with consideration for bicyclists and pedestrians<br>• Bicycle and pedestrian treatments at intersections (e.g.crossing islands, painted boxes and bike signals)<br>• Bicycle and pedestrian facility improvements with emphasis on separated facilities<br>• Traffic calming and greenways<br>• Pedestrian crossings near schools and high pedestrian traffic areas | Due to the challenge of being able to forecast injuries and fatalities based on projects implemented, the number of injuries and fatalities for each mode can be monitored over time to assess progress. | <br>*Measure will be monitored over time to assess progress* |

# Maintenance and Equity

**GOAL 3. Deliver access and safety improvements cost effectively, within available revenues, equitably and responsive to the needs of all users of the transportation system, and beneficially for the natural environment.**

| Target | Projects on Constrained List that can Advance Target | Findings | Score |
|---|---|---|---|
| **Target 3A** - Increase the average local road pavement condition index to 57 by 2020 and 70 by 2035. | • Maintenance, repair and operation of local roadways<br>• Caltrans SHOPP projects<br>• Road rehabilitation and reconstruction | The pavement condition index (PCI) has decreased to 43 relative to existing PCI of 53 but is improved in comparison to status quo budget that could bring PCI down to 28. Target has not been met. | <br>*Measure has improved in comparison to status quo budget but has decreased relative to existing conditions* |
| **Target 3B** - Reduce the number of transportation facilities in "distressed" condition by 3 percent by 2020 and 5 percent by 2035. | • Maintenance, repair and operation of local roadways<br>• Bus replacements<br>• Upgrades to transit facilities<br>• Caltrans SHOPP projects<br>• Road rehabilitation and reconstruction | The number of transportation facilities in "distressed" condition can be monitored over time. |  <br>*Measure will be monitored over time to assess progress* |
| **Target 3C** - Increase the percentage of people who are transportation disadvantaged due to income, age, race, disability, or limited English proficiency that are within a 30-minute walk, bike or transit trip to key destinations by 20% by 2020 and 40% by 2035. | • Bicycle and pedestrian facility improvements near schools and other transportation disadvantaged destinations with emphasis on filling gaps in the network and ADA improvements<br>• Transit improvements such as increased service on high ridership routes<br>• Curb ramps<br>• Rail transit | The percentage of the transportation disadvantaged population that is within a 30 minute bike or walk of key destinations are increased but plan falls short of the target. | <br>*Plan falls short of target* |

## Maintenance and Equity

**GOAL 3. Deliver access and safety improvements cost effectively, within available revenues, equitably and responsive to the needs of all users of the transportation system, and beneficially for the natural environment.**

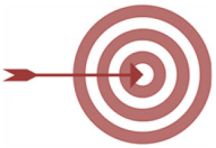
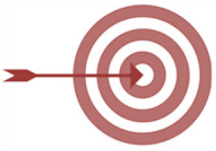
| Target | Projects on Constrained List that can Advance Target | Findings | Score |
|---|---|---|---|
| **Target 3D** - Ensure transportation services (and impacts) are equitably distributed to all segments of the population. | • Bus rapid transit, such as transit priority<br>• Transit improvements such as increased service on high ridership routes<br>• Auxiliary lanes on Highway 1<br>• Monterey Bay Sanctuary Scenic Trail<br>• Rail transit | The regional projects that are identified in the plan provide an equitable distribution to low income and minority populations and thus the target has been met. |  <br>*Plan meets target* |
| **Target 3E** - Maximize participation from diverse members of the public in planning and project implementation activities. | • Public participation plan<br>• Workshops<br>• Web and social media outreach<br>• Email distributions<br>• Surveys<br>• Press releases<br>• Project sponsor board approvals | Public participation was solicited in developing the plan at every juncture and thus the target has been met. |  <br>*Plan meets target* |

**Figure D.2 – Summary of 2014 Project List Performance for Advancing Targets**

*Source: Santa Cruz County Regional Transportation Commission*

# Performance Analysis Technical Methodology

The below technical discussion expands upon the performance discussion above by describing the target development, forecasting methodology, the baseline data and the performance results. RTC has been using performance measures for many years in developing the RTP but the 2014 RTP is the first time that targets have been defined and performance has been assessed based on the projects on the constrained project list. The performance targets are used to evaluate how well the 2014 RTP addresses the adopted goals and policies.

## Target 1A. Increase the percentage of people who can travel to key destinations within a 30-minute walk, bike or transit trip by 20% by 2020 and 40% by 2035.[6]

### Target Development

Transportation users consist of people and businesses that want to reach a destination. When you combine places to go with convenient, safe and comfortable routes, then you increase the options for accessing goods and services, jobs, activities and other destinations. New or improved multimodal facilities placed near key destinations, which include employment, population and commercial centers, have the greatest potential to replace vehicle trips with shorter walk and bicycle trips. The number of individuals who can travel from their home to services on a continuous network of buses, bicycle and pedestrian facilities is a measure of the extent to which individuals have access to goods and services in Santa Cruz County.

Areas that provide a centralized location for accessing a variety of goods and services are defined here as key destinations. RTC identified eleven key destinations throughout Santa Cruz County based on locations of employment centers[7] and commercial centers (determined from the local jurisdictions land use zoning maps in their general plans). These destinations are mapped in

**Figure D.**3 and are listed below. For analysis, Scotts Valley destinations were combined.

- UC Santa Cruz
- Downtown Santa Cruz
- Soquel Drive (Soquel Ave to Mattison)
- 41st Avenue Commercial Corridor
- Scotts Valley – Scotts Valley Drive and Mt. Hermon Rd
- Capitola Village
- Cabrillo College
- Watsonville Hospital
- Freedom/Green Valley Road
- Downtown Watsonville

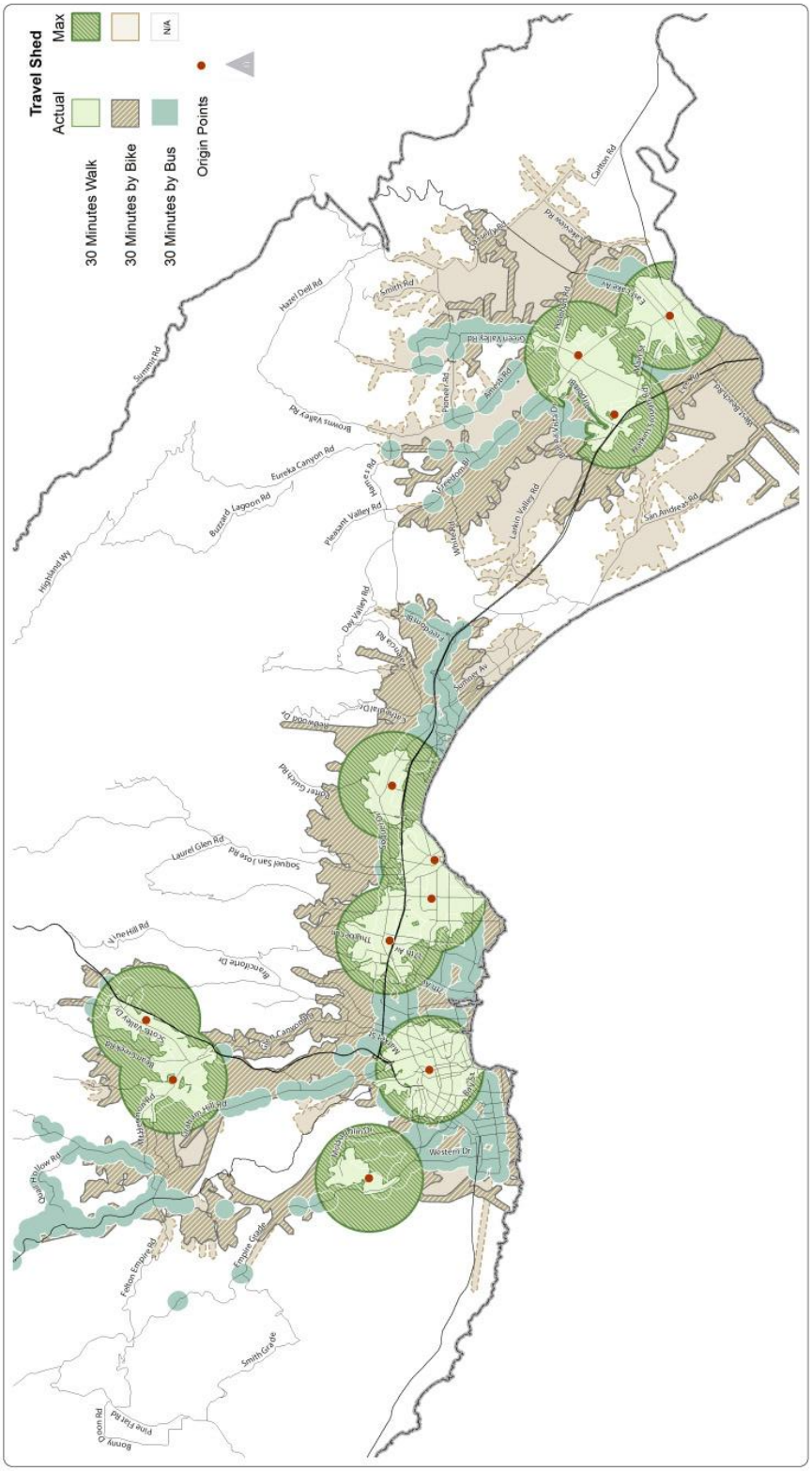



**Figure D.3 – Key Destinations in Santa Cruz County, the Maximum Travel Buffer and the 2035 Travel Buffer**

*Source: Sustainable Transportation Council, Fehr & Peers*

The population within 30 minute access by biking or walking to the central point of each key destination based on existing and proposed facilities is assessed to see how well this target is advanced given the projects prioritized in the 2014 RTP. Land use changes that locate more people near key destinations are another factor affecting the number of people who can access goods and services, but land use changes were not considered when analyzing this target because land use is outside the purview of the RTC. The access target discussed here addresses bicycle and pedestrian connectivity, whereas the multimodal network quality analysis under target 1Dii discusses the importance of analyzing the quality of the bicycle and pedestrian network.

The baseline population and maximum possible population that are within a 30 minute distance via walk and bike from key destinations are discussed below. The target for 2035 was set to close the gap between the 2010 baseline population and the maximum possible population by 40% by 2035 and an intermediate target of 20% by 2020.

## Forecasting Methodology

ArcGIS network analyst was used to determine the proportion of the population that are within 30 minutes of travel via walking, bicycling, and transit from the central point of each of the key destinations (**Figure D.3)**. This target quantifies how access to key destinations increases through improvements to bike and walk facilities. Transit service improvements through increased frequency or additional routes would affect access in key destinations. Given the specific transit service improvements for the future are unknown as well as limitations of this analysis for transit, access improvements due to enhanced transit have not been analyzed.

The analysis used the following GIS data:

- Roadway centerline file with roadway functional classification and speed limits (from Santa Cruz County GIS)
- Bicycle lanes, trails, and paths (from RTC)
- Transit routes and stops (from Santa Cruz Metropolitan Transit District)
- City of Santa Cruz and Watsonville sidewalk coverage (from the Cities of Santa Cruz and Watsonville; sidewalk information currently unavailable for other areas)
- 2010 Population at the Traffic Analysis Zone (TAZ) level (from AMBAG)

Using the key destinations, a travelshed analysis was performed for each mode using network analyst. Travelshed refers to the area that people are able to travel given time, modes, physical attributes and constraints. For walking and bicycling, two types of travelsheds were developed: a “maximum travel” buffer and an “actual travel” buffer. An “actual travel” buffer provides the area around the central point of each key destination that can be accessed within 30 minutes by walking or biking based on existing facilities. The “maximum travel” buffer provides the area around the central point of each key destination that could be accessed if there was universal bicycle and pedestrian facility coverage. For transit, only the actual travel buffer analysis was performed, since transit could theoretically reach nearly every point in the county within 30 minutes under a maximum travel scenario. Once the area of the buffer is defined, the population living in the buffer can be determined from the census data.

**Maximum Buffers.** The maximum travel buffer was calculated differently for pedestrian and bicycle travel. For pedestrian travel, a circle was drawn around each key destination at the distance one could travel under ideal conditions (this would represent a transportation network that has a tight network of streets/trails with universal sidewalk coverage). For this analysis, it was assumed that under ideal conditions, a person can walk at 3.5 feet per second (a standard value used in transportation planning). This walking speed was applied to downtown Santa Cruz and Downtown Watsonville (areas with a relatively tight grid of streets) and a GIS network walkshed analysis was performed. Assuming 30 minutes of travel time at 3.5 feet per second, it was determined that one could walk 5,600 feet on the most direct routes. A "true" maximum walkshed is 6300 ft (30 minutes times 3.5 feet per second) but since there are almost no straight line paths leading from a key destination a circular maximum walk buffer of 5,600 feet was defined for each of the key destinations. One exception was made to this analysis for the Watsonville Airport area since it is not reasonable to expect that walking routes would ever be constructed across the airport. A portion of the circular buffer was removed to reflect this constraint.

A similar analysis was performed for bicycling. In this case, a maximum speed of 10 miles per hour was assumed and a GIS network bikeshed analysis was performed. Certain roads, such as freeways and minor mountainous roads were excluded since it is either illegal or impractical for a general member of the public to ride a bicycle on these routes. However, all reasonably foreseeable bicycle connectivity projects (including completion of the Monterey Bay Sanctuary Scenic Trail, connections to this trail, and new bicycle connections in areas anticipating future growth) were assumed in the maximum travel analysis. A circular buffer was not developed for maximum bicycle travel since physical constraints (hills, open spaces) make it impractical to assume that a bicycle network could be constructed that would provide complete bicycle access through the undeveloped and mountainous portions of the county.

**Actual Travel Buffers.** Actual travel buffers were developed for each key destination and for each mode based on the level of bicycle and pedestrian infrastructure and on the actual travel paths. For the walk mode, the walking speed is adjusted based on the prevalence of sidewalk facilities. In a hypothetical area with no sidewalk facilities, the walking speed in the analysis is reduced by 50%. In areas with 50% sidewalk coverage, the walk speed is reduced by 25%. Given the limited amount of sidewalk coverage data, analysis was based on an estimate of the percentage of sidewalk coverage for each key destination area. This percent coverage was estimated using GIS data for Santa Cruz and Watsonville and google streetview for other key destination areas. This analysis would be improved if actual sidewalk location data could be used to factor the walk speed on a street by street basis. For the bicycle network buffer, travel is allowed on any non-freeway street, however travel speed is reduced by 75% for roads with speeds in excess of 35 miles per hour that have no dedicated bicycle facilities (bicycle lanes or paths). Speeds were similarly reduced on mountainous roads, regardless of speed limit. These reductions in speeds reflect the fact that many potential cyclists are uncomfortable traveling on busy or steep roads, and therefore will either not travel by bike or take other longer routes to avoid these areas. Transit actual travel buffers were based on a five minute walk speed to stops and a 20 minute travel time on the routes, based on route schedules.

## Baseline

The baseline results for each of the key destinations are shown in **Figure D.4**. The population within 30 minutes of each destination is based on population data from the 2010 census and bike, pedestrian and transit infrastructure from 2012.

| Area | 2010 Population within a 30-minute walk | | 2010 Population within a 30-minute bike ride | | 2010 Population within a 30-minute transit trip | |
|---|---|---|---|---|---|---|
| | Population | Proportion of County | Population | Proportion of County | Population | Proportion of County |
| Downtown Santa Cruz | 21,691 | 8.3% | 95,976 | 36.6% | 84,721 | 32.3% |
| Scotts Valley (combined) | 5,742 | 2.2% | 17,385 | 6.6% | 34,221 | 13.0% |
| UC Santa Cruz | 1,413 | 0.5% | 53,353 | 20.3% | 54,717 | 20.9% |
| Soquel Dr (Soquel to Mattison) | 4,258 | 1.6% | 97,370 | 37.1% | 87,641 | 33.4% |
| 41st Ave | 11,920 | 4.5% | 86,263 | 32.9% | 80,785 | 30.8% |
| Capitola Village | 7,744 | 3.0% | 77,236 | 29.5% | 67,449 | 25.7% |
| Cabrillo College | 2,508 | 1.0% | 57,232 | 21.8% | 59,417 | 22.7% |
| Green Valley / Freedom | 12,749 | 4.9% | 58,309 | 22.2% | 44,544 | 17.0% |
| Watsonville Hospital | 8,102 | 3.1% | 57,351 | 21.9% | 44,462 | 17.0% |
| Downtown Watsonville | 16,934 | 6.5% | 56,600 | 21.6% | 44,276 | 16.9% |

**Figure D.4 – Total 2010 (baseline) population within 30 minutes of key destinations based on existing bicycle, pedestrian and transit infrastructure**

**Figure D.5** shows the baseline aggregate population within 30 minutes of the central point of any of the key destinations. Population within 30 minutes of key destinations via walking has the smallest percentage due to walking speed being slower than biking and riding transit. Percent of population that can access key destinations within 30 minutes via biking is the largest percentage due to the speed of biking relative to walking and no route limitations. Population that can access key destinations via transit is in between walking and biking as the analysis estimates the population within a maximum of a 5 minute walk to a bus stop, a 20 minute ride on the bus and a 5 minute walk to destination.

**Figure D.**3 shows the size of the access buffer areas for each mode.

| Travel Mode | 2010 Population within 30 minutes of key destinations | |
|---|---|---|
| | Population | Proportion of County |
| Walk | 85,847 | 32.7% |
| Bike | 193,792 | 73.9% |
| Transit | 143,170 | 54.6% |

**Figure D.5 – Total 2010 (baseline) aggregate population within 30 minutes of any key destinations based on existing transit, bicycle and pedestrian infrastructure**

**Figure D.6** shows the maximum population within 30 minutes of each of the key destinations. The maximum population is the population that could access the central point of key destinations within 30 minutes by biking or walking if there was complete bicycle and pedestrian facility coverage in vicinity of key destinations.

| Area | Maximum 2010 Population within a 30-minute walk | | Maximum 2010 Population within a 30-minute bike ride | |
|---|---|---|---|---|
| | Population | Proportion of County | Population | Proportion of County |
| Downtown Santa Cruz | 26,400 | 10.1% | 98,905 | 37.7% |
| Scotts Valley (combined) | 10,729 | 4.1% | 21,173 | 8.1% |
| UC Santa Cruz | 5,289 | 2.0% | 53,764 | 20.5% |
| Soquel Dr (Soquel to Mattison) | 15,171 | 5.8% | 100,690 | 38.4% |
| 41st Ave | 21,666 | 8.3% | 93,983 | 35.8% |
| Capitola Village | 13,577 | 5.2% | 87,396 | 33.3% |
| Cabrillo College | 8,020 | 3.1% | 61,775 | 23.6% |
| Green Valley / Freedom | 19,418 | 7.4% | 65,197 | 24.9% |
| Watsonville Hospital | 10,690 | 4.1% | 63,456 | 24.2% |
| Downtown Watsonville | 24,008 | 9.2% | 59,451 | 22.7% |

**Figure D.6 – Total 2010 Maximum* Population within 30 Minutes of Key Destinations**

** Maximum reflects population if there was universal bicycle and pedestrian facility coverage*

**Figure D.7** shows the maximum aggregate population within 30 minutes of any of the key destinations.

| Travel Mode | 2010 Maximum Population within 30 minutes of key destinations | |
|---|---|---|
| | Population | Proportion of County |
| Walk | 128,029 | 48.8% |
| Bike | 207,046 | 78.7% |

**Figure D.7 – Total 2010 Maximum* Aggregate Population within 30 Minute Walk and Bicycle Trips of Key Destinations**

**Maximum reflects population if there was universal bicycle and pedestrian facility coverage*

## Results

**Figure D.8** shows the results for 2035 assuming that the walk and bike projects that have been prioritized (constrained) in the 2014 RTP are implemented. This analysis does not account for any shifts in population distribution that may occur in the county through 2035. Given current focus on mixed use and

higher density housing near key destinations, the percentage of the population that would live near key destination areas will likely increase. Thus the percentage of the population within a 30 minute walk or bike from key destinations would be even greater. Only an analysis on walk and bike access was performed since there was no information available about how future transit routes will be configured.

| | 2035 Population within 30 minute walk | 2035 Population within 30 minute bike ride |
|---|---|---|
| **Area** | **Proportion of County** | **Proportion of County** |
| Downtown Santa Cruz | 8.4% | 36.8% |
| Scotts Valley | 2.2% | 7.0% |
| UC Santa Cruz | 0.5% | 20.5% |
| Soquel Dr (Soquel to Mattison) | 2.3% | 37.4% |
| 41st Ave near Hwy 1 | 4.9% | 34.5% |
| Capitola Village | 3.4% | 32.1% |
| Cabrillo College | 1.0% | 22.2% |
| Green Valley / Freedom | 4.9% | 22.4% |
| Watsonville Hospital | 3.1% | 22.2% |
| Downtown Watsonville | 6.6% | 21.6% |

**Figure D.8 – Population within 30 minutes of Key Destinations in 2035 based on 2014 RTP Project List**

**Figure D.9** shows the aggregate population within 30 minutes of any of the key destinations based on implementing the bike and pedestrian projects that are prioritized in this plan.

| Population within 30 minutes of Key Destinations | | | | |
|---|---|---|---|---|
| | 2010 Baseline | 2014 RTP Implementation for 2035 | 2035 Target | Maximum Population |
| Travel Mode | % of County | % of County | % of County | % of County |
| Walk | 32.7% | 33.8% | 39.2% | 48.8% |
| Bike | 73.9% | 74.3% | 75.9% | 79.0% |

**Figure D.9 – Aggregate Population within 30 Minutes of Key Destination in 2035, based on the 2014 RTP Project List**

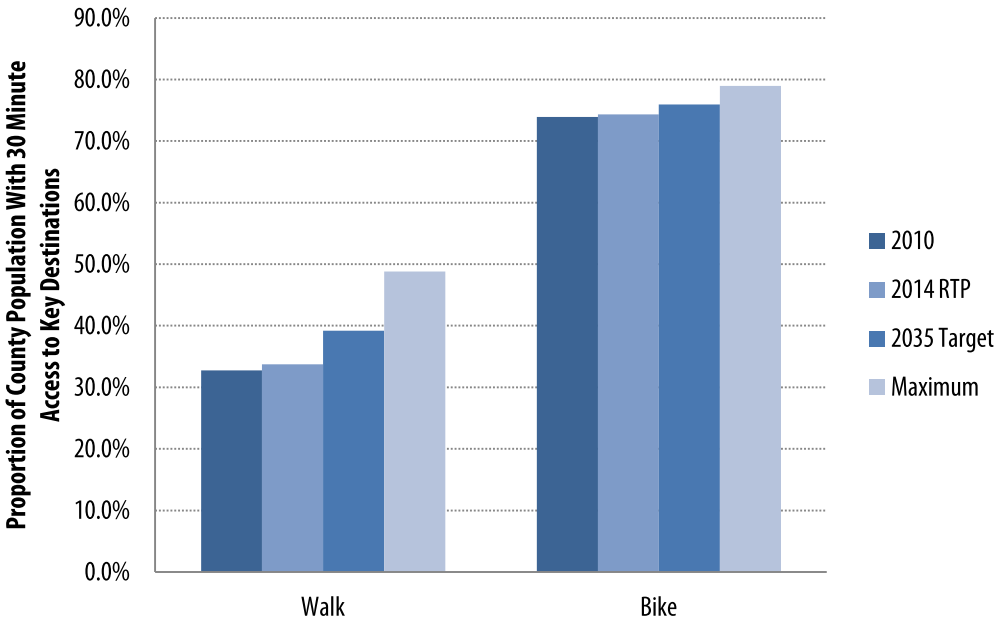



**Figure D.10 – Walk and Bicycle Access Improvements Near Key Destinations for Total Population**

The results show that despite investment in additional pedestrian and bicycle infrastructure, the proportion of the population within 30 minutes of key destinations does not substantially increase (**Figure D.10**). The target for 2035 was set to close the gap between the 2010 baseline population and the maximum possible population by 40%. It was calculated by taking 40% of the difference between the baseline and the maximum possible population within the key destinations and adding to the baseline (**Figure D.9**). Progress is made towards the target but the 2035 target to close the gap by 40% between the 2010 baseline and the maximum population was not met. The gap between the 2010 baseline and the maximum population was closed by 9% for bike and 6% for walk compared to the 40% target.

This analysis shows that large portions of the county have robust bicycle infrastructure that provides good connectivity near key destinations. Currently, the pedestrian networks near key destinations are not as complete although the analysis is limited due to lack of sidewalk data throughout many areas of the county.

## Target 1B. Reduce per capita fuel consumption and greenhouse gas emissions by 1% by 2020 and 5% by 2035.

### Target Development

A 5% reduction in per capita greenhouse gas emissions by 2035 for passenger vehicles is a voluntary target that was set by the Regional Transportation Commission (RTC) to be consistent with requirements established by the state for the Monterey Bay region. The California Air Resources Board (ARB) requires a five percent reduction in per capita greenhouse gas (GHG) emissions for passenger vehicles to be achieved through the Association of Monterey Bay Area Governments (AMBAG) Sustainable

Communities Strategy. This reduction in GHG comes from coordination of land use and transportation planning primarily through a reduction in vehicle miles traveled and improvements in vehicle speed. The Santa Cruz County RTP target is based on changes in the transportation system only and does not consider effects of land use changes as land use is outside the purview of the RTC. Vehicle technology improvements and low carbon fuel requirements are expected to generate significant greenhouse gas emission reductions. These reductions are also above and beyond this 5% and are not accounted for in the 2014 RTP since they are outside the authority of the RTC. The 2014 RTP relies on reductions in vehicle miles traveled along with improvements in vehicle speed to achieve the five percent greenhouse gas emissions reduction target.

The average per capita vehicle miles traveled in Santa Cruz County is 15.3 miles per person per day. An emissions reduction of 5% corresponds to an average reduction in vehicle miles of travel or mode shift (carpooling, transit, biking, or walking) of approximately ¾ of a mile per person per day, 5 miles per week, or 275 miles per year. If one day a week, commuters switched from driving alone to either working from home or commuting to work by carpooling, biking, walking, or riding transit, this goal would be readily met.

## Forecasting Methodology

Fuel consumption and GHG emissions from a given vehicle fleet mix are the result of two factors—vehicle-miles of travel (VMT) and vehicle speeds. As VMT increases, fuel consumption and GHG increases as well. Vehicle speed is also relevant for GHG emissions because of the following:

- Vehicles traveling at low speeds are generally less efficient than vehicles traveling at moderate speeds since engine and auxiliary losses (e.g., air conditioning, electrical load) represent a larger share of fuel consumption and GHG emissions at low speeds

- Vehicles traveling at high speeds face additional air-resistance, which reduces efficiency

- Acceleration and deceleration, or speed consistency is important for estimating fuel consumption and GHG emissions. Congested, stop-and-go travel is inefficient since fuel consumption and GHG emissions related to idling and accelerating a vehicle from a stop can be considerable. A roadway facility with frequent stop and go conditions will generate more GHG emissions than one with consistent travel speeds (even if that speed is relatively low).

Traveling at the mid-range of speeds (30 to 60 mph) and reducing stop-and-go traffic to maintain speed consistency are effective means of reducing GHG emissions. **Figure D.11** summarizes these factors. Steady state, as referenced in **Figure D.11** refers to consistent travel at a given speed, as opposed to real-world activity that includes stop-and-go driving.

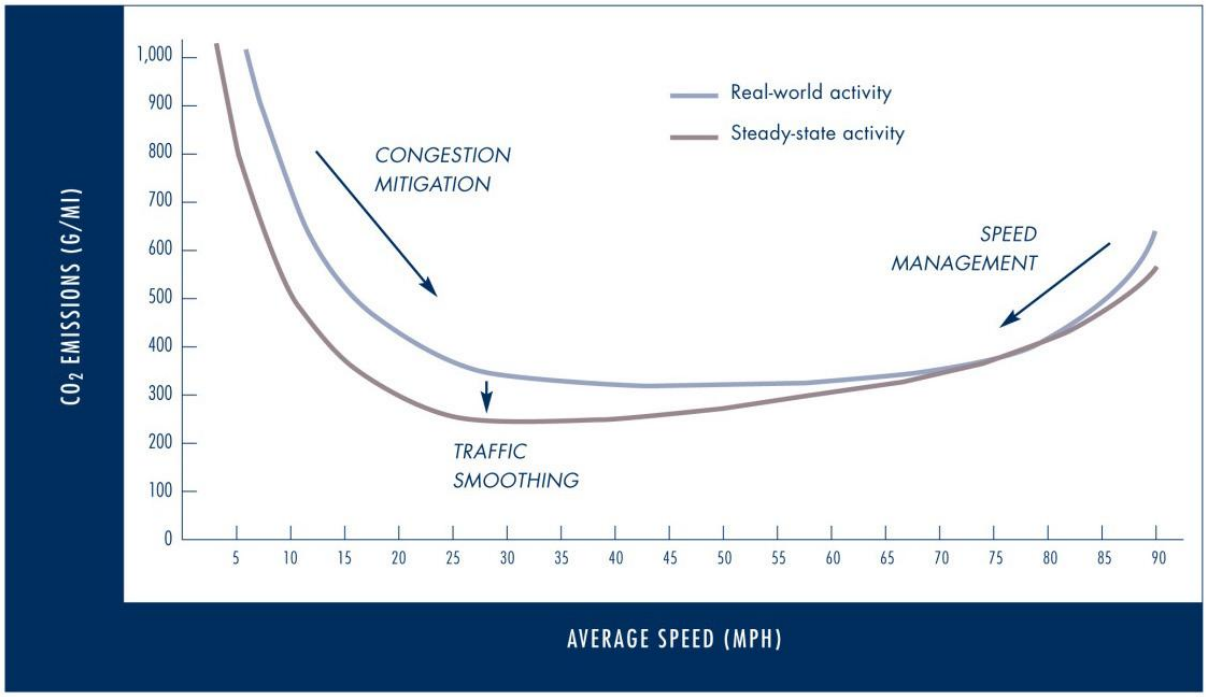



**Figure D.11 – $CO_2$ Emissions versus Average Vehicle Speed**

*Source: UC Berkeley Transportation Center*[8]

This section describes how fuel consumption and GHG emissions are forecast for the 2014 RTP based on changes in vehicle miles traveled, vehicle speeds and speed consistency. To forecast fuel consumption and GHG emissions, the following data from the AMBAG regional travel demand model are used:

- Roadway link traffic volumes
- Roadway link lengths
- Estimated roadway link speeds

Using this information, total passenger vehicle VMT is calculated for every link (e.g., volume x length). Then a spreadsheet program is used to tally up the total VMT that occurs in five mile-per-hour speed ranges. VMT is adjusted to take out all trips that travel through the AMBAG region (external to external trips) and half of the trips that travel either from inside to outside the region (internal to external) or from outside to inside the region (external to internal). These adjustments are consistent with ARB requirements for AMBAG's Sustainable Communities Strategy.

With the VMT data organized by speed, the California Air Resources Board's EMFAC model is used to calculate the GHG emissions from Santa Cruz County. The fuel consumption and $CO_2$ emission factors based on the passenger vehicle fleet mix for Santa Cruz County are used to calculate the final results. $CO_2$ emissions is used as a measure of GHG emissions since $CO_2$ data was more readily available from the EMFAC model results and the relative reduction in $CO_2$ will be the same as GHG emission reductions since $CO_2$ accounts for such a large percentage of the GHG emissions. Due to the inability of the travel demand model to model various different types of transportation projects including transportation demand management, transportation system management, and bicycle and pedestrian infrastructure, the

VMT and GHG emissions were than reduced through postprocessing. Postprocessing is a process where the travel model outputs are manually adjusted using factors derived from research studies and other analytic tools.

## Baseline

The 2005 baseline per capita $CO_2$ emission rate for Santa Cruz County from transportation is 15.0 lbs/day. This $CO_2$ emission rate corresponds to an average vehicle miles traveled per person of 15.3 miles/day. A reduction of 5% by 2035 would require the per capita $CO_2$ emissions to be reduced to 14.3 lbs/day due to reductions in vehicle miles traveled and improvements in vehicle speed.

## Results

The greenhouse gas emissions results for Santa Cruz County for 2035 based on the list of projects that have been prioritized in the 2014 RTP are estimated to be a **17.9%** reduction relative to 2005. This corresponds to a $CO_2$ per capita emission rate of 12.3 lbs/day/person for 2035 which includes reductions from both transportation and land use changes. The regional travel demand model results determined 13.1% of this reduction (**Figure D.12**) and the postprocessing accounts for the remainder of the reduction (4.7%) (**Figure D.12**). [The postprocessing reduction of 5.46% (**Figure D.13**) is applied to the 2035 VMT and $CO_2$ results from model as opposed to the 2005 values and thus results in an additional 4.7% reduction relative to 2005.] See the documentation at the end of this target discussion for additional information on how the postprocessing was calculated. The per capita $CO_2$ reduction of 17.9% is slightly greater than the per capita VMT reductions of 17.1% likely due to more efficient vehicle speeds and speed consistency in 2035 relative to 2005 (**Figure D.14**).

Because of the synergistic effects of land use and transportation on reducing GHG emissions, it is difficult to determine how much of the reduction comes from transportation improvements versus land use changes. All of the postprocessing reductions are based on transportation investments and therefore at a minimum, transportation effects account for 4.7% of the GHG reductions. Assuming half of the GHG reduction that has been forecasted for 2035 is due to transportation (9.0%), this result not only meets but surpasses the 5% target.

| VMT and GHG Calculations for Passenger Vehicles | 2005 | 2035 |
|---|---|---|
| Daily VMT (miles/workday/capita) - modeled | 15.29 | 13.40 |
| Daily CO2 (lbs/workday/capita) - modeled | 15.02 | 13.05 |
| Modeled reduction in VMT from 2005 | | -12.4% |
| Modeled reduction in CO2 from 2005 | | -13.1% |
| Daily VMT (miles/workday/capita) - modeled and postprocessed | | 12.67 |
| Daily CO2 (lbs/workday/capita) - modeled and postprocessed | | 12.34 |
| Total per capita VMT % Reduction from 2005 | | **-17.1%** |
| Total per capita CO2 % Reduction from 2005 | | **-17.9%** |

**Figure D.12 – Per Capita Reductions of Vehicle Miles Traveled and Greenhouse Gas Emissions for 2014 RTP relative to 2005 for Passenger Vehicles**

| Project Type | Postprocessing Reductions for VMT/GHG Emissions |
|---|---|
| Pedestrian facility and traffic calming improvements | -0.30% |
| Bicycle facility improvements | -2.22% |
| Intelligent Transportation Systems/Transportation System Management programs | -0.13% |
| Transportation Demand Management programs | -1.75% |
| Transit improvements | -0.80% |
| Increased work at home | -0.26% |
| **Total Postprocessing Reductions** | **-5.46%** |

**Figure D.13 – Postprocessing Reductions of Vehicle Miles Traveled and Greenhouse Gas Emissions for 2014 RTP relative to 2005**

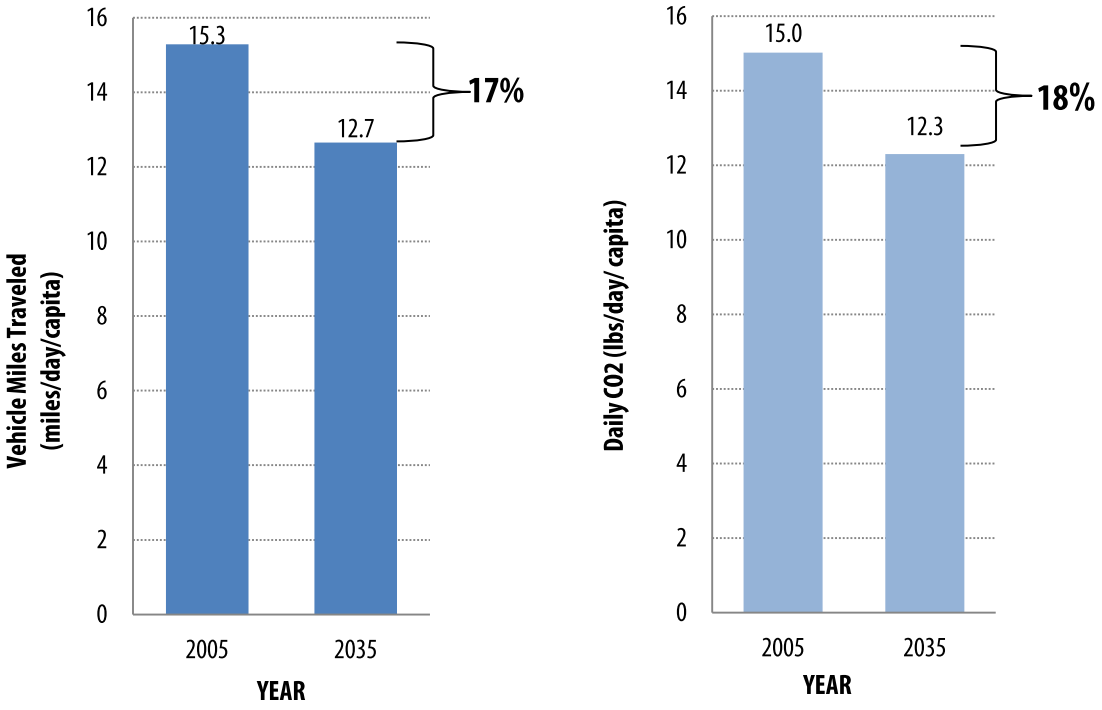



**Figure D.14 – 2035 per capita VMT and GHG reductions compared to 2005**

# VMT and GHG Postprocessing Reduction Methodology

Based on information from AMBAG, the new regional travel model either does not model or is not sensitive to the following transportation projects or programs:

- Pedestrian projects
- Bike projects
- Intelligent Transportation Systems/ Transportation System Management (ITS/TSM) projects
- Transportation Demand Management (TDM) projects
- Transit enhancements – the model's mode choice component is "static" and is therefore insensitive to new or enhanced transit service
- Work at home – the model's mode choice component does not have the ability to vary the percentage of people who work at home

Based on these limitations, Fehr & Peers evaluated postprocessing adjustments to account for the reductions in VMT/GHG from projects in the categories above. The postprocessing was based primarily on the research identified in the following documents:

- *Quantifying Greenhouse Gas Emissions Mitigation Measures*, CAPCOA, 2010[9]
- *Moving Cooler*, Urban Land Institute, 2009[10]
- *INDEX 4D: A Quick-Response Method of Estimating Travel Impacts from Land-Use Changes*, Criterion Planners and Fehr & Peers, 2001[11]
- *Appendix C-4: Final Environmental Impact Report For The Metropolitan Transportation Plan/Sustainable Communities Strategy For 2035*, SACOG, 2012[12]

Below is a brief documentation of how the adjustments were calculated.

## Pedestrian Projects

Fehr & Peers estimated the total percent growth in new or substantially enhanced pedestrian facilities based on the research prepared for the STARS access analysis. For each of the TAZs within Santa Cruz County, the percent increase in pedestrian infrastructure was input based on the project list and the estimated existing pedestrian facility coverage in the area. The population-weighted average percent increase was then calculated for the entire county. The results found that—on average—pedestrian infrastructure expanded by about 6% in the county. This growth in pedestrian facilities was multiplied by a VMT reduction elasticity from *INDEX 4D Method*[13]. This resulted in a population-weighted VMT/GHG reduction of -0.24%.

In addition, there are numerous traffic calming projects in the RTP. Since the INDEX method does not account for traffic calming, data from CAPCOA 2010[14], were used. The CAPCOA document, citing data from *Moving Cooler*,[15] identified a low-level reduction of -0.25% of VMT, assuming that traffic calming

was present at approximately 25% of streets and about 25% of intersections on those streets have traffic calming measures. Based on an observation of the project list, it did not seem appropriate that this many traffic calming measures would be implemented, so the minimum reduction was factored by one-quarter for this analysis. The result is a -.063% reduction in VMT.

### Bike Projects

Fehr & Peers used GIS data to calculate the percent increase in bicycle facilities as part of the RTP. The result is a 57% increase in the mileage of bicycle facilities (bike lanes and trails) since 2006 (year closest to 2005 when comparable bikeway mileage data was available). This increase was multiplied against the elasticity factor from the INDEX 4D[16] method to yield a 2.2% reduction in VMT/GHG. Note that this 2.2% reduction results in a total VMT reduction for the county of about 91,000 miles.

### Intelligent Transportation System/Transportation System Management

Fehr & Peers consulted Moving Cooler[17] to estimate the VMT reducing benefits of ITS/TSM projects. Moving Cooler presents general VMT reductions resulting from some overall strategies. Therefore, it is difficult to be highly specific when applying Moving Cooler results, however, it is the most authoritative source on the topic. Based on a review of the RTP project list, the following ITS/TSM projects were assumed to be implemented at an "expanded current practice" level: incident management, signal control management, and traveler information. Many other ITS/TSM programs are also implemented within the County, but these have less substantial investments and were not considered for inclusion. Based on this assumption, Moving Cooler methodology estimates a VMT/GHG reduction of 0.125%.

### Transportation Demand Management

The CAPCOA[18] report was referenced to estimate the extent of benefit from TDM programs. The RTP project list identifies fairly extensive (but voluntary) TDM programs for workplaces and residences. Based on this and the range of VMT reductions assumed for TDM in the CAPCOA report, the following reductions were calculated:

- Commute-based reductions: 75% of workplace commuters have exposure to voluntary TDM; 35% of all VMT is commute-based; 5% reduction in VMT = -1.32% countywide VMT.

- Residence non-work-based reductions: 25% of residents have exposure to voluntary TDM; 35% of all VMT is home-based non-commute; 5% reduction in VMT = -0.44% countywide VMT.

This results in a total VMT reduction of 1.75%.

### Transit

Ideally the VMT reducing effects of transit would be identified by the regional travel model but the current AMBAG model is not sensitive to the majority of transit projects. The project list identifies several major expansions to transit in Santa Cruz, including new commuter rail, BRT service, and enhanced freeway express bus service. In looking at other commuter rail and BRT services around the country, combined with Santa Cruz Metro's existing daily ridership totals, it was assumed that these new services could bring 3,500 new daily boardings to the system. This compares to the current daily boarding total of about 19,000 for the Metro system. Since the new service is oriented toward faster and potentially more

frequent service, relatively long trips were assumed, averaging 9 miles in length. The 3,500 new boardings each at 9 miles in length would result in a VMT reduction of about 0.8%.

## Work at Home

Fehr & Peers followed SACOG's lead in extrapolating an observed trend toward increasing work-at-home. In the SACOG area, the work at home percentage increased by about 1% between 2000 and 2010 (using US Census Bureau data). SCCRTC determined a similar increase for Santa Cruz over the same period, therefore the same reduction will be assumed for 2035 conditions as was determined by SACOG. The result was a 0.26% VMT/GHG reduction due to increasing work-at-home.

## Summary Table

**Figure D.13** summarizes the aggregate VMT/GHG postprocessing reduction for the 2014 RTP.

## Santa Cruz County 2035 Total GHG Emissions

Based on the list of projects that have been prioritized in the 2014 RTP, it is estimated that by 2035 in Santa Cruz County per capita GHG emissions from passenger vehicles will be reduced by 17.9% relative to 2005. Given a projected population increase of 18.6% from 2005 to 2035, the total reductions in VMT and GHG emissions from passenger vehicles can also be assessed (**Figure D.15**). The decrease in per capita VMT and GHG is substantial enough in SCC that the total VMT and $CO_2$ will be slightly decreased in 2035 compared to 2005 when taking into account population growth.

There are three main ways to reduce GHG emissions; 1) reducing the number of vehicle miles traveled (VMT), 2) increasing the fuel economy of vehicles and 3) reducing the amount of carbon in fuel. Governor Schwarzenegger's executive order S-3-05 of 2005[19] is to reduce GHG Emissions in 2050 to 80% below 1990 levels. Assuming a 10% reduction in the amount of carbon in fuel, what combinations of VMT reduction and fuel economy (mpg) are needed to reach this goal?

**Figure D.16** shows the average per capita VMT with the scale on the left side and the average mpg for vehicles with the scale on the right side. The bars labeled 1990 provide an estimate of the average per capita VMT and fuel economy in 1990. **Figure D.16** shows that if the per capita number of miles traveled is reduced to 90% of 1990 numbers, an average fuel economy of passenger vehicles of about 100 mpg for automobiles on the road (C1) would be necessary to reach the 2050 goal. If the number of per capita VMT is reduced to 80% of 1990 levels, fuel economy would have to be about 90 mpg (C2). If per capita VMT is reduced to 70%, fuel economy would have to be about 80 mpg (C3). If per capita VMT is reduced to 60%, fuel economy would have to be about 70 mpg (C4) and if per capita VMT is reduced to 50%, fuel economy would have to be about 55 mpg (C5).

In 2012, President Obama set the average fuel economy standard for cars and light duty trucks to 54.5 mpg by 2025.[20] This is the average fuel economy standard for automobiles produced in 2025. Another 10 to 15 years will likely be required in order to get the average fuel economy of automobiles on the street to be 54.5 mpg. To reduce GHG by 80% by 2050 it will likely require a VMT reduction of 30-40% along with an average fuel economy of 70 to 80 mpg for automobiles on the road. The 2014 RTP with a reduction in per capita VMT of 17.9% by 2035 is on track but there are still improvements needed to get to a total GHG reduction of 80% relative to 1990 by 2050.

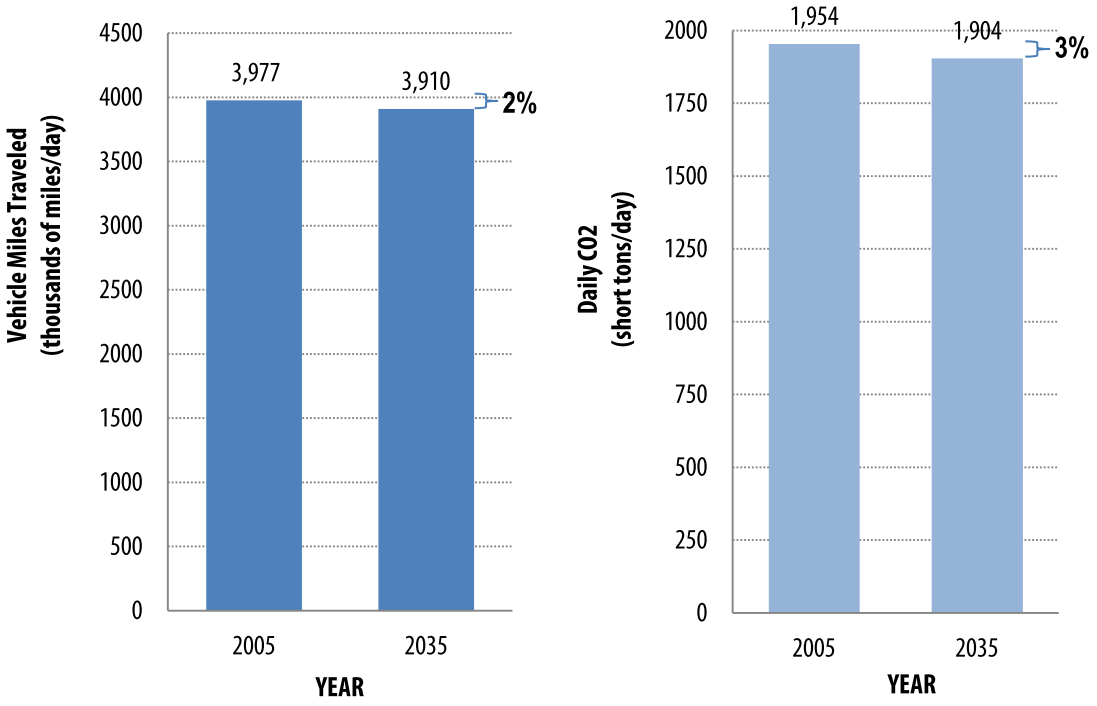



**Figure D.15 – Total 2035 VMT and GHG emissions relative to 2005**

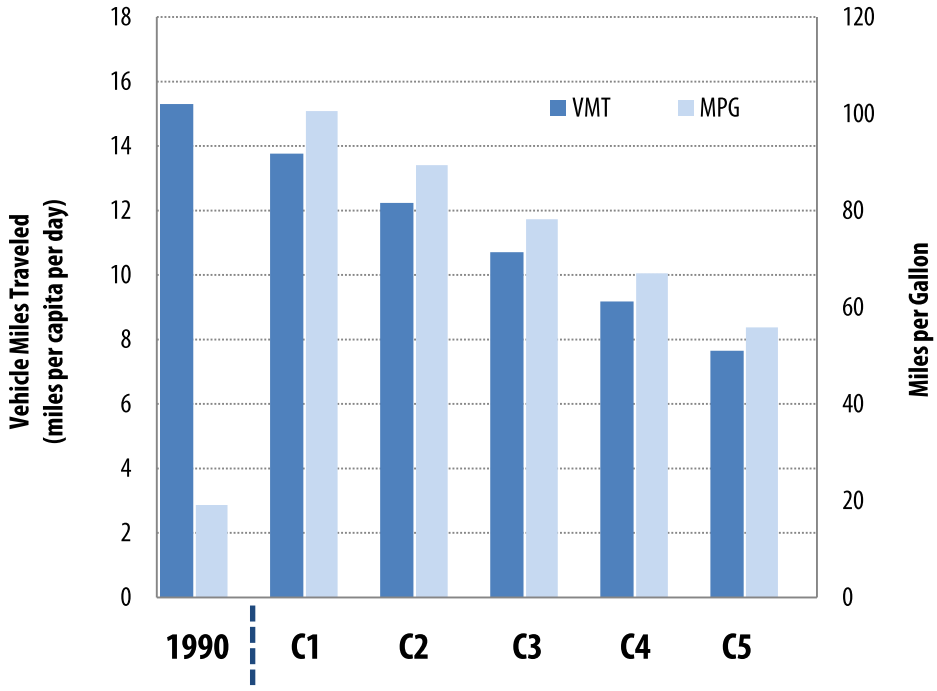



**Figure D.16 – Per Capita Vehicle Miles Traveled Versus Fuel Economy (mpg) Necessary to Reduce GHG Emissions by 80% from 1990 levels by 2050**

*Note: Fuel Economy (mpg) equals the average fuel economy of cars and light duty trucks on roadways.*
*Source: Santa Cruz County Regional Transportation Commission*

# Target 1C. Re-invest in the local economy $5 million/year[21] by 2020 and $10 million/year by 2035 from savings resulting from lower fuel consumption due to a reduction in vehicle miles traveled.

## Target Development

Economic benefit is a key leg of the "Triple Bottom Line" sustainability stool. The STARS Economic Benefit analysis is based on the "Green Dividend" work of Impresa, Inc. economist Joe Cortright. The Green Dividend analysis, sponsored by CEO's for Cities[22], shows that when people reduce vehicle miles traveled (VMT), they reduce spending on fuel and vehicle use, which is then available to invest in the local economy.

The 2035 target to reinvest $10 million per year in the local economy assumes at least a 5% per capita reduction in vehicle miles traveled (VMT). The calculations were based on the following assumptions:

- Economic benefits are in 2014 dollars
- 2035 population will be 308,582 based on AMBAG projections
- $4 per gallon fuel cost
- 5 percent reduction in per capita VMT relative to 2005
- Fuel efficiency (miles per gallon) will be about 32 percent greater in 2035 based on state fuel economy standards (Pavley)
- 2035 business as usual per capita VMT is equivalent to 2005 per capita VMT (15.3 miles/workday/capita)

Comparing 2035 fuel consumption expenditures with a 5 percent reduction in per-capita VMT relative to 2035 business as usual VMT results in approximately $11 million/year in household savings from a reduction in fuel use. Establishing an economic benefit target will help the RTC and local jurisdictions develop, analyze and prioritize projects that reduce fuel consumption and thereby retain money in the Santa Cruz County economy.

## Forecasting Methodology

For the 2014 RTP, the economic benefit of reduced fuel consumption is quantified based on the estimated VMT per capita for 2035. VMT results are derived from the AMBAG Regional Travel Demand model adjusted by postprocessing to account for projects/programs that cannot be modeled or the model is not sensitive to. The postprocessing includes effects of bicycle, pedestrian, transportation demand management, transportation system management projects/programs as discussed under target 1B. In addition to the assumptions used in the target development, the economic benefit calculation takes into consideration the following assumptions:

- 73 % of the cost of fuel leaves the local economy (27% of cost of fuel stays in local economy, 73% leaves local economy and therefore 73 cents of every dollar not spent on fuel is available to invest locally)[23]

- 62% of the amount available to invest locally is retained in the local economy based on buying from locally-owned businesses[24] (62 cents out of every dollar is retained in the local economy)

- Total increase that can be invested in local economy based on reduction in fuel consumption equals 35% * fuel consumption savings. [Note: 35% is determined from increase in the amount available to be reinvested in local economy compared to fuel, 35% = 62%-27%.]

## Baseline

The economic benefit is relative to 2035 business-as-usual conditions, which in this case is assumed to have no reduction in per capita VMT compared to 2005 conditions. The baseline data is shown in **Figure D.17**.

## Results

The 2014 RTP forecasts a reduction in per capita VMT of 17.9%. A reduction in VMT will cause a decrease in fuel consumption which translates into an average annual household savings of $332 and an annual increase in money invested in the local economy of $13 million/year for Santa Cruz County (**Figure D.17**). An economic benefit of $13 million/year by 2035 meets and surpasses the economic benefit target of $10 million/year.

| Measure | 2035 Business as Usual | 2035 RTP Implementation |
|---|---|---|
| **Average Weekday VMT (miles/capita/day)** | 15.3 | 12.7 |
| **Annual Countywide Fuel Consumption (gallons)** | 55,000,000 | 46,000,000 |
| **Annual Countywide Fuel Expenditures ($)** | $220,300,000 | $182,500,000 |
| **Annual Countywide Savings ($)** | | $37,800,000 |
| **Annual Savings per Household ($)** | | **$332** |
| **Annual Reinvestment Increase in Santa Cruz County Economy ($)** | | **$13,200,000** |

**Figure D.17 – Economic Benefit to Santa Cruz County based on reduction in VMT and Fuel Consumption**

# Target 1Di. Improve travel time reliability for vehicle trips.

## Target Development

Travel time reliability—a consistency or dependability in travel times, as measured from day to day – is universally desired and an important measure of transportation service quality. Travelers want to know that a trip will take a half-hour today, a half-hour tomorrow, and so on. Travel time reliability (TTR) matters since being late to work, an appointment, or for a delivery have substantial repercussions for both travelers and businesses. Literature from the Federal Highway Administration (FHWA) and many academic journals cite travel time *reliability* as a more important measure than *average* travel time between destinations because it is challenging for people to try to plan around the unpredictable nature of travel[25]. A common goal of transportation agencies is to reduce travel time variability by striving to keep the time it takes to take a trip as close as possible to the average trip time. This target seeks to improve travel time reliability for vehicle trips relative to the baseline travel time reliability as discussed below.

## Baseline

The baseline travel time data for Highway 1 travel between Watsonville (at Hwy 129) and Santa Cruz (at Ocean St) were measured from Caltrans Performance Monitoring System (PeMS) data.[26] Highway 1 travel time in the northbound direction for this segment was available at 5 minute intervals (**Figure D.18**). Highway 1 travel times in the southbound direction along this segment was only available at 1 hour intervals and thus the travel time reliability was adjusted based on PeMs Highway 1 northbound data averaged over a 15 minute interval. The travel time reliability measure is based on the 95% travel time which is defined as the time when 95% of the trips will be shorter than this time. Both the travel time and 95% travel time versus time of day are plotted for Highway 1 northbound from Watsonville to City of Santa Cruz in **Figure D.18**. Note that the greater the difference between the curves at the peak hour indicates a lesser degree of travel time reliability.

A travel time index (TTI) is a way to normalize congestion levels across facilities with different free-flow speeds. A travel time index is determined by taking average travel time divided by the free flow travel time. The free flow speed assumed here is the posted speed limit (65 mph for highways). Similarly, the 95% travel time index is the 95% travel time divided by the free flow time. Baseline AM and PM peak 15 minute average travel time indices and 95% travel time indices for Highway 1 are presented in **Figure D.19**.

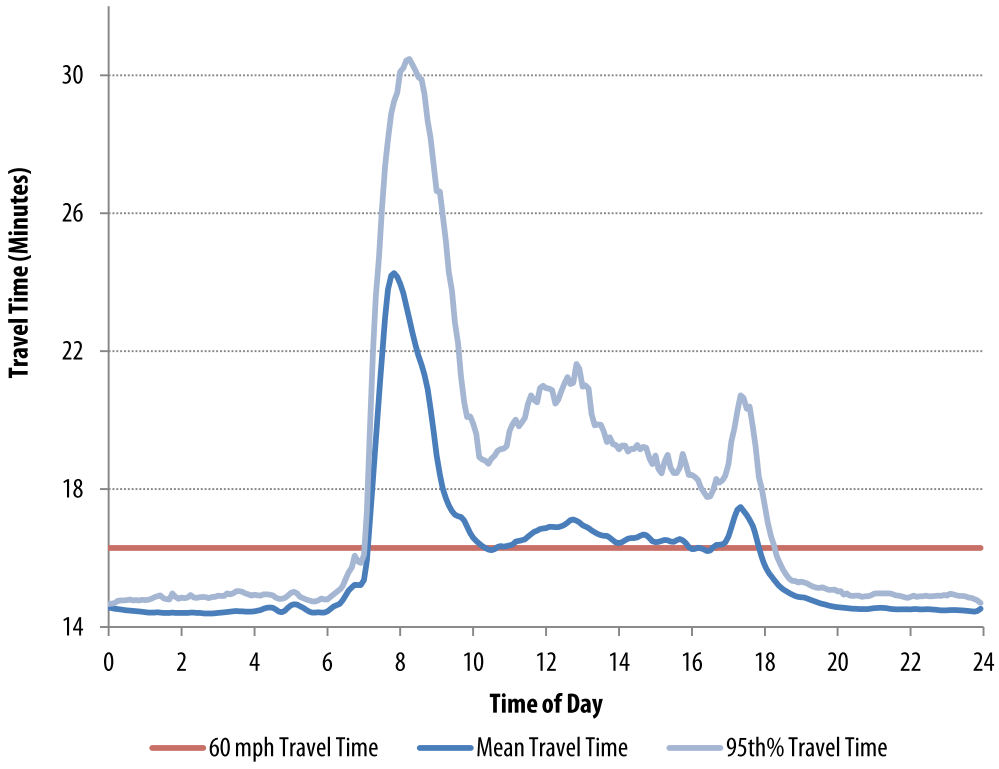



**Figure D.18 – Travel Time and Travel Time Reliability for Highway 1 Northbound from Watsonville (Hwy 129) to City of Santa Cruz (Ocean St)**

*Source: Santa Cruz County Regional Transportation Commission and Caltrans Performance Monitoring System (PeMS)*

Baseline data for Highway 17 and countywide urban arterial average were not available through PeMs and thus were extracted from the 2010 AMBAG travel demand model results. The Highway 17 and countywide data was adjusted based on the Highway 1 PeMs data to alleviate differences between actual and modeled data. The results are presented in **Figure D.19**.

| Facility | AM Peak 15 Minute Average | | | | PM Peak 15 Minute Average | | | |
|---|---|---|---|---|---|---|---|---|
| | Avg Travel Time (min) | 95% Travel Time (min) | Avg TTI | 95% TTI | Avg Travel Time (min) | 95% Travel Time (min) | Avg TTI | 95% TTI |
| Highway 1 NB – Watsonville to Santa Cruz | 24.2 | 29.2 | 1.48 | 1.79 | 17.4 | 20.5 | 1.07 | 1.26 |
| Highway 1 SB – Santa Cruz to Watsonville | 16.2 | 18.3 | 0.99 | 1.12 | 28.2 | 33.8 | 1.73 | 2.07 |
| Highway 17 NB – Santa Cruz to County Line | 23.3 | 32.2 | 1.28 | 1.77 | 19.1 | 26.9 | 1.05 | 1.48 |
| Highway 17 SB – County Line to Santa Cruz | 18.9 | 26.5 | 1.01 | 1.42 | 25.3 | 34.7 | 1.36 | 1.86 |
| Urban Arterials | 985.8 | 1,382.8 | 1.01 | 1.42 | 994.3 | 1,392.5 | 1.02 | 1.43 |

**Figure D.19 – Baseline Travel Time Reliability Results**

*Source: Santa Cruz County Regional Transportation Commission, Sustainable Transportation Council, Fehr & Peers*

## Forecasting Methodology

There are few applications where travel time reliability is predicted for planning purposes. For the 2014 RTP analysis, travel time reliability was forecasted using data from the AMBAG regional travel demand model and adjusted based on the baseline travel demand model results relative to the baseline PeMS data. Travel time reliability is an indicator of the variation in travel times from one day to the next whereas the travel demand model only estimates average travel times over the course of one day. A methodology for forecasting travel time reliability based on correlations with average travel times will be used for this analysis as discussed below.

Data used from the AMBAG regional travel demand model to forecast travel time reliability are:

- Link travel time
- Link volume-to-capacity (v/c) ratio

Travel time reliability is calculated for the following facilities in Santa Cruz County:

- Arterial roads within the urban areas of the county based on their designation in the AMBAG model (**Figure D.20**).
- Highway 1 between SR 129 and Ocean St in City of Santa Cruz
- Highway 17 between Highway 1 and the County Line

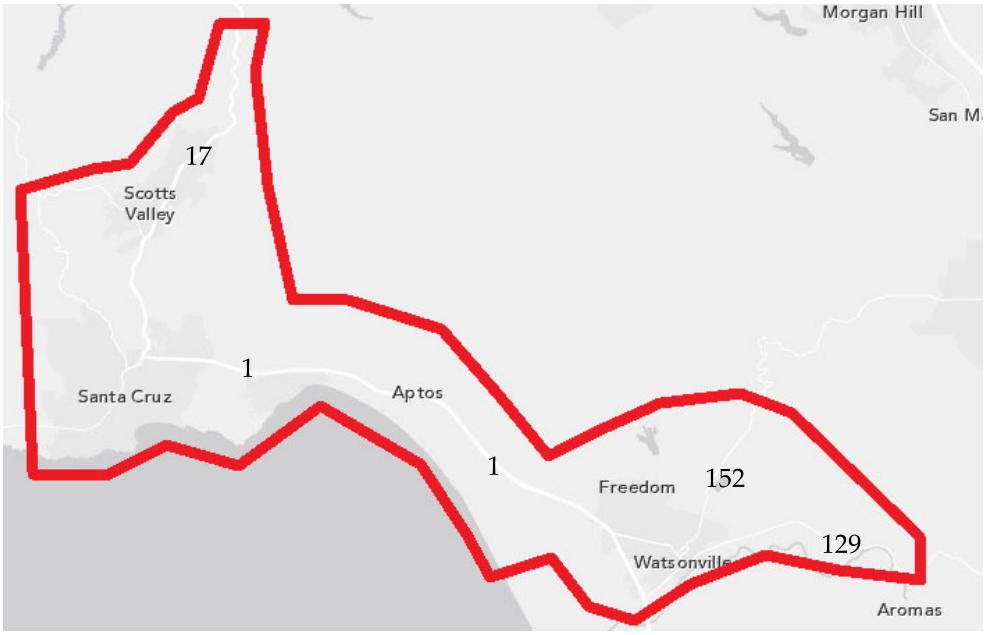



**Figure D.20 – The Study Area That Defines the Arterial Roads That Will Be Included in the Countywide Travel Time Reliability Calculation**

Using the AMBAG travel demand model data from the AM and PM peak hour runs, the average peak hour travel times for each freeway and arterial segment in the study area (**Figure D.20**) were extracted and summed together to develop an average peak hour travel time for this urban area of the county. Total average travel times for Highway 1 and Highway 17 routes are developed by summing the VMT-weighted average travel times for each segment that makes up the route. Peak hour travel times were than adjusted using the baseline data from PeMs to peak 15 minute average travel times for both AM and PM.

With the AM and PM average peak 15 minute travel times known for the facilities of interest, travel time indices (TTI) are calculated using a free flow speed of 60 mph. Next, 95th percentile TTIs are estimated using an observed relationship between average 15 minute TTIs and 95th percentile TTIs based on the PEMS baseline data from Highway 1:

$$95\text{th percentile TTI} = 1.5 * \ln(\text{average TTI}) + 1.4$$

The form of this equation was based on national research conducted by R. Margiotta in a paper to the Transportation Research Board[27]. The national dataset was not used since it estimated higher 95$^{th}$ percentile TTIs than were observed in Santa Cruz County. With the relationship between average travel times and 95$^{th}$ percentile travel times, as developed above, 95$^{th}$ percentile TTIs for 2035 can be forecast from travel times generated from the AMBAG travel demand model results for 2035. The travel time reliability measure using 95$^{th}$ percentile TTIs can thus be assessed. The travel time and travel time reliability values were adjusted to account for the additional reduction in VMT due to the postprocessing as discussed under target 1B.

# Results

The travel time and travel time reliability results based on the 2014 RTP project list are summarized in **Figure D.21**. Travel times increase and travel time reliability decreases between 2010 (**Figure D.19**) and 2035 (**Figure D.21**), particularly for the freeway sections of Highway 1 and Highway 17. The travel time increases and travel time reliability decreases only marginally for the arterial streets within the urban portion of Santa Cruz County.

Travel times would be greater and travel time reliability would be less in the absence of the 2014 RTP projects. **Figure D.22** shows the travel time and travel time reliability results for the 2035 No Project scenario. As shown, Highway 1 average travel times are between 3-18% higher under the No Project Scenario compared to 2035 Project. Highway 17 travel times are 5-18% higher under the No Project Scenario compared to 2035 Project. Forecasts of travel time reliability for 2035 based on project implementation (**Figure D.21**) do not improve the travel time reliability relative to existing baseline conditions but does make improvements relative to a no project alternative (**Figure D.22**).

| | AM Peak 15 Minute Average | | | | PM Peak 15 Minute Average | | | |
|---|---|---|---|---|---|---|---|---|
| Facility | Avg Travel Time (min) | 95% Travel Time (min) | Avg TTI | 95% TTI | Avg Travel Time (min) | 95% Travel Time (min) | Avg TTI | 95% TTI |
| Highway 1 NB – Watsonville to Santa Cruz | 24.9 | 33.2 | 1.53 | 2.04 | 20.6 | 28.6 | 1.26 | 1.75 |
| Highway 1 SB – Santa Cruz to Watsonville | 17.4 | 24.4 | 1.07 | 1.50 | 28.3 | 36.3 | 1.74 | 2.23 |
| Highway 17 NB – Santa Cruz to County Line | 25.0 | 34.1 | 1.37 | 1.87 | 19.7 | 27.7 | 1.08 | 1.52 |
| Highway 17 SB – County Line to Santa Cruz | 19.5 | 27.3 | 1.04 | 1.47 | 27.3 | 36.7 | 1.46 | 1.97 |
| Urban Arterials | 987.5 | 1,384.0 | 1.02 | 1.43 | 1,003.4 | 1,407.2 | 1.03 | 1.45 |

**Figure D.21 – 2035 Travel Time Reliability Results**

*Source: Santa Cruz County Regional Transportation Commission, Sustainable Transportation Council, Fehr & Peers*

| Facility | AM Peak 15 Minute Average | | | | PM Peak 15 Minute Average | | | |
|---|---|---|---|---|---|---|---|---|
| | Avg Travel Time (min) | 95% Travel Time (min) | Avg TTI | 95% TTI | Avg Travel Time (min) | 95% Travel Time (min) | Avg TTI | 95% TTI |
| Highway 1 NB – Watsonville to Santa Cruz | 25.6 | 33.9 | 1.57 | 2.08 | 24.3 | 32.6 | 1.49 | 2.00 |
| Highway 1 SB – Santa Cruz to Watsonville | 20.5 | 28.4 | 1.26 | 1.74 | 29.7 | 37.5 | 1.82 | 2.30 |
| Highway 17 NB – Santa Cruz to County Line | 29.3 | 38.5 | 1.61 | 2.11 | 19.8 | 27.7 | 1.09 | 1.52 |
| Highway 17 SB – County Line to Santa Cruz | 19.5 | 27.4 | 1.05 | 1.47 | 34.5 | 43.3 | 1.85 | 2.32 |
| Urban Arterials | 994.3 | 1,393.8 | 1.02 | 1.43 | 1,011.2 | 1,418.3 | 1.04 | 1.46 |

**Figure D.22 – 2035 No Project Travel Time Reliability Results**

*Source: Santa Cruz County Regional Transportation Commission, Sustainable Transportation Council, Fehr & Peers*

# Target 1Dii. Improve multimodal network quality (MMNQ) for walk and bicycle trips to and within key destinations.

## Target Development

The level of use of bicycle and pedestrian facilities is highly dependent on the quality of the facility.[28] As outlined in the Monterey Bay Area Complete Streets Guidebook, not only the presence of sidewalks but wider sidewalks, landscape buffers, and streets with lower automobile speeds and volumes can lead to more people walking more often. Bicycle paths that are separated from automobile and truck traffic and bike greenways on low speed and low traffic volume roads will attract more people bicycling more frequently. Establishing a multimodal facility quality target underscores the importance of the quality of the bicycle and pedestrian network for promoting greater use of active transportation in order to reduce GHG emissions, reduce congestion, and improve health. This target is to improve the quality of the bicycle and pedestrian network relative to a 2012 base year.

## Forecasting Methodology

Multimodal quality measures are an evolution of the traditional auto-focused Level of Service standards (LOS). LOS provides an assessment of the quality of transportation service a facility provides under different conditions. Multimodal LOS (MMLOS) can be used to evaluate the quality of pedestrian, bicycle or transit facilities but the focus in the 2014 RTP is on pedestrian and bicycle facilities, given that transit routing and service levels are dynamic.

MMLOS has been around for many years, however, only recently has it begun to be more widely discussed and applied. The most recent version of the *Highway Capacity Manual (HCM)* (Transportation Research Board, 2010) includes a MMLOS for pedestrian and bicycle facilities but this method is extremely data intensive and thus challenging for most jurisdictions to apply. It also is influenced heavily by speed, traffic volume and at times minimizes or negates the benefits in investments in active transportation infrastructure that provide a buffer from the higher speeds and volumes.

Fehr & Peers and the Sustainable Transportation Council (STC) developed an alternative methodology that takes some of the quantitative elements of the HCM methodology and simplifies it so it can be utilized more readily. This methodology is known as Multimodal Network Quality (MMNQ). As part of the 2014 Regional Transportation Plan, STC and Fehr & Peers assessed the MMNQ of the baseline and 2035 pedestrian and bicycle network in Watsonville based on the projects on the constrained list for the 2014 RTP. A MMNQ in Watsonville is being used as an indicator for how well the transportation investments through 2035 improve the quality of the pedestrian and bicycle network countywide. This analysis can be performed on additional locations throughout Santa Cruz County for an improved assessment of the quality of the active transportation network but the resources were not available for that level of analysis. The following are the steps used for development of the MMNQ performance measure for the 2014 RTP.

1. Define a complete network of streets/corridors for bicycle travel throughout the City of Watsonville and for pedestrian travel in Downtown Watsonville.

2. With a complete network of bicycle and pedestrian transportation facilities identified, determine appropriate design standards for given areas and given street typologies. For example, it may be

appropriate to define a sidewalk standard that is 9 feet wide with street trees in a downtown area. On low volume suburban residential streets, the standard may call for a sidewalk on only one side of the street. The Complete Streets Guidebook of Monterey Bay Area, as well as many jurisdictions, have identified citywide or subarea pedestrian and bicycle design standards.

3. Define a rating system with service score designations as green, yellow, and red. A green score is defined as a high quality route. A yellow score indicates acceptable conditions, while a red score would not be attractive to most potential users.

4. Apply the rating system to the prioritized, fiscally constrained RTP project list.

5. In addition to ratings for each segment of the bike or pedestrian network, composite MMNQ scores were calculated for pedestrian and bicycle modes within the entire study area. The composite scores are calculated by determining an average score for the network. Green segments receive a score of 2, yellow a score of 1, and red a score of 0. The total segment scores are indexed to 100, where a network that is entirely composed of green routes would score 100.

6. The MMNQ system is designed to be easy to monitor over time to track progress. Since it is often based on adopted design standards and modal plans, it is also simple to update and keep current.

## Baseline and Results

**Pedestrian Network Quality.** Pedestrian network quality was determined for downtown Watsonville in the vicinity of Main St from Freedom Boulevard to Riverside Drive. The design standards and their associated scoring criteria were defined for both arterials/collectors and local roads (**Figure D.23**). Sidewalk presence or absence and sidewalk width was determined from data available from the City of Watsonville GIS department. The service score designations are shown as green (high), yellow (medium), and red (low). A green score is defined as a high quality pedestrian route. A yellow score indicates acceptable conditions, while a red score would not be attractive to many potential pedestrians. The entire street network in the downtown area was included as part of the pedestrian network as shown in **Figure D.24**. Both the baseline conditions (**Figure D.25**) and the 2035 Scenario (**Figure D.26**) were scored.

The 2012 baseline conditions show that sidewalks exist along both sides of the street on most roadways in downtown Watsonville (**Figure D.25**). Most of the local roads thus have a green score and many of the arterials with standard width sidewalks and no buffer have a yellow score. The baseline quality shows a composite score of 55 out of a maximum of 100 for the pedestrian network (**Figure D.27**). As pedestrian projects are implemented through 2035, the quality of the pedestrian network improves with the addition of the Monterey Bay Sanctuary Scenic Trail and Pajaro River Levee Trail as well as sidewalk improvements along a number of the roadways. The composite score is increased to 71 out of a maximum of 100. Pedestrian multimodal network quality is improved by 2035 and thus the target is met.

| Network Score | Along Arterials and Collectors | Local Roads |
|---|---|---|
| | 6′ Sidewalk and 3′ buffer or tree wells on both sides | Sidewalks on both sides |
| | Sidewalk on both sides, but narrow, no buffer, or missing curb ramps | Sidewalk on one side |
| | No Sidewalk on one or both sides | No Sidewalk |

**Figure D.23 – Pedestrian MMNQ Score**

*Source: Sustainable Transportation Council, Fehr & Peers*

**Figure D.24 – Pedestrian Network in Downtown Watsonville**

*Source: Sustainable Transportation Council, Fehr & Peers*

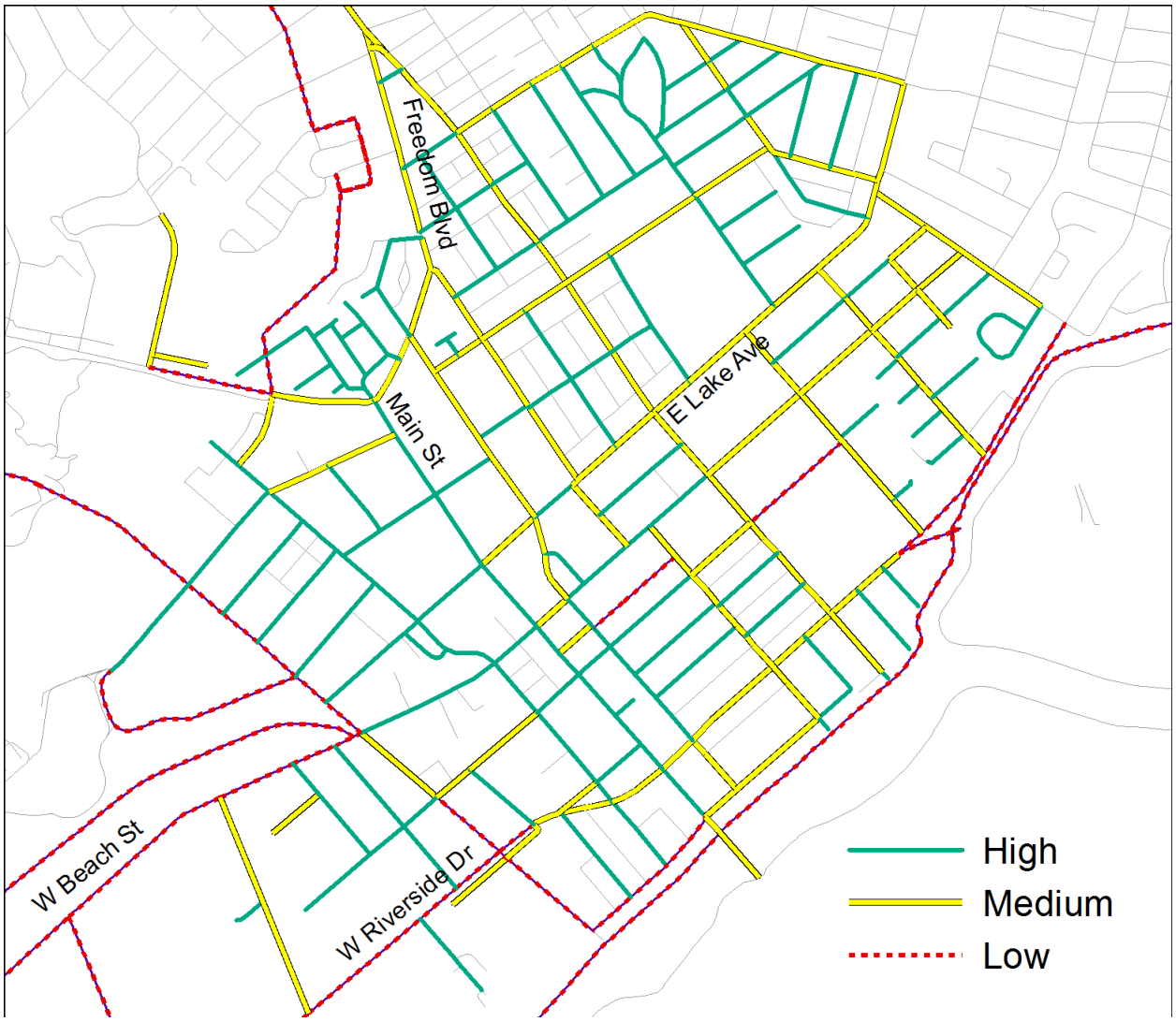



**Figure D.25 – 2012 Baseline of Pedestrian Network in Downtown Watsonville with MMNQ Score**

*Source: Sustainable Transportation Council, Fehr & Peers*

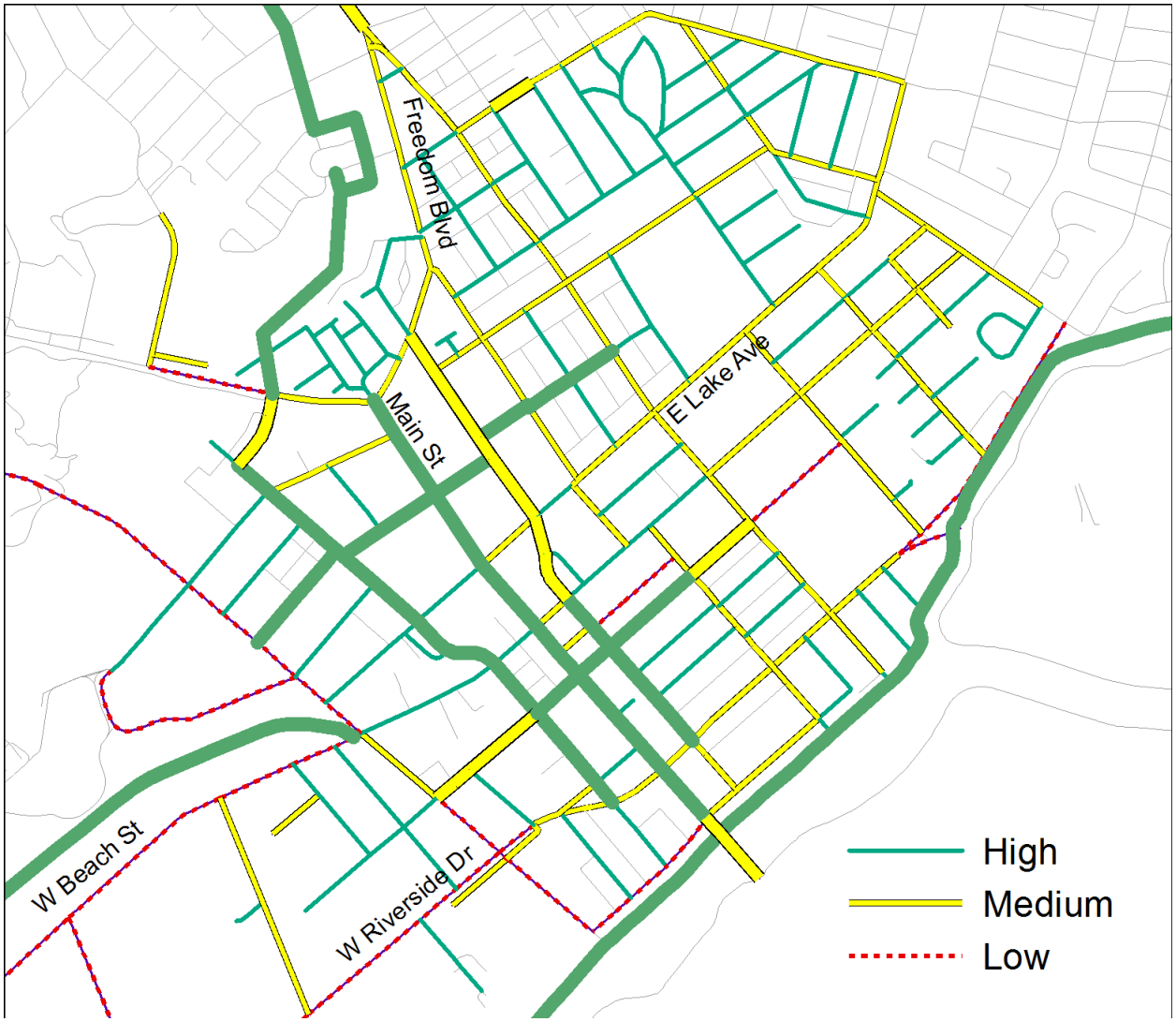



**Figure D.26 – 2035 Pedestrian Network in Downtown Watsonville and the MMNQ Score***

*Source: Sustainable Transportation Council, Fehr & Peers*

**Wider lines designate location of projects that have been added to network through 2035.*

| Condition | Pedestrian Network | Bicycle Network |
|---|---|---|
| Max Possible Score | 100 | 100 |
| 2012 Baseline System Score | 55 | 26 |
| 2035 Score | 71 | 39 |

**Figure D.27 – Watsonville Composite MMNQ Score**

*Source: Sustainable Transportation Council, Fehr & Peers, 2013.*

**Bicycle Network Quality.** The scoring system for the bicycle network varies based on the type of bicycle facility provided: bike route (routes are not striped and not necessarily signed), bike lane, or buffered/separated trail which may be shared with pedestrians. As shown in **Figure D.28** below, roadway classification and speed are intended to guide the determination of which bicycle facility type is most appropriate for a given roadway in Watsonville. The service score designations are shown as green (high), yellow (medium), and red (low). A green score is defined as a high quality bike route. A yellow score indicates acceptable conditions, while a red score would not be attractive to many potential bicyclists. Arterials with speeds greater than 30 mph can get a green rating if the bike facility is buffered from traffic. Unlike with the pedestrian MMNQ analysis, bicycle MMNQ analysis is not performed on every street. Only the streets identified as having a facility in the Watsonville Bicycle Master Plan or the 2014 RTP project list were included in this analysis, since some streets may not be appropriate for cycling (**Figure D.29**). Bicycle system MMNQ analysis was prepared for the 2012 baseline conditions (**Figure D.30**) and 2014 RTP prioritized projects through 2035 (**Figure D.31**).

The 2012 baseline conditions for bicycles show that there is a substantial amount of the defined network that has a score of red either due to a lack of bicycle lanes on collector or arterial roadways or traffic speeds greater than 40 mph. The baseline quality shows a composite score of 26 out of a maximum of 100 for the bicycle network (**Figure D.27**). As projects are implemented through 2035, the quality of the bicycle network improves through addition of the Monterey Bay Sanctuary Scenic Trail, Pajaro River Levee Trail and the Watsonville Slough trails, as well as a number of bicycle lane improvements along the roadways. Using this set of criteria, in order to have green scores along arterial routes where the speed limit is greater than or equal to 40 mph, some sort of buffer is needed to separate the bicycle facility from traffic. The composite score for 2035 is increased to 39 out of a maximum of 100. Bicycle multimodal network quality has been improved and thus the target has been met.

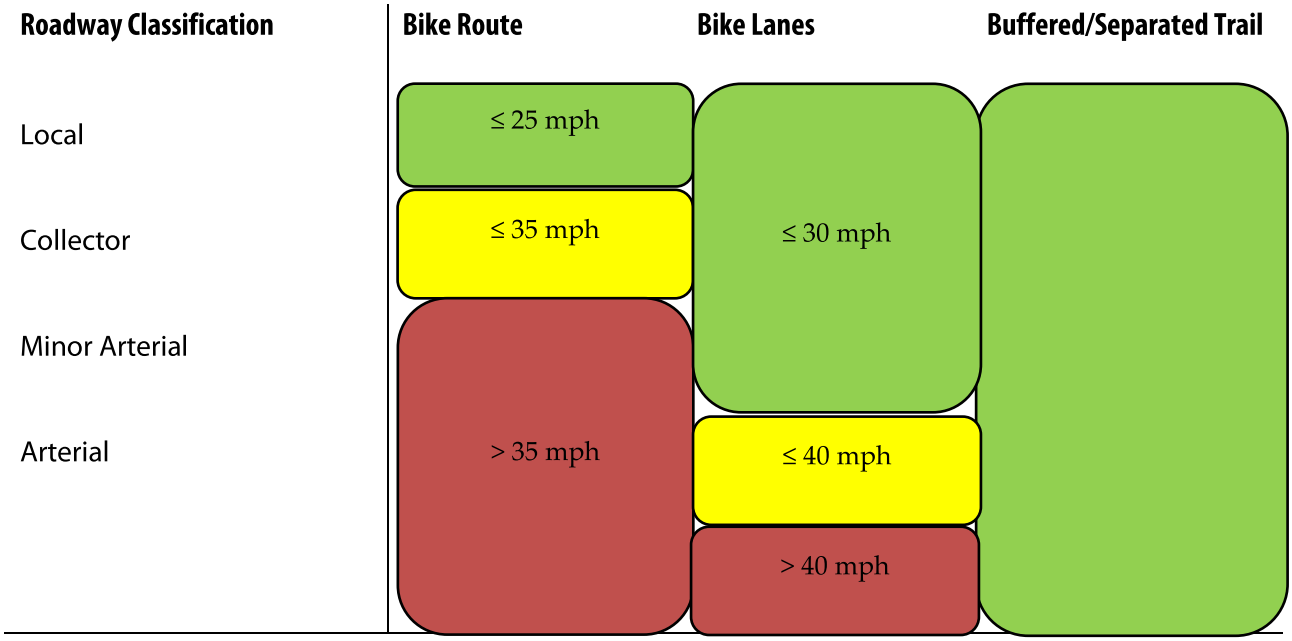



**Figure D.28 – Bike Score: Bicycle MMNQ Score**

*Source: Sustainable Transportation Council, Fehr & Peers*

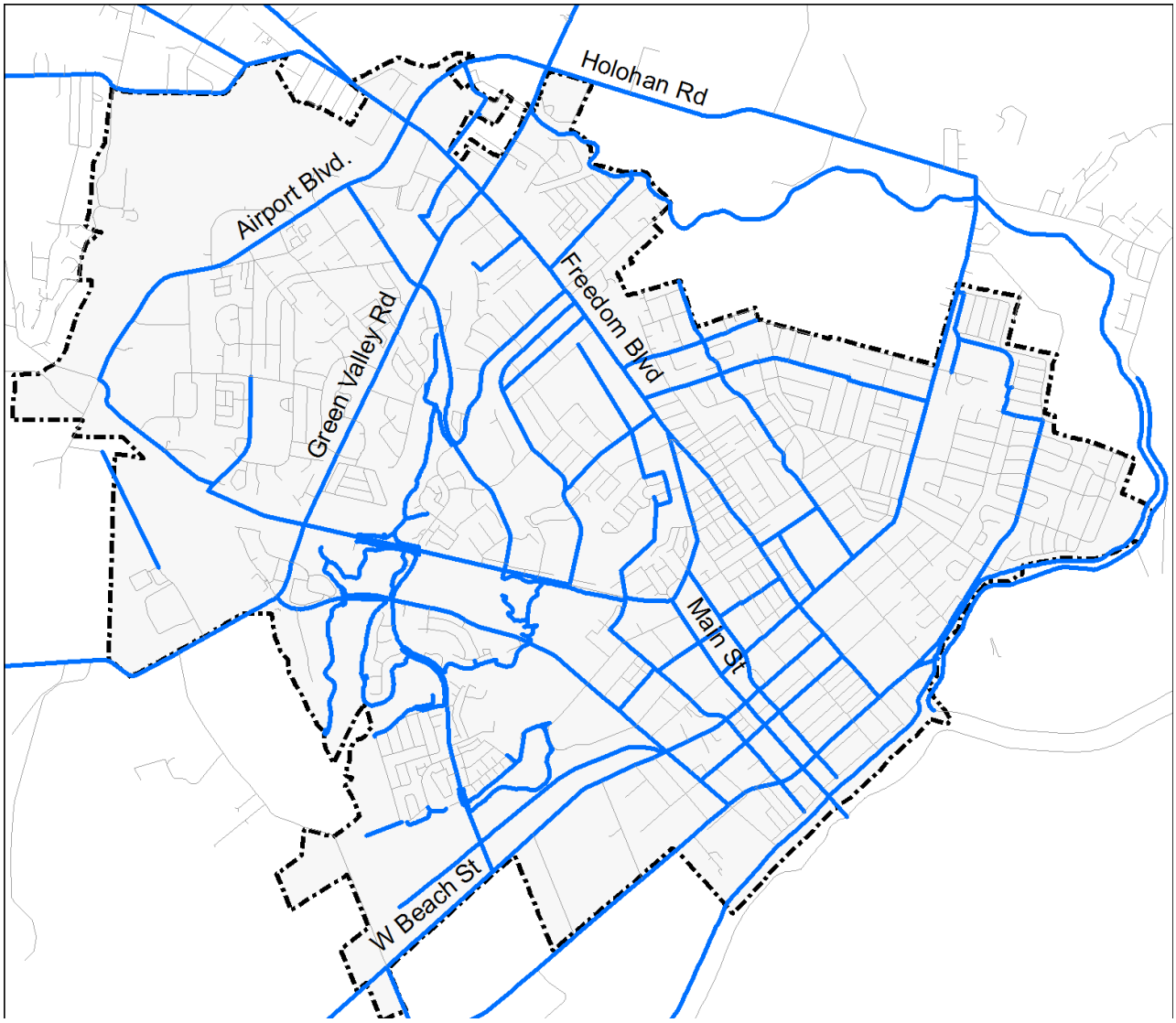



**Figure D.29 – Bicycle Network Identified for City of Watsonville**

*Source: Sustainable Transportation Council, Fehr & Peers*

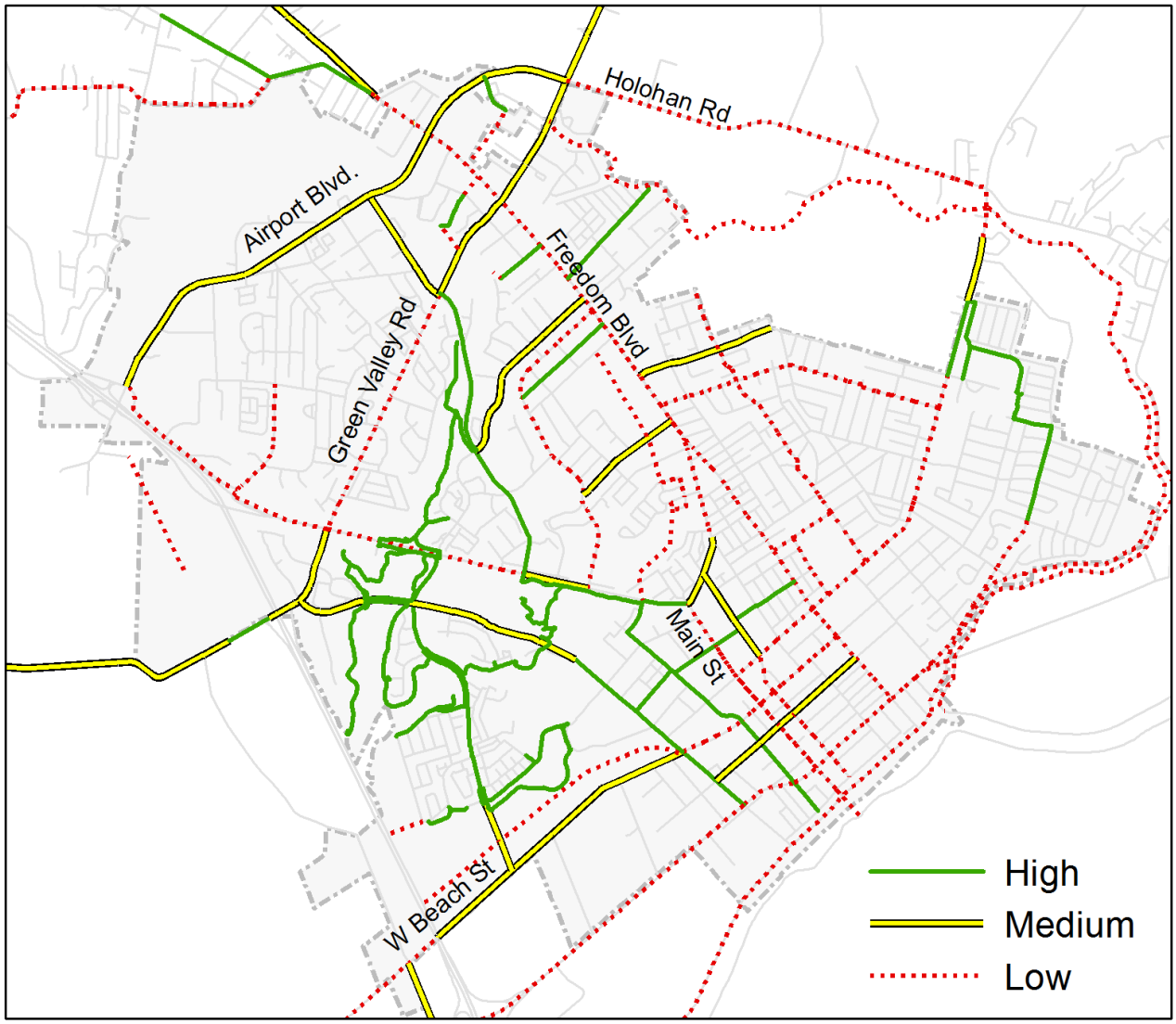



**Figure D.30 – 2012 Baseline of Bicycle Network in City of Watsonville with MMNQ Score**

*Source: Sustainable Transportation Council, Fehr & Peers*

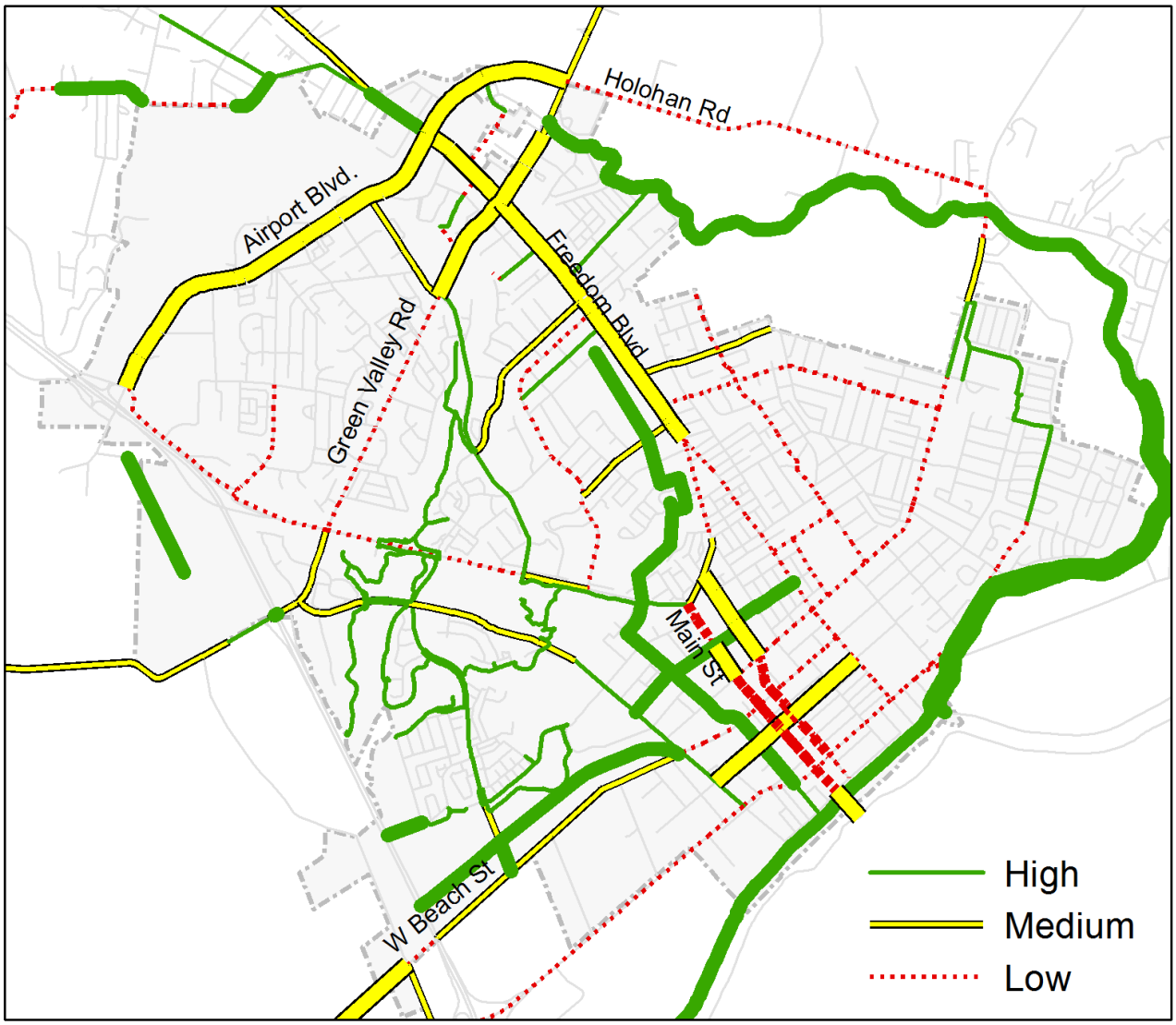



**Figure D.31 – 2035 Scenario of Bicycle Network in City of Watsonville with MMNQ Score***

*Source: Sustainable Transportation Council, Fehr & Peers*

**Wider lines designate location of projects that have been added to network through 2035.*

# Target 1E. Decrease single occupancy vehicle (SOV) VMT[29] mode share by 4 percent by 2020 and by 8 percent by 2035.[30]

## Target Development

Over the past decade, an increasing body of research links walking and bicycling to improved health, and high levels of driving to health problems.[31] Replacing trips traditionally made in a vehicle with walking or bicycling can lead to regular physical activity which can result in lower rates of chronic disease including cancer, diabetes, stroke and heart disease. According to research by Dr. Lawrence Frank of the University of British Columbia, "every hour a person spends in a car each day makes them six per cent more likely to be obese, while each additional kilometer a person walks makes them five per cent less likely to be obese."[32] Measuring the reduction in the number of miles people drive alone provides an estimate of the shift to walking, biking and taking transit, and thus is a barometer of physical activity and health for Santa Cruz County residents.

In order to set a target for active transportation, an average shift of 1 mile/day from single occupant vehicle to biking/walking was chosen. Given the 15.3 VMT/capita/day for Santa Cruz County for 2005, it is reasonable to assume that 1 mile out of this 15.3 miles/capita/workday can be replaced with bike/pedestrian trips. Since the regional travel demand model can provide a more accurate percent reduction in single occupant vehicle (SOV) mode share rather than a percent increase in active transportation mode share, the target is written as a reduction in SOV. One mile shift to active transportation out of 15.3 miles/day is 6.5% reduction in VMT. Additional increases in transit and HOV mode shares were assumed as well, resulting in a total target reduction in SOV of 8%. An average one mile per person reduction in VMT/day through a shift from driving to a combination of biking, walking, and walking to transit will burn approximately 400 calories/person/week[33] which can cause a reduction in weight of approximately 5 pounds per year[34]. Reducing single occupant vehicle (SOV) mode share not only has health benefits but also decreases climate pollution and fuel consumption, and retains money in the local economy.

## Forecasting Methodology

The reduction in the single occupant vehicle mode share for 2035 based on the projects prioritized for this 2014 RTP was determined using the results of the AMBAG regional travel demand model (RTDM) for 2010 and 2035. The mode split data from the 2035 travel demand model are based on person trips rather than VMT. The RTDM results were adjusted based on the postprocessing adjustments to the VMT/GHG as discussed under target 1B as the reductions in VMT will affect the split between modes. Assumptions for the average length of trips for each mode were made in order to get a mode share based on vehicle miles traveled.

## Baseline

The baseline for the percentage of single occupant vehicle mode share is also based on the results of the AMBAG regional travel demand model for 2010 model run. The model has been calibrated to the mode share determined from the 2011-2012 California Household Travel Survey data for the AMBAG region. The 2010 baseline SOV VMT mode share for Santa Cruz County is 58.6%.

### Results

The results from the regional travel demand model and postprocessing show that based on the projects prioritized in the 2014 RTP, the mode share is 52.2% for 2035. This equates to a reduction of 6.4%, which narrowly misses the target of 8%. Despite missing the SOV mode share target, a significant increase in non-auto travel is achieved, which will help to create a community where active transportation is more the norm.

## Target 2A. Reduce injury and fatal collisions by mode by 20% by 2020 and by 50% by 2035.

## Target 2B. Reduce total number of high collision locations.

### Target Development

The collision reduction target was based on similar targets that have been set in other regions of California as well as nationally. Based on the goals of the California Strategic Highway Safety Plan of 2006, the Metropolitan Transportation Commission for the San Francisco Bay Area set a target of 50% reduction in injuries and fatalities by 2040 for their 2013 Metropolitan Transportation Plan.[35] The FHWA's national highway safety objective "Towards Zero Deaths" and the American Association of State Highway and Transportation Officials (AASHTO) goal of halving fatalities in two decades are aggressive goals to improve transportation safety[36]. The California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) data indicates that there was a 13% decrease in injuries and fatalities from collisions in Santa Cruz County between 2002 and 2011. The target of 50% reduction in motor vehicle injuries and fatalities strives to continue this trend for motor vehicle safety into the future. The number of bicyclists and pedestrians that have been injured or killed in Santa Cruz County has not shown a reduction over the last decade (**Figure D.32**). The target of 50% reduction in injury and fatal collisions for bicyclists and pedestrians endeavors to considerably improve safety for the most vulnerable users of the transportation system.

In order to better assess collision levels, fatalities and injuries for all modes should be quantified relative to the number of miles traveled for that mode and look at patterns over multiple years. Typically, motor vehicle collisions are assessed through use of a Mileage Death Rate statistic which considers the number of collisions divided by the total vehicle miles of travel in a given area. Due to the lack of data on the number of miles traveled for bicyclists and pedestrians, this relative comparison is not possible. It is also important to evaluate the number of collisions over a number of years to better determine the trends in the data. As data and/or assessment methodologies become more available, this relative comparison may be possible in future RTPs.

### Forecasting Methodology

Given that projects included in planning documents, such as the RTP, do not include specific design information for projects, it is not possible to estimate the reduction in injuries and fatalities due to improvements in the transportation network. Therefore, safety improvements based on the 2014 RTP implementation have not been forecast. Instead, RTC staff has identified projects with the potential to improve safety and advance the safety targets especially for bicyclists and pedestrians. Projects such as

separated bicycle and pedestrian paths, intersection improvements, safety educational and enforcement programs, and State Highway Operation and Protection Program (SHOPP) projects are included in the 2014 RTP. Monitoring the number of injury and fatal collisions over time for motor vehicles, pedestrians and bicyclists will provide the best assessment for how targets are being advanced. Safety performance monitoring allows the RTC, Caltrans, and other entities to prioritize projects based on injury and fatal collision statistics.

### Baseline

A baseline for monitoring injury and fatal collisions in Santa Cruz County for motor vehicles, pedestrians and bicyclists was determined using the California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) collision database. This SWITRS data can be downloaded from the Transportation Injury Mapping System (TIMS) website that is a component of the Safe Transportation Research Education Center (SafeTREC) at the University of California, Berkeley[37]. This database is a comprehensive set of all reported transportation collisions throughout California. At the time of this writing, data from SWITRS is available through the year 2011. Injury and fatal collisions from the last 9 years can be found in **Figure D.32**. The baseline injury and fatal collisions for motor vehicles, pedestrian and bicyclists are taken from an average of 2009 through 2011 as shown in **Figure D.32**.

| SANTA CRUZ COUNTY | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | AVERAGE 2009-2011 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ped Injury and Fatal Collisions | 89 | 94 | 81 | 84 | 92 | 100 | 80 | 100 | 79 | 85 | 88 |
| Ped Injuries | 89 | 92 | 83 | 88 | 97 | 102 | 80 | 100 | 79 | 87 | 89 |
| Ped Fatalities | 6 | 7 | 2 | 5 | 3 | 4 | 3 | 4 | 3 | 2 | 3 |
| Bicycle Injury and Fatal Collisions | 150 | 171 | 160 | 151 | 152 | 145 | 191 | 180 | 145 | 169 | 165 |
| Bicycle Injuries | 147 | 169 | 159 | 149 | 152 | 149 | 189 | 177 | 149 | 171 | 166 |
| Bicycle Fatalities | 0 | 1 | 0 | 1 | 1 | 2 | 2 | 3 | 0 | 1 | 1 |
| Motor Vehicle Injury and Fatal Collisions | 1307 | 1387 | 1212 | 1218 | 1201 | 1231 | 1209 | 1210 | 1129 | 1139 | 1159 |
| Motor Vehicle Injuries | 1456 | 1563 | 1355 | 1320 | 1323 | 1336 | 1225 | 1239 | 1222 | 1153 | 1205 |
| Motor Vehicle Fatalities | 18 | 17 | 17 | 17 | 17 | 20 | 25 | 19 | 9 | 6 | 11 |

**Figure D.32 – Santa Cruz County Collision Data**

*Source: California Highway Patrol Statewide Integrated Traffic Records System (SWITRS) via the Transportation Injury Mapping System (TIMS)[38]*

### Results

Progress towards the target can be determined through monitoring the motor vehicle, bicycle and pedestrian injury and fatal collisions over time.

## Target 3A. Increase the average local road pavement condition index to 57 by 2020 and 70 by 2035.

### Target Development

Santa Cruz County continues to struggle to maintain its roadways. While some roads in the county are in good condition, the average Pavement Condition Index (PCI) for Santa Cruz County roads fell from a

rating of "At Risk" in 2008 to "Poor" in 2012; one of only seven counties in the state with a condition rating this low (**Figure D.33**).

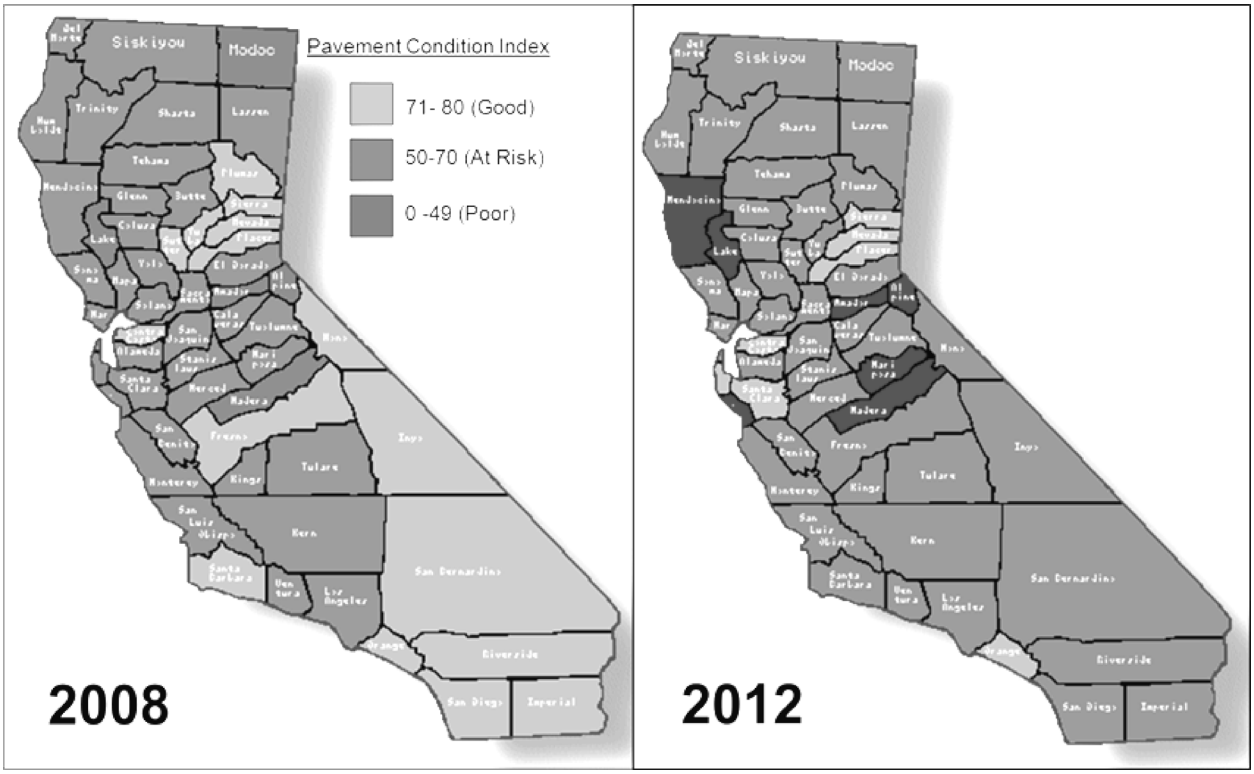



**Figure D.33 – 2008 and 2012 Pavement Condition Index Estimates for Counties in California**

*Source: California Statewide Needs Assessment Project.*[39]

Local jurisdictions in Santa Cruz County have estimated the cost to immediately address the backlog of roadway repairs that are needed to bring the average condition of the county roadway system to a PCI of 70 would be over $150 million. Achieving the pavement condition index target of 70 by 2035 will bring the rating up from "At Risk" to "Good". Once the pavement condition can be brought up to a rating of 70, the cost to maintain roadways is substantially reduced. As shown in **Figure D.34**, it is significantly more cost-effective to seal roadways on a regular basis to prolong their life than to rebuild roads that are severely deteriorated. For instance, road rehabilitation costs are 6 to 10 times more expensive than ongoing preventative maintenance ($800k-$2.5M vs $140K/mile over 20 year). Therefore, best practices are to maintain roadways at a PCI of 70-80, which will require the minimum amount of funds to maintain the system.

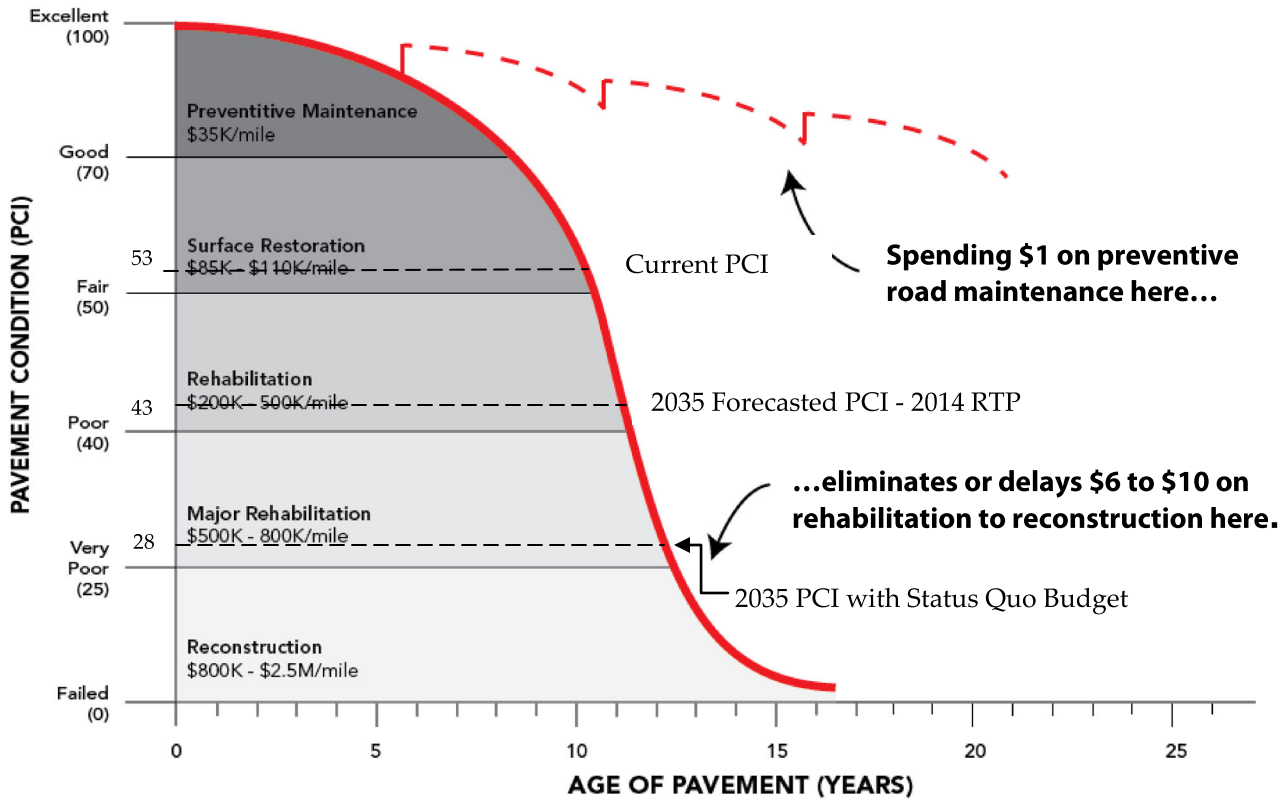



**Figure D.34 – Pavement Deterioration Curve - Cost per Mile to Maintain Local Roads**

*Note: Cost estimates relate only to pavement, (the area from curb to curb).*
*Source: Metropolitan Transportation Commission, Federal Highway Association, International Slurry Surfacing Association*

## Forecasting Methodology, Baseline and Results

The pavement condition index for 2035 has been estimated based on how much funding is allocated for maintenance in the financially constrained RTP project list. Due to a one-time influx of funds from Proposition 1B and the federal recovery act, the 2013 Santa Cruz County baseline PCI improved to 53, up from the 2012 PCI rating of 49. The projected PCI for 2035 was calculated from the latest estimates from each of the jurisdictions and the roadway centerline miles (**Figure D.35**). Based on the "State of the Pavement Report" for the Unincorporated County for both 2013[40] and 2011,[41] it was estimated that approximately $23 million per year countywide ($512 million through 2035) will be needed for pavement maintenance just to keep the PCI at the present level (PCI 53) (**Figure D.36**). The total operations and maintenance budget countywide to keep the PCI at the present level of 53 will require $33 million per year ($724 million through 2035). The amount of funds required to bring Santa Cruz County roads up to an average PCI of 70 is approximately $770 million for 22 years just for pavement and total funds for all operations and maintenance is approximately $980 million through 2035(**Figure D.36**). However, funding available countywide for local roadway operations and maintenance in the financially constrained RTP is $23 million/year ($515 million through 2035) of which approximately $14 million/year ($303 million through 2035) is available for pavement. Linearly interpolating the PCI at this level of funding provides an estimated PCI of 43 in 2035 (**Figure D.36**). Even with a significant share of the discretionary funding allocated for maintenance of local streets and roads (an increase of 10 million per year above typical

status quo budget) and assuming a sales tax and vehicle registration fee are approved by voters, the projected 2035 pavement condition index falls below existing conditions of 53 to a PCI of 43. If only the status quo amount of $3.2 million/year is spent on pavement maintenance ($12.8 million/year for all operations and maintenance) and additional funds are not designated to improving the pavement condition of local roads, the PCI is expected to drop to 28 by 2035 (**Figure D.36**).

The repercussions of deferred maintenance are alarming. **Figure D.34** shows how maintenance costs increase exponentially as the PCI of a pavement deteriorates. Plotted on this graph are the PCIs that are predicted for 2035 based on funding levels. Maintenance costs will double or triple if the current PCI of 53 drops to the forecasted PCI of 43 based on the level of funding of this RTP. If funding for maintenance stays at the typical status quo level, maintenance costs will increase by six times the current amount. Clearly, Santa Cruz County must continue to look for additional funding to maintain our current transportation network beyond the funding sources identified in the Financial Element of this RTP.

| Jurisdiction | Center Line Miles | Average PCI (2012-2013) | Annual Average Pavement Budget | Optimum Annual Pavement Budget |
|---|---|---|---|---|
| Capitola | 25 | 68 | $75,000 | $600,000 |
| City of Santa Cruz | 140 | 51 | $2,400,000 | $5,500,000 |
| Scotts Valley | 36 | 53 | Unavail. | Unavail. |
| Watsonville | 90 | 35 | $700,000 | $1,500,000 |
| Unincorporated County | 599 | 55 | $0 | $12-14M/yr |
| **Total Countywide** | **890** | **53** | $3,175,000 | $20M/year |

**Figure D.35 – 2012-2013 Pavement Condition Index for Jurisdictions in Santa Cruz County**

*Sources: Unincorporated County, Capitola, City of Santa Cruz, Scotts Valley, Watsonville*

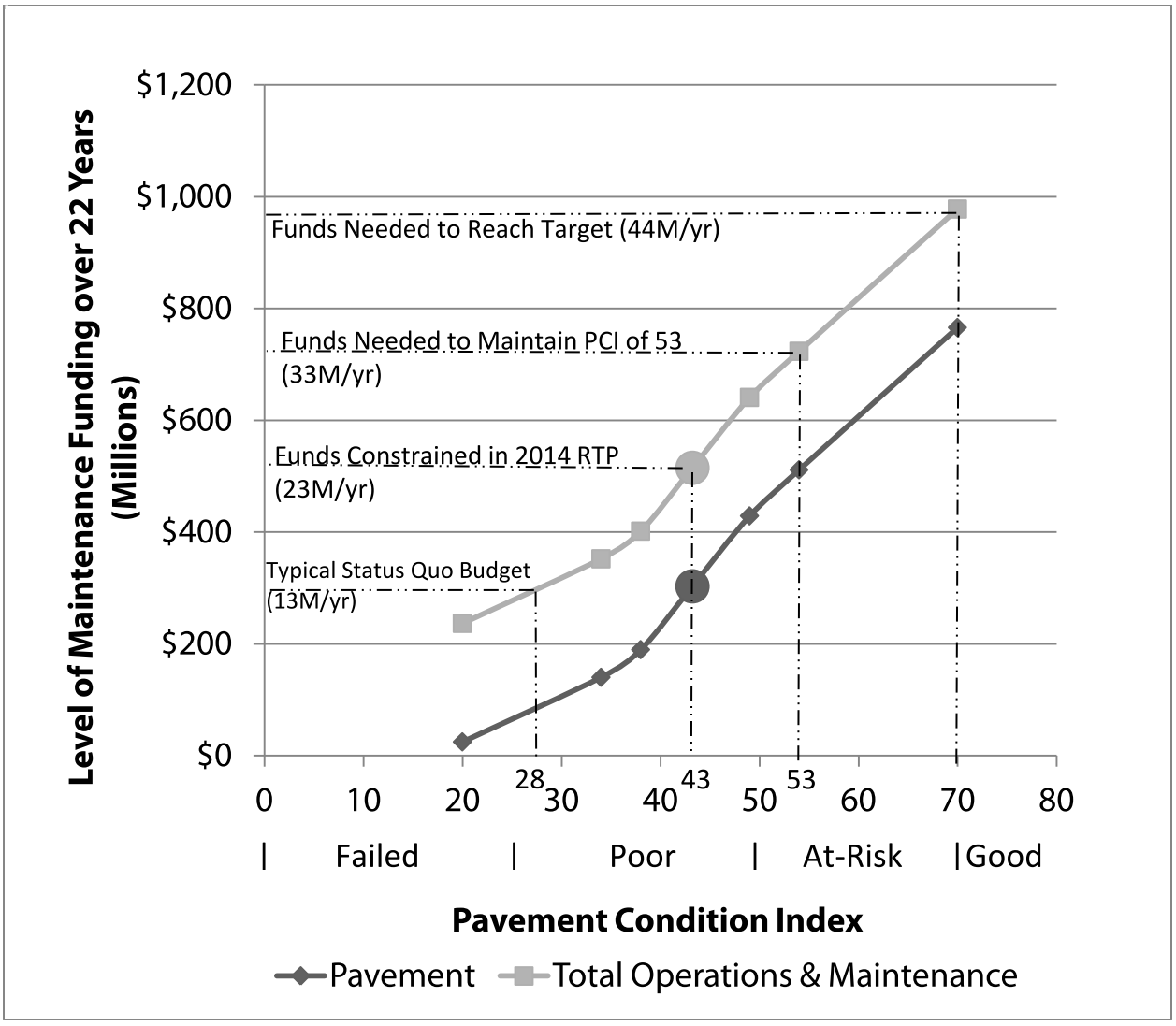



**Figure D.36 – Pavement Condition Index Relative to Level of Local Street and Road Maintenance Funding through 2035**

*Estimated PCI of 42 for 2035 based on level of maintenance funding in RTP project list.*

## Target 3B. Reduce the number of transportation facilities in "distressed" condition by 3 percent by 2020 and 5 percent by 2035.

### Target Development

"Distressed" facilities are defined as any roadway with a PCI of 49 or less (Poor (25 to 49) or Failed (0 to 24) rating). Local jurisdictions' pavement management systems or programs prioritize funding for keeping roadways that are in good condition maintained and slowly bringing the roads that are distressed into good repair. A reduction of 3 percent by 2020 and 5 percent by 2035 of the miles of transportation facilities that are distressed will follow this strategy.

### Forecasting Methodology

The number of "distressed" facilities will not be forecast for the 2035 project list as the project descriptions do not provide enough detail on how maintenance funds will be utilized. The public works departments of the local jurisdictions use a Pavement Management Strategy to best use limited funds for maintenance to balance out the facilities that are maintained at best practice levels with major road rehabilitation projects on "distressed" facilities. The number of "distressed" facilities can be monitored over time to assess how this target is being advanced based on updates to the pavement condition from the local jurisdictions. Similarly, the number of distressed transit facilities will be monitored over time to assess progress towards the target.

### Baseline

The 2013 baseline of "distressed" (Poor or Failed rating) roadway facilities is 38% based on the 2013 State of the Pavement Update for the unincorporated county (37% of 599 centerline miles) and the City of Santa Cruz (44% of 135 centerline miles). The unincorporated county and the City of Santa Cruz accounts for approximately four-fifths of the centerline miles in the county and thus is a good approximation for the entire county.

The baseline of "distressed" transit facilities could include buses, transit centers, bus shelters etc. The 2013 baseline of "distressed" transit facilities is 28% based on the number of buses that need to be replaced (31 out of 109 that have exceeded their useful life of 12 years). The average cost for a new bus is $469,000. Other transit facilities are also in distressed condition but they are more difficult to quantify.

### Results

The number of "distressed" roadway facilities can be monitored over time based on updates on the pavement condition from the local jurisdictions, primarily the State of the Pavement Report update from the unincorporated county. The Metro also tracks the age of their buses which can be monitored regularly.

## Target 3C. Reduce travel times and increase travel options for people who are transportation disadvantaged due to income, age, race, disability or limited English proficiency by increasing the percentage that are within a 30-minute walk, bike or transit trip to key destinations by 20% by 2020 and 40% by 2035.[42]

### Target Development

People experiencing poverty or language barriers, people of color, older adults, youth and people with disabilities (defined here as transportation disadvantaged) tend to experience a disproportionately small share of benefits from transportation investments, particularly because traditional transportation investment prioritize vehicles. These groups are overrepresented in households without access to a

vehicle. Other elements of the transportation system, such as lack of ADA compliance or safe street crossing also create extra barriers that may prevent these groups from experiencing the full benefit of transportation investments. This target strives to address these inequities by analyzing the population of transportation disadvantaged people that are able to access key destinations within 30 minutes by walk, bike or transit.

RTC identified key destinations throughout Santa Cruz County based on locations of employment centers[43] and commercial centers (determined from the local jurisdictions land use zoning maps in their general plans). These destinations are mapped in

**Figure D.**3 and listed under Target 1A. The transportation disadvantaged population that is within a 30 minute walk or bike from the central point of each key destination based on existing and proposed facilities is assessed to see how well this target is advanced given the projects prioritized in the 2014 RTP. Land use changes that locate more people near key destinations are another factor affecting the number of people who can access goods and services, but were not considered when developing this target because land use is outside the purview of the RTC.

The baseline transportation disadvantaged population and maximum possible population that are within a 30 minute distance via walk and bike from key destinations were determined as discussed below. The target for 2035 was set to close the gap between the 2010 baseline population and the maximum possible population by 40% by 2035 and an intermediate target of 20% by 2020.

## Forecasting Methodology

The forecasting methodology for this target is the same as Target 1A. Please refer to that section for details. The only difference is that instead of total population, subgroups of population that may be transportation disadvantaged are analyzed at the transportation analysis zone (TAZ) level – the unit of geographic area that is used by the travel demand model. The subgroups are detailed below:

- Populations under the age of 18 and over 70, and
- Populations with household incomes less than $15,000, and
- Minority populations

## Baseline

The baselines for each of the key destinations are shown in **Figure D.37**. The transportation disadvantaged population within 30 minutes of each of the destinations is based on the population data from the 2010 census.

| Transportation Disadvantaged Population within 30 minutes of Key Destinations | | | | | | |
|---|---|---|---|---|---|---|
| | 2010 Population within a 30-minute walk | | 2010 Population within a 30-minute bike ride | | 2010 Population within a 30-minute transit trip | |
| Area | Population | Proportion of County | Population | Proportion of County | Population | Proportion of County |
| Downtown Santa Cruz | 12,716 | 8.0% | 52,812 | 33.2% | 46,624 | 29.3% |
| Scotts Valley | 2,934 | 1.8% | 8,353 | 5.3% | 18,609 | 11.7% |
| UC Santa Cruz | 812 | 0.5% | 29,016 | 18.3% | 30,135 | 19.0% |
| Soquel Dr (Soquel to Mattison) | 2,479 | 1.6% | 53,049 | 33.4% | 47,890 | 30.1% |
| 41st Ave near Hwy 1 | 7,042 | 4.4% | 47,718 | 30.0% | 44,151 | 27.8% |
| Capitola Village | 4,229 | 2.7% | 42,644 | 26.8% | 37,459 | 23.6% |
| Cabrillo College | 1,258 | 0.8% | 30,423 | 19.1% | 33,098 | 20.8% |
| Green Valley / Freedom | 11,834 | 7.4% | 52,983 | 33.3% | 55,930 | 35.2% |
| Watsonville Hospital | 7,517 | 4.7% | 52,275 | 32.9% | 40,459 | 25.4% |
| Downtown Watsonville | 15,888 | 10.0% | 51,830 | 32.6% | 40,355 | 25.4% |

**Figure D.37 – Transportation Disadvantaged Population within 30 Minutes of Key Destinations – Baseline Conditions**

**Figure D.38** shows the aggregate population within 30 minutes of the key destinations.

| Transportation Disadvantaged Population within 30 minutes of Key Destinations | | |
|---|---|---|
| Travel Mode | Population within 30 minutes of any key destination | |
| | Population | Proportion of County |
| Walk | 61,194 | 38.5% |
| Bike | 125,170 | 78.7% |
| Transit | 93,514 | 58.8% |

**Figure D.38 – Total Transportation Disadvantaged Population within 30 Minutes of any Key Destination – Baseline Conditions**

**Figure D.39** shows the maximum minority and transportation disadvantaged population within 30 minutes of any of the key destinations based on universal bicycle and pedestrian facility coverage.

| Transportation Disadvantaged Population within 30 minutes of Key Destinations | | | | |
|---|---|---|---|---|
| Area | Maximum 2010 Population within a 30-minute walk | | Maximum 2010 Population within a 30 minute bike ride | |
| | Population | Proportion of County | Population | Proportion of County |
| DT Santa Cruz | 15,296 | 9.6% | 54,306 | 34.2% |
| Scotts Valley | 5,331 | 3.4% | 10,528 | 6.6% |
| UC Santa Cruz | 3,040 | 1.9% | 29,177 | 18.4% |
| Soquel Dr (Soquel to Mattison) | 8,920 | 5.6% | 54,597 | 34.3% |
| 41st St near Hwy 1 | 12,411 | 7.8% | 51,262 | 32.2% |
| Capitola Village | 7,633 | 4.8% | 47,849 | 30.1% |
| Cabrillo College | 3,870 | 2.4% | 32,853 | 20.7% |
| Green Valley / Freedom | 17,896 | 11.3% | 58,448 | 36.8% |
| Watsonville Hospital | 9,852 | 6.2% | 56,958 | 35.8% |
| Downtown Watsonville | 22,330 | 14.0% | 54,126 | 34.0% |

**Figure D.39 – Minority and Transportation Disadvantaged Population within 30 Minutes of Key Destinations – Maximum Possible**

**Figure D.40** shows the aggregate population within 30 minutes of the key destinations.

| Transportation Disadvantaged Population within 30 minutes of Key Destinations | | |
|---|---|---|
| Travel Mode | Maximum 2010 Population within 30 minutes of any key destination | |
| | Population | Proportion of County |
| Walk | 88,053 | 55.4% |
| Bike | 133,529 | 84.0% |

**Figure D.40 – Maximum Total Minority and Transportation Disadvantaged Population within 30 Minutes of any Key Destination**

## Results

**Figure D.41** shows the results for 2035 assuming that the walk and bike projects that have been prioritized (constrained) in the 2014 RTP are implemented. This analysis does not account for any shifts in population distribution that may occur in the county through 2035. Given current focus on mixed use and higher density housing near key destinations, the percentage of the population that would live near key destination areas will likely increase. Thus the percentage of the population within a 30 minute walk or bike from key destinations would be even greater. Only an analysis on walk and bike access was performed since there was no information available about how future transit routes will be configured.

| Transportation Disadvantaged Population within 30 minutes of Key Destinations | | | | |
|---|---|---|---|---|
| Area | Population within a 30 minute walk | | Population within a 30 minute bike ride | |
| | Population | Proportion of County | Population | Proportion of County |
| Downtown Santa Cruz | 12,839 | 8.1% | 53,038 | 33.4% |
| Scotts Valley | 2,959 | 1.9% | 8,868 | 5.6% |
| Watsonville Hospital | 7,517 | 4.7% | 53,039 | 33.4% |
| UC Santa Cruz | 812 | 0.5% | 29,179 | 18.4% |
| Soquel Dr (Soquel to Mattison) | 3,556 | 2.2% | 53,447 | 33.6% |
| 41st Ave near Hwy 1 | 7,507 | 4.7% | 49,557 | 31.2% |
| Capitola Village | 4,880 | 3.1% | 46,544 | 29.3% |
| Cabrillo College | 1,281 | 0.8% | 31,060 | 19.5% |
| Green Valley / Freedom | 11,982 | 7.5% | 53,380 | 33.6% |
| Downtown Watsonville | 16,151 | 10.2% | 51,871 | 32.6% |

**Figure D.41 – Transportation Disadvantaged Population within 30 Minutes of Key Destinations based on 2014 RTP Project List**

**Figure D.42** shows the aggregate population within 30 minutes of any of the ten key destinations.

| Transportation Disadvantaged Population within 30 minutes of Key Destinations | | | | |
|---|---|---|---|---|
| | 2010 Baseline | 2014 RTP Implementation | 2035 Target | Maximum Population |
| Travel Mode | % of Population | % of Population | % of Population | % of Population |
| Walk | 38.5% | 39.6% | 45.2% | 55.4% |
| Bike | 78.7% | 79.0% | 80.8% | 84.0% |

**Figure D.42 – Total Transportation Disadvantaged Population within 30 Minutes of any Key Destination based on 2014 RTP Project List**

**Figure D.43** summarizes the findings.

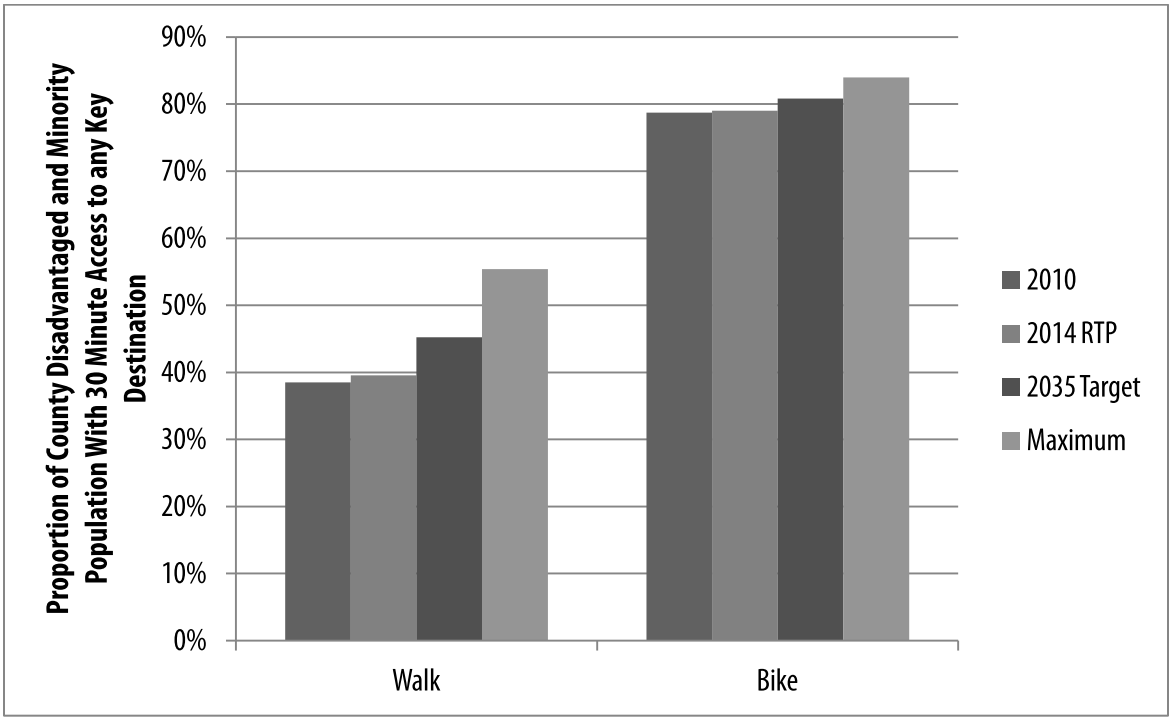



**Figure D.43 – Walk and Bicycle Access Improvements near Key Destinations for Transportation Disadvantaged Population**

The results show that despite investment in additional pedestrian and bicycle infrastructure, the proportion of the transportation disadvantaged population within 30 minutes of key destinations does not substantially increase (**Figure D.43**). The target for 2035 (**Figure D.42**) was set to close the gap between the 2010 baseline population and the maximum possible population by 40%. It was calculated by taking 40% of the difference between the baseline and the maximum possible population within the key

destinations and adding to the baseline (**Figure D.42**). Closing the gap by 40% is equivalent to increasing the percentage of the population within 30 minutes of key destinations by 2.1% for bike and 6.7% for walk by 2035. Progress is made towards the target but the 2035 target to close the gap by 40% between the 2010 baseline and the maximum population was not met. The gap between the 2010 baseline and the maximum population was closed by 6% for bike and 6% for walk compared to the 40% target.

This analysis shows that larger proportions of the transportation disadvantaged population relative to the total population live near key destinations and that large portions of the county currently have robust bicycle infrastructure that provides good connectivity near key destinations. By investing in active transportation projects with emphasis in key destination areas, transportation disadvantaged people will receive a greater benefit from these investments than the total population.

## Target 3D. Ensure transportation services (and impacts) are equitably distributed to all segments of the population.

### Target Development

A disproportionately small share of benefits from transportation investments that traditionally prioritize vehicles tend to be realized by disadvantaged populations such as: low income individuals, persons with language barriers, older adults, youth, people of color, and people living with disabilities. These groups are overrepresented in households without access to a vehicle. Other elements of the transportation system, such as lack of Americans with Disabilities Act (ADA) compliance or safe street crossings also create extra barriers that may prevent disadvantaged groups from experiencing the full benefit of transportation investments. Both federal and state laws require that regional transportation system improvements do not have a disproportionate adverse impact on low income or other under-represented groups, and that minority and low income populations receive equal benefits, on an equally timely basis, as other populations. The target is to ensure transportation services and impacts are equitably distributed.

### Forecasting Methodology

A geographic analysis was performed by AMBAG to assess equity considerations of the 2014 MTP and 2014 RTP transportation projects and programs. Each regional transportation project was mapped in order to determine whether it is located within or adjacent to areas of low income and/or minority populations based on 2010 census data.

### Results

The analysis showed that of all the funding allocated for regional projects within Santa Cruz County through 2035, 85% benefit low income populations, 82% benefit poverty populations and 80% benefit minority populations. Given the high level of regional projects and programs that benefit low income, poverty and minority populations, transportation services and impacts are equitably distributed to all segments of the population.

# Target 3E. Maximize participation from diverse members of the public in RTC planning and project implementation activities.

## Target Development

Inclusion of the wide spectrum of community interests in the development of the RTP is a key part of the process. The greater the level of involvement, the more likely the plan will serve the needs of the community and further advance the goals of the RTP. The Santa Cruz County Regional Transportation Commission makes use of various methods to provide interested parties with timely information and opportunities to participate in the planning process. The outreach strategies are designed and adapted to generate a robust and informed level of broad-based citizen involvement. The target is to maximize participation from the public.

## Results

The RTC joined AMBAG, Monterey and San Benito Counties to develop a public participation plan for the region that identified opportunities for outreach. Components of the plan that have been implemented for developing the 2014 RTP include, but are not limited to:

- Workshops and solicitation of input at various junctures in the development of the RTP to provide information and gain feedback from public
- Maintenance of an email distribution list of community-based groups throughout the county, including neighborhood, health, senior, faith, environmental, low-income, and other social support groups
- Regular updates sent to the email distribution list that informs the public about the RTP process and solicits input
- Community surveys
- Work with citizen and advisory committees
- Information, including sections of the RTP as developed, posted on the RTC website
- Notifications about public hearings
- Bulletins to media partners
- Hard copies of documents available at local libraries
- Bilingual translation of materials, as appropriate

Participation by all in development of the 2014 RTP has been encouraged, consistent with the adopted Public Participation Plan, available online at www.ambag.org.

## Notes for Appendix C

[1] The targets are relative to the 2010 maximum population within the key destinations and will close the gap between the baseline population and maximum population by 20% by 2020 and 40% by 2035.

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[3] Joe Cortright, "Portland's Green Dividend," CEOs for Cities, Chicago, Illinois (2007), http://blog.oregonlive.com/commuting/2009/09/pdxgreendividend.pdf.

[4] "Travel Time Reliability Measures," Operations Performance Measurement Program, U.S. Department of Transportation, Federal Highway Administration, accessed January 2014, http://ops.fhwa.dot.gov/perf_measurement/reliability_measures/index.htm.

[5] "Intersection Safety," U.S. Department of Transportation, Federal Highway Administration, accessed January 2014, http://safety.fhwa.dot.gov/intersection/.

[6] The targets are relative to the 2010 maximum population and will close the gap between the baseline population and maximum population by 20% by 2020 and 40% by 2035.

[7] "OnTheMap," U.S. Census Bureau, Center for Economic Studies, accessed December 2013, http://onthemap.ces.census.gov.

[8] Barth and Boriboonsomsin, "Traffic Congestion and Greenhouse Gases," *Access*, Number 35. University of California Transportation Center, Berkeley, CA (Fall 2009).

[9] Barbara Lee, "Quantifying Greenhouse Gas Mitigation Measures," California Air Pollution Control Officers Association (August 2010), http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.

[10] Cambridge Systematics, Inc., "Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions," Urban Land Institute, Washington, D.C. ( 2009).

[11] Criterion Planners/Engineers and Fehr & Peers Associates, "Index 4D Method: A Quick-Response Method of Estimating Travel Impacts from Land-Use Changes," Technical Memorandum, prepared for the U.S. Environmental Protection Agency, Washington D.C. (October 2001).

[12] "Metropolitan Transportation Plan Sustainable Communities Strategy 2035," Sacramento Area Council of Governments, accessed January 2014, http://www.sacog.org/2035/mtpscs/.

[13] See note 11 above.

[14] See note 9 above.

[15] See note 10 above.

[16] See note 11 above.

[17] See note 10 above.

[18] See note 9 above.

[19] *California Executive Order S-3-05*, Governor Arnold Schwarzenegger, State of California, June 2005, http://gov.ca.gov/news.php?id=1861.

[20] "Obama Administration Finalizes Historic 54.5 MPG Fuel Efficiency Standards," Office of the United States Press Secretary, The White House (August 28, 2012), http://www.whitehouse.gov/the-press-office/2012/08/28/obama-administration-finalizes-historic-545-mpg-fuel-efficiency-standard.

[21] 2014 dollars.

[22] Joe Cortright, "The Green Dividend," CEO for Cities, accessed December 2013, http://www.ceosforcities.org/city-dividends/green/.

[23] See note 22 above.

[24] Civic Economics, "Buy Local First, Indie Impact Study Series 2013: A National Comparative Study, Utah, Salt Lake City, Ogden and Wayne County," accessed January 2014, http://www.localfirst.org/component/k2/item/217.

[25] "Travel Time Reliability Measures," U.S. Department of Transportation, Federal Highway Administration, Operations Performance Measurement Program, accessed December 2013, http://www.ops.fhwa.dot.gov/perf_measurement/reliability_measures.

[26] "Caltrans Performance Measurement System (PeMS)," California Department of Transportation, accessed January 2014, http://pems.dot.ca.gov/.

[27] Cambridge Systems, Inc., "Analytical Procedures for Determining the Impacts of Reliability Mitigation Strategies," Transportation Research Board, Washington D.C. (2013), http://www.trb.org/Main/Blurbs/166935.aspx.

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[29] Vehicle Miles Traveled.

[30] Mode share in this context is based on VMT, not trips. A 4 percent decrease in single occupancy vehicle mode share includes increasing bicycle trip mode share to 6 percent and pedestrian mode share to 8 percent by 2020. An 8 percent decrease in single occupancy vehicle mode share includes increasing bicycle trip mode share to 10 percent and pedestrian trip mode share to 14 percent by 2035.

[31] Barbara McCann, "Driving, Walking, and Where You Live: Links to Obesity – A report on new research being published in the *American Journal of Preventive Medicine*, 'Obesity Relationships with Community Design, Physical Activity, and Time Spent in Cars,'" McCann Consulting, accessed December 2013, http://www.ahtd.info/yahoo_site_admin/assets/docs/JournalofPreventiveMedicine_linkbetweendrivingobesity.14484631.pdf.

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[38] See note 37 above.

[39] "Reports," Save California Streets, accessed December 2013, http://www.savecaliforniastreets.org/reports.html.

[40] Nichols Consulting Engineers, "State of the Pavements, 2013 Update," Santa Cruz County Public Works (2013).

[41] Nichols Consulting Engineers, "State of the Pavements, 2011 Update," Santa Cruz County Public Works (2011).

[42] The targets are relative to the 2010 maximum population within the key destinations and will close the gap between the baseline population and maximum population by 20% by 2020 and 40% by 2035.

[43] "OnTheMap," U.S. Census Bureau, Center for Economic Studies, accessed December 2013, http://onthemap.ces.census.gov.

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# Appendix E

## Funding Projections 2018-2040

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# 2040 RTP FINANCIAL ELEMENT: Funding projections through 2040

*(all figures in $000's)*

| REVENUE SOURCES/PROGRAMS | Funding Type/ Eligible Uses | Base Year | 2018-2020 Not Esclated | 2021-2035 Not Esclated | 2036-2040 Not Esclated | 22 Year Total Not Escalated | *22 Year Escalated** |
|---|---|---|---|---|---|---|---|
| City Sales Taxes Used on Transportation | Local Streets-Roads | $ 2,650 | $ 5,300 | $ 39,750 | $ 13,250 | **$ 58,300** | *$ 70,373* |
| City/County Developer Fees | Local Streets-Roads | $ 1,295 | $ 2,590 | $ 19,425 | $ 6,475 | **$ 28,490** | *$ 34,390* |
| City/County General Funds for Transportation Projects | Local Streets-Roads | $ 10,075 | $ 20,150 | $ 151,125 | $ 50,375 | **$ 221,650** | *$ 267,551* |
| Non-Profit, Member Fees, Private Donations | Flexible | $ 770 | $ 1,540 | $ 11,550 | $ 3,850 | **$ 16,940** | *$ 20,448* |
| LiftLine Specialized Transportation - Non-TDA revenue | Transit | $ 730 | $ 1,460 | $ 10,950 | $ 3,650 | **$ 16,060** | *$ 19,386* |
| Airport Revenues | Airport | $ 2,820 | $ 5,640 | $ 42,300 | $ 14,100 | **$ 62,040** | *$ 74,888* |
| MTC Contribution to Hwy 17 Safety Project | Hwy- Safe on 17 CHP | $ 50 | $ 100 | $ 750 | $ 250 | **$ 1,100** | *$ 1,328* |
| Rail Line Lease Revenue | Rail Corridor | $ 90 | $ 180 | $ 1,350 | $ 450 | **$ 1,980** | *$ 2,390* |
| Regional Vehicle Registration Fee (VRF) | Local Streets-Roads | $ 2,000 | $ - | $ 21,000 | $ 10,000 | **$ 31,000** | *$ 34,969* |
| Transit Fares | Transit | $ 10,300 | $ 20,600 | $ 154,500 | $ 51,500 | **$ 226,600** | *$ 273,526* |
| Transit non-fare revenue | Transit | $ 500 | $ 1,000 | $ 7,500 | $ 2,500 | **$ 11,000** | *$ 13,278* |
| Transit Fuel Tax Credit | Transit | $ 550 | $ 1,100 | $ 8,250 | $ 2,750 | **$ 12,100** | *$ 14,606* |
| Transit Sales Tax | Transit | $ 20,000 | $ 40,000 | $ 300,000 | $ 100,000 | **$ 440,000** | *$ 531,119* |
| Transportation Development Act/LTF | Transit | $ 9,060 | $ 18,120 | $ 135,900 | $ 45,300 | **$ 199,320** | *$ 240,597* |
| UCSC Revenues & Fees | UCSC | $ 7,550 | $ 15,100 | $ 113,250 | $ 37,750 | **$ 166,100** | *$ 200,497* |
| Measure D: 2016 Transportation Sales Tax | Measure D | $ 20,000 | $ 40,000 | $ 300,000 | $ 100,000 | **$ 440,000** | *$ 531,119* |
| AB2766 | Flexible | $ 200 | $ 400 | $ 3,000 | $ 1,000 | **$ 4,400** | *$ 5,311* |
| Airport Improvement Program match | Airport | $ 7 | $ 14 | $ 105 | $ 35 | **$ 154** | *$ 189* |
| California Aid to Airports Program | Airport | $ 10 | $ 20 | $ 150 | $ 50 | **$ 220** | *$ 270* |
| Freeway Service Patrol (approx. 33% from SB1) | Highway -FSP | $ 250 | $ 500 | $ 3,750 | $ 1,250 | **$ 5,500** | *$ 6,639* |
| Service Authority for Freeways and Expressways (SAFE) | Highway | $ 250 | $ 500 | $ 3,750 | $ 1,250 | **$ 5,500** | *$ 6,639* |
| State Highway Operations and Protection Program (SHOPP) | Highway - SHOPP | $ 20,720 | $ 41,440 | $ 310,800 | $ 103,600 | **$ 455,840** | *$ 550,239* |
| SB 1 RMRA SHOPP | Highway - SHOPP | $ 10,620 | $ 21,240 | $ 159,300 | $ 53,100 | **$ 233,640** | *$ 282,024* |
| State Gas Tax to Locals (Highway User Tax) | Local Streets-Roads | $ 10,350 | $ 20,700 | $ 155,250 | $ 51,750 | **$ 227,700** | *$ 227,700* |
| SB1 RMRA Local Gas Tax | Local Streets-Roads | $ 6,715 | $ 13,430 | $ 100,725 | $ 33,575 | **$ 147,730** | *$ 147,730* |
| SB 1 CA General Fund Loan Repayment | Local Streets-Roads | $ 460 | $ 920 | $ 460 | $ - | **$ 1,380** | *$ 1,380* |
| State Transit Assistance (STA) | Transit | $ 1,940 | $ 3,880 | $ 29,100 | $ 9,700 | **$ 42,680** | *$ 51,518* |
| SB1 STA | Transit | $ 1,600 | $ 3,200 | $ 24,000 | $ 8,000 | **$ 35,200** | *$ 42,489* |
| SB 1 - STA State of Good Repair (SOGR) | Transit | $ 670 | $ 1,340 | $ 10,050 | $ 3,350 | **$ 14,740** | *$ 17,792* |
| STIP - Regional Share (est. 45% from SB1) | Flexible | $ 3,635 | $ 15,794 | $ 54,281 | $ 18,176 | **$ 88,251** | *$ 97,708* |
| Active Transportation Program (80% SB1) | Active Transportation | $ 3,435 | $ 6,870 | $ 51,525 | $ 17,175 | **$ 75,570** | *$ 91,220* |
| Low Carbon Transit Operations Program (LCTOP) | Transit | $ 400 | $ 800 | $ 6,000 | $ 2,000 | **$ 8,800** | *$ 10,622* |
| SB1 Local Partnership Program - Formula | 1/2 METRO, 1/2 flexible | $ 600 | $ 1,200 | $ 9,000 | $ 3,000 | **$ 13,200** | *$ 13,200* |
| SB1 Competitive Programs (Congested Corridors, Trade Corridors, TICRP, LPP, etc) | Flexible | $ 2,700 | $ 5,400 | $ 40,500 | $ 13,500 | **$ 59,400** | *$ 59,400* |
| Affordable Housing & Sustainable Communities | Flexible | $ 530 | $ 1,060 | $ 7,950 | $ 2,650 | **$ 11,660** | *$ 12,353* |
| Enhanced Mobility of Seniors and Individuals with Disabilities (5310) | Transit | $ 115 | $ 230 | $ 1,725 | $ 575 | **$ 2,530** | *$ 3,054* |
| State Planning (5304) | Planning | $ 40 | $ 80 | $ 600 | $ 200 | **$ 880** | *$ 1,062* |
| Metropolitan Planning (5303) | Transit | $ 4 | $ 8 | $ 60 | $ 20 | **$ 88** | *$ 106* |
| Rural Area Formula Program (5311) | Transit | $ 195 | $ 390 | $ 2,925 | $ 975 | **$ 4,290** | *$ 5,178* |
| Urbanized Area Formula Program (5307) | Transit | $ 4,380 | $ 8,760 | $ 65,700 | $ 21,900 | **$ 96,360** | *$ 116,315* |
| Small Transit Intensive Cities (5307c) | Transit | $ 2,300 | $ 4,600 | $ 34,500 | $ 11,500 | **$ 50,600** | *$ 61,079* |

*(all figures in $000's)*

| REVENUE SOURCES/PROGRAMS | Funding Type/ Eligible Uses | Base Year | 2018-2020 Not Esclated | 2021-2035 Not Esclated | 2036-2040 Not Esclated | 22 Year Total Not Escalated | *22 Year Escalated** |
|---|---|---|---|---|---|---|---|
| Bus and Bus Facilities Formula Program (5339) | Transit | $ 450 | $ 900 | $ 6,750 | $ 2,250 | **$ 9,900** | *$ 11,950* |
| Bus and Bus Facilities Discretionary Program (5339b) | Transit | $ 1,000 | $ 2,000 | $ 15,000 | $ 5,000 | **$ 22,000** | *$ 26,556* |
| High Risk Rural Road (HR3) | Local Streets-Roads | $ 260 | $ 520 | $ 3,900 | $ 1,300 | **$ 5,720** | *$ 6,905* |
| Highway Bridge Program (HBP) | Local Streets-Roads | $ 2,750 | $ 5,500 | $ 41,250 | $ 13,750 | **$ 60,500** | *$ 73,029* |
| Highway Safety Improvement Program (HSIP) | Local Streets-Roads | $ 1,400 | $ 2,800 | $ 21,000 | $ 7,000 | **$ 30,800** | *$ 37,178* |
| Surface Transportation Block Grant (STBG) | Flexible | $ 3,500 | $ 7,000 | $ 52,500 | $ 17,500 | **$ 77,000** | *$ 92,946* |
| Federal Lands Access Program (FLAP) | MBSST | $ - | $ 6,000 | $ - | $ - | **$ 6,000** | *$ 6,000* |
| FEMA/CALEMA/ER - Emergency Road Repair Funding | Local Streets-Roads | $ 1,050 | $ 2,100 | $ 15,750 | $ 5,250 | **$ 23,100** | *$ 27,884* |
| FAA Airport Improvement Program (AIP) | Airport | $ 150 | $ 300 | $ 2,250 | $ 750 | **$ 3,300** | *$ 3,983* |
| | | **$ 171,126** | **$ 352,776** | **$ 2,551,206** | **$ 853,331** | **$ 3,757,313** | ***$ 4,428,113*** |

**Average escalation rate assumption: 1.75% applied to funds beyond existing programmed; except sources with set annual amount or predicted to flatline.*

# Appendix F

## Project List

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# 2040 Regional Transportation Plan Project List

## *Constrained and Unconstrained Projects - Not Escalated*

*Projects listed by lead agency, in alphabetical order by project name.*
*Project IDs without the letter "P" in front of the number have been also included in the Regional Transportatioon Improvement Program.*
*"Constrained" represents amount of project cost that could be funded with revenues anticipated through 2040.*
*While some projects have secured funding, this amount does not typically represent committed funds. "Unconstrained" represents amount of project cost that would need additional funding in order to be implemented.*

*All Figures in year 2016, '000s (thousands of dollars)*

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| ***Caltrans*** | | | | | |
| Collision Reduction & Emergency Projects | CT-P46 | Various SHOPP projects that address collision reduction, mandates (including stormwater mandates) and emergency projects. (Constrained=30% of total cost). | $732,380 | $219,714 | $512,666 |
| Hwy 1/Harkins Slough Road Interchange: Bicycle/Pedestrian Bridge | WAT 01A | Construction of Pedestrian/Bicycle Bridge over Highway 1. Caltrans Project ID 05-1G490 | $9,900 | $9,900 | $0 |
| Hwy 17 Access Management - Laurel Rd/Sugarloaf Rd/Glenwood Cutoff Area Grade Separation Concept | CT-P52 | New structure providing grade-separation to facilitate crossing and turnaround. | $40,000 | $0 | $40,000 |
| Hwy 17 Access Management - Multimodal Improvements | CT-P50 | Multimodal improvements including park and ride improvements, and facilities serving separated bike/ped crossing or express transit route. | $20,000 | $0 | $20,000 |
| Hwy 17 Access Management - Old Santa Cruz Hwy Area Grade Separation Concept | CT-P53 | New structure providing grade-separation to facilitate crossing and turnaround. | $40,000 | $0 | $40,000 |
| Hwy 17 Access Management - Operational Improvements | CT-P49 | Operational improvements to existing facilities including ramp modifications, accel/decel lanes, turning lanes, driveway consolidation, driveway channelization, etc. | $50,000 | $0 | $50,000 |
| Hwy 17 Access Management - Vine Hill Area Grade Separation Concept | CT-P51 | New structure providing grade-separation to facilitate crossing and turnaround. | $40,000 | $0 | $40,000 |
| Hwy 17 Wildlife Habitat Connectivity | CT-P48 | Wildlife Crossing | $9,198 | $9,198 | $0 |
| Measure D Hwy 9 Corridor Projects | CT-P09e | Corridor study is underway to identify need for shoulder widening, turnouts for buses, bicycle and pedestrian improvements, and turn lanes at spot locations in SLV. Capital Cost Est. TBD. | $10,000 | $7,349 | $2,651 |
| Minors | CT-P47 | Various small SHOPP projects (less than $1 million) that reduce/enhance maintenance efforts by providing minor operational, pavement rehab, drainage, intersection, electrical upgrades, landscape and barrier improvements. (Constrained=30% of total cost). | $8,600 | $2,580 | $6,020 |
| State Highway Preservation (bridge, roadway, roadside) | CT-P45 | Various SHOPP projects that address bridge preservation, roadway & roadside preservation and limited mobility improvements. (Constrained=30% of cost to maintain). | $778,390 | $467,163 | $311,227 |
| | | **Caltrans Total** | **$1,738,468** | **$715,904** | **$1,022,564** |
| ***CHP - California Highway Patrol*** | | | | | |
| Hwy 129 Safety Program | CHP-P03 | Additional CHP enforcement and public education campaign on Highway 129. | $500 | $0 | $500 |
| Hwy 17 Safety Program | CHP-P01 | Continuation of Highway 17 Safety Program in Santa Cruz County at $100/year. Includes public education and awareness, California Highway Patrol (CHP) enhancement, pilot cars, electronic speed signs. | $2,200 | $2,200 | $0 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Traffic Management | CHP-P02 | Patrol of state route system and unincorporated roadways aimed at minimizing traffic collisions and traffic delays; and provide assistance to motorists. COST EST TBD. | $0 | $0 | $0 |
| | | **CHP - California Highway Patrol Total** | **$2,700** | **$2,200** | **$500** |
| ***City of Capitola*** | | | | | |
| 40th Ave (at Deanes Ln)Bike/Ped connection | CAP-P46 | 40th Avenue N/S bike/pedestrian connection at Deanes Lane. | $10 | $10 | $0 |
| 40th Ave/Clares St Intersection Improvements | CAP-P38 | Widen intersection and signalize. | $1,550 | $1,050 | $500 |
| 41st Ave (Soquel to Portola) Crosswalks | CAP-P47 | Evaluate and if found necessary, increase number of crosswalks on 41st to closer to every 300 ft. | $20 | $20 | $0 |
| 41st Ave/Capitola Road Intersection Improvements | CAP-P37 | Widen intersection and reconfigure signal phasing. | $520 | $520 | $0 |
| 46th/47th Ave (Clares to Cliff Dr) Bike Lanes/Traffic Calming | CAP-P40 | 46th/47th from Clares to Portola/Cliff - Add traffic calming and wayfinding signage to connect to Brommer and MBSST. | $20 | $20 | $0 |
| 47th Avenue Traffic Calming and Greenway | CAP-P30 | Traffic calming and traffic dispersion improvements along 47th Ave from Capitola Rd to Portola Drive and implementation of greenway, which gives priority to bicycles and pedestrians on low volume, low speed streets including, pedestrian facilities, way finding and pavement markings, bicycle treatments to connect to MBSST. | $100 | $100 | $0 |
| Auto Plaza Drive Extension to Bay Avenue | CAP-P35 | Extend Auto Plaza Drive over Soquel Creek to Bay Avenue. Includes improvements to Auto Plaza Drive. | $10,330 | $0 | $10,330 |
| Bay Avenue Traffic Calming and Bike/Ped Enhancements | CAP-P29 | Traffic calming features along Bay Avenue from Highway 1 to Monterey Avenue, including left turn pocket, buffered pedestrian facilities and bicycle treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals) to address speed inconsistency between bicyclists and vehicles. | $410 | $210 | $200 |
| Bay Avenue/Capitola Avenue Intersection Modifications/Roundabout | CAP 16 | Multimodal improvements to intersection. Roundabout. | $1,000 | $1,000 | $0 |
| Bay Avenue/Hill Street Intersection | CAP-P07 | Intersection improvements to improve traffic flow. Roundabout. | $210 | $210 | $0 |
| Bay Avenue/Monterey Avenue Intersection Modification | CAP-P32 | Multimodal improvements to the intersection. Include signalization or roundabout along with pedestrian, bicycle treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals) and transit access. | $310 | $310 | $0 |
| Brommer Street Complete Street Improvements (250' west of 38th Ave to 41st Ave) | CAP 18 | Construct complete street roadway improvements on Brommer St. to improve access for vehicles, bikes, and pedestrians. Pavement reconstruction, install ADA driveways and sidewalks, and reconfigure eastbound approach to 41st Ave. for vehicle access. | $770 | $770 | $0 |
| Brommer/Jade/Topaz St Bike Lanes/Traffic Calming (Western City Limit on Brommer to 47thAve) | CAP-P41 | Add buffered bike lanes, traffic calming and wayfinding signage and bike/ped priority crossing at 41st Ave, connecting the two N/S neighborhood greenways. | $20 | $20 | $0 |
| Capitola Intra-City Rail Trolley | CAP-P18 | Construct & Operate Weekend Rail Trolley Service. Project includes installation of 3 stations. | $14,460 | $0 | $14,460 |
| Capitola Jitney Transit Service | CAP-P15 | Purchase and operate local transit service. | $1,030 | $0 | $1,030 |
| Capitola Mall (Capitola Rd to Clares) Bike Path | CAP-P48 | Separated bicycle facility through Capitola Mall parking lot to connect 38th Ave bike lanes and 40th Ave. | $50 | $50 | $0 |

*All Figures in year 2016, '000s (thousands of dollars)*

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Capitola Rd & 45th Avenue I/S Improvements | CAP-P53 | Signalization or other LOS improvements | $400 | $400 | $0 |
| Capitola Village Enhancements: Capitola Ave | CAP-P34 | Multimodal enhancements along Capitola Avenue. | $1,030 | $1,030 | $0 |
| Capitola Village Multimodal Enhancements - Phase 2/3 | CAP-P04b | Multimodal enhancements in Capitola Village along Stockton Ave, Esplanade, San Jose Ave, & Monterey Av. Includes sidewalks, bike lanes, bike lockers, landscaping, improve transit facilities, parking, pavement rehab and drainage. | $3,100 | $3,100 | $0 |
| Capitola-wide HOV priority | CAP-P50 | Evaluate HOV priority at signals and HOV queue bypass. | $40 | $40 | $0 |
| Citywide Bike Projects | CAP-P52 | Bike projects based on needs identified through the Bicycle Plan. These projects are in addition to projects listed individually in the RTP. | $1,030 | $400 | $630 |
| Citywide General Maintenance and Operations | CAP-P06 | Ongoing maintenance, repair, and operation of road/street system within the City limits. (Const=$1850K/yr; Unconst=$150K/yr). | $44,000 | $40,666 | $3,334 |
| Citywide Sidewalk Program | CAP-P51 | Install sidewalks to fill gaps. Annual Cost $50k/yr. | $1,030 | $520 | $510 |
| Citywide Traffic Calming | CAP-P17 | Install traffic calming/neighborhood livability improvements. | $1,450 | $1,450 | $0 |
| Clares St Bike Lanes/Sharrows (Capitola Rd to 41st Ave) | CAP-P42 | Evaluate and if found necessary, add bike lanes/sharrows to Clares. | $100 | $100 | $0 |
| Clares St/41st Ave Bicycle Intersection Improvement | CAP-P43 | Bike treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals) at Clares across 41st. | $10 | $10 | $0 |
| Clares Street Pedestrian Crossing west of 40th Ave | CAP-P16 | Construct signalized ped x-ing 0.20 miles west of 40th Ave. | $520 | $250 | $270 |
| Clares Street Traffic Calming | CAP 11 | Implementation of traffic calming measures: chicanes, center island median, new bus stop, and road edge landscape treatments to slow traffic. Construct new safe, accessible ped x-ing at 42nd and 46th Av. | $750 | $750 | $0 |
| Cliff Drive Improvements | CAP-P05 | Installation of sidewalks, pedestrian crossing and slope stabilization of embankment including seawall. | $1,550 | $1,550 | $0 |
| Gross/41st Ave Bicycle Intersection Improvement | CAP-P44 | Bike treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals) from Gross E/B to 41st N/B. | $20 | $20 | $0 |
| Hwy 1/41st Avenue Interchange | CAP-P01 | Implement 41st Avenue & Bay Ave/Porter Ave single interchange improvements as detailed and expensed in Hwy 1 HOV project (RTC 24) as a stand alone project if the RTC project does not proceed. ($117M) | $0 | $0 | $0 |
| Monterey Avenue and Park Avenue I/S Improvements | CAP-P56 | Signalization or other LOS improvements | $400 | $400 | $0 |
| Monterey Avenue at Depot Hill | CAP-P28 | Improve vehicle ingress and egress to Depot Hill along Escalona Ave and improve pedestrian facilities. | $260 | $260 | $0 |
| Monterey Avenue Multimodal Improvements | CAP-P12 | Installation of sidewalks and bike lanes in area near school and parks. | $360 | $360 | $0 |
| Park Avenue Sidewalks | CAP 15 | Installation of sidewalks, plus crosswalks at Cabrillo and Washburn to improve access to transit stops. Links Cliffwood Heights neighborhood to Capitola Village. Currently only 4 short segments of sidewalk exist. | $650 | $650 | $0 |
| Park Avenue/Kennedy Drive Improvements | CAP-P09 | Construct intersection improvements, especially for bikes/peds. May include traffic signal. | $360 | $360 | $0 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Porter Street and Highway 1 I/S Improvements | CAP-P55 | Add additional dedicated right turn lane on Porter St to northbound on ramp | $250 | $250 | $0 |
| Stockton Ave Bridge Rehab | CAP-P07p | Replace bridge with wider facility that includes standard bike lanes and sidewalks. | $3,000 | $1,500 | $1,500 |
| Stockton Avenue and Capitola Avenue I/S Improvements | CAP-P57 | Signalization or other LOS improvements | $350 | $350 | $0 |
| Upper Capitola Avenue Improvements | CAP-P03 | Installation of bike lanes and sidewalks on Capitola Av. (Bay Av.-SR 1) and sidewalks on Hill St. from Bay Av. to Rosedale Av. | $1,340 | $1,340 | $0 |
| Upper Pacific Cove Parking Lot Pedestrian Trail and Depot Park Metro Development | CAP 17 | Construct 4 foot wide pedestrian pathway along City owned Upper Pacific Cove Parking lot, adjacent to rail line (680'). Includes new signal for ped crossing over Monterey Avenue. Includes a new metro shelter located and landscaped setting along the rail corridor/Park Ave. Part of MBSST. | $310 | $310 | $0 |
| Wharf Road and Stockton Avenue I/S Improvements | CAP-P54 | Signalization or other LOS improvements | $350 | $350 | $0 |
| Wheelchair Access Ramps | CAP-P27 | Install wheelchair access/curb cut ramps on sidewalks citywide. | $200 | $200 | $0 |
| | | **City of Capitola Total** | **$93,670** | **$60,906** | **$32,764** |
| ***City of Santa Cruz*** | | | | | |
| Almar Ave Sidewalks | SC-P126 | Fill gaps in sidewalks and access ramps to improve pedestrian safety. | $200 | $200 | $0 |
| Arroyo Seco Trail (Medar St to Grandview St) | SC-P107 | Pave existing gravel trail and widen and pave connection to Grandview St. | $500 | $0 | $500 |
| Bay Street Corridor Modifications | SC-P77 | Intersection modifications on Bay St Corridor from Mission St to Escalona Dr, including widening at the Mission St northeast corner and widening on Bay. Improve bike lanes and add sidewalks to west side of Bay. | $5,100 | $970 | $4,130 |
| Bay/California Traffic Signals | SC-P96 | Install traffic signals for safety and capacity improvements. | $520 | $0 | $520 |
| Bay/High Intersection Modification | SC-P109 | Install a roundabout or modify the traffic signal to include protected left-turns and new turn lanes. Revise sidewalks, access ramps and bike lanes as appropriate. | $2,150 | $2,150 | $0 |
| Beach/Cliff Intersection Signalization | SC-P93 | Signalize intersection for pedestrian and train safety. | $210 | $210 | $0 |
| Branciforte Creek Pedestrian Path Connections | SC-P95 | Fill gaps in pedestrian and bike paths along and across Branciforte Creek in the Ocean-Lee-Market-May Streets area. | $3,410 | $0 | $3,410 |
| Brookwood Drive Bike and Pedestrian Path | SC-P21 | Provide 2-way bicycle and pedestrian travel. | $1,030 | $0 | $1,030 |
| Chestnut St. Pathway | SC-P22 | Install a Class 1 bicycle/pedestrian facility to connect the east side of Neary Lagoon Park with the Depot Park path. | $570 | $570 | $0 |
| Chestnut Street Bike Lanes | SC-P47 | Install Class 2 bike lanes to provide connection from existing bike lanes on Laurel Street and upper Chestnut Street to proposed Class 1 bike path connections to Bay Street and Pacific Avenue/Beach Street. | $100 | $100 | $0 |
| Citywide Operations and Maintenance | SC-P07 | Ongoing maintenance, repair, and operation of street system within the City limits. (Const=$3.0M/yr; Unconst=$4.2M/yr) | $163,630 | $86,249 | $77,381 |
| Citywide Safe Routes to School Projects - ATP | SC-P125 | Projects to improve pedestrian and bicycle safety near schools. | $8,204 | $1,404 | $6,800 |

*All Figures in year 2016, '000s (thousands of dollars)*

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Citywide Street Sweeping | SC-P128 | Ongoing street sweeping, funded from City Refuse Enterprise Fund. | $19,800 | $19,800 | $0 |
| Delaware Avenue Complete Streets | SC-P23 | Fill gaps in bicycle lanes, sidewalks and sidewalk access ramps. | $150 | $150 | $0 |
| High St/Moore St Intersection Modification | SC-P90 | Add a protected left turn to existing signalized intersection along High St at city arterial. Project is located in high pedestrian and bicycle use activity area. | $100 | $100 | $0 |
| Hwy 1 - Harvey West Area Alternative Access | SC-P108 | Development of an on/off ramp from NB Highway 1 to Harvey West Boulevard/Evergreen St, to improve access, especially during peak congestion times and emergencies. | $4,130 | $0 | $4,130 |
| Hwy 1 Sound Wall | SC-P03 | Install sound wall on Hwy 1: River to Chestnut. | $520 | $0 | $520 |
| Hwy 1/9 Intersection Modifications | SC 25 | Intersection modifications including new turn lanes, bike lanes, shoulders, lighting, sidewalks and access ramps. Includes adding second left-turn lane on Highway 1 southbound to Highway 9 northbound; second northbound through lane and shoulder on northbound Highway 9, from Highway 1 to Fern Street; a right-turn lane and shoulder on northbound Highway 9; through-left turn lane on northbound River St; replace channelizers on Highway 9 at the intersection of Coral Street; sufficient lane width along the northbound through/left turn lane on Highway 9 from Fern Street to Encinal Street; new sidewalk along the east side of Highway 9 from Fern Street north to Encinal Street; new through/left turn lane on southbound Highway 9; Traffic Signal interconnect to adjacent signals. (Caltrans project ID - 05-46580) | $7,850 | $7,850 | $0 |
| Hwy 1/Mission St at Chestnut/King/Union Intersection Modification | SC-P81 | Modify design of existing intersections to add lanes and upgrade the traffic signal operations to add capacity, reduce delay and improve safety. Provide access ramps and bike lanes on King and Mission. Includes traffic signal coordination. | $4,650 | $4,650 | $0 |
| Hwy 1/San Lorenzo Bridge Replacement | SC 38 | Replace the Highway 1 bridge over San Lorenzo River to increase capacity, improve safety and improve seismic stability, from Highway 17 to the Junction of 1/9. Reduce flooding potential and improve fish passage. Caltrans Project ID 05-0P460 | $20,000 | $20,000 | $0 |
| Hwy 1/Shaffer Rd Signalization | SC-P92 | Signalization of intersection of Hwy 1 and Shaffer Rd. Project may includes some widening of Hwy 1 to accommodate a left turn lane. | $520 | $0 | $520 |
| King Street Bike Facility (entire length) | SC-P59 | Install Class 2 bike lanes on residential collector street which includes some parking and landscape strip removals, and some drainage inlet modifications. | $2,070 | $2,070 | $0 |
| King/Laurel Intersection Modification | SC-P114 | Modify unsignalized intersection to add eastbound right turn lane. | $100 | $0 | $100 |
| Laurent/High Intersection Improvements | SC-P97 | Install Traffic Signal. | $410 | $0 | $410 |
| Lump Sum Bike Projects | SC-P75 | Bike projects based on needs identified through the Active Transportation Plan and Santa Cruz City Schools Complete Streets Master Plan. These are in addition to projects listed individually in the RTP. | $6,800 | $0 | $6,800 |
| Market Street Sidewalks and Bike Lanes | SC-P105 | Completion of sidewalks and bicycle lanes. Includes retaining walls, right-of-way, tree removals, and a bridge modification. | $1,030 | $1,030 | $0 |
| MBSST (Coastal Rail Trail): Segment 7 (Natural Bridges to Pacific Ave) | TRL 07SC | 2.1 miles of Monterey Bay Sanctuary Scenic Trail Network (MBSST) Segment 7 along rail line (excluding Moore Creek rail trestle bridge and trail to Natural Bridges Drive). | $7,400 | $7,400 | $0 |
| MBSST (Coastal Rail Trail_ - Segment 8 and 9) | TRL 8-9a | Rail Trail Design, Environmental Clearance and Construction along the rail corridor between Pacific Ave in the City of Santa Cruz to 17th Ave in Santa Cruz County | $32,934 | $32,934 | $0 |
| Measure H Road Projects | SC-P104 | Road rehabilitation and reconstruction projects citywide to address backlog of needs using Measure H sales tax revenues. (Some Measure H funds anticipated to fund specific projects listed in the RTP). | $41,800 | $41,800 | $0 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Mission St (Hwy 1)/Laurel St Intersection Modification | SC-P112 | Modify traffic signal to add right-turn from Mission St to Laurel St and signal overlap phase. | $1,030 | $0 | $1,030 |
| Mission St (Hwy 1)/Swift St Intersection Modification | SC-P113 | Modify traffic signal to add Swift St right-turn lane and signal overlap phase. | $500 | $0 | $500 |
| Morrissey Blvd. Bike Path over Hwy 1 | SC-P29 | Install a Class 1 bicycle and pedestrian facility on freeway overpass. | $300 | $300 | $0 |
| Morrissey/Poplar/Soquel Intersection Modification | SC-P12 | Modify the roadway configuration in the Morrissey/Poplar/Soquel triangle area to improve traffic circulation and safety for all modes. | $2,070 | $0 | $2,070 |
| Murray St Bridge Retrofit | SC 37 | Seismic retrofit of existing Murray St. bridge (36C0108) over Woods Lagoon at harbor and associated approach roadway improvements and replacement of barrier rail. Includes wider bike lanes and sidewalk on ocean side. Include access paths to harbor if eligible. | $11,440 | $11,440 | $0 |
| Murray St to Harbor Path Connection | SC-P30 | Install a Class 1 bicycle/pedestrian facility. | $210 | $210 | $0 |
| Neighborhood Traffic Management Improvements | SC-P73 | Install traffic control devices and roadway design features to manage neighborhood traffic. | $2,580 | $0 | $2,580 |
| North Branciforte/Water Intersection Modification | SC-P115 | Modify traffic signal and add additional lanes per traffic study. Include signal interconnect if applicable. | $2,070 | $0 | $2,070 |
| Ocean St and San Lorenzo River Levee Bike/Ped Connections (Felker, Kennan, Blain, Barson Streets) | SC-P120 | Improve pedestrian and bicycle facilities on side streets to connect Ocean Street with San Lorenzo River Levee path system. | $620 | $0 | $620 |
| Ocean St Pavement Rehabilitation | SC 48 | Pavement rehabilitation using cold-in-place recycling process; includes new curb ramps, restriping of bicycle lanes and crosswalks. | $1,030 | $1,030 | $0 |
| Ocean St Streetscape and Intersection, Plymouth to Water | SC-P86 | Implement this phase of the Ocean Street plan and modify Plymouth St to provide separate turn lanes and through lanes, widen sidewalks, pedestrian islands/bulbouts, transit improvements, street trees, street lighting and medians landscaping improvements. This includes pedestrian and bicycle crossing improvements and detection and connectivity to the pedestrian and bicycle path on the San Lorenzo River and adjacent neighborhoods. Include Gateway treatment. | $4,130 | $2,000 | $2,130 |
| Ocean St Streetscape and Intersection, Water to Soquel | SC-P84 | Implement this phase of the adopted Ocean Street plan including adding turn lanes on Ocean Street at the Water Street intersections, wider sidewalks, pedestrian crossing islands/bulb outs, transit improvements, street trees, pedestrian scale street lights, and medians improvements, way finding, and pedestrian and bicycle connectivity to San Lorenzo Park and neighborhoods. | $6,200 | $0 | $6,200 |
| Ocean Street Corridor Multiuse Transit Lane | SC-P122 | Consider restricting parking to develop business access and transit (BAT) lane to serve tourism and improving transit facilities. | $410 | $0 | $410 |
| Ocean Street Widening from Soquel to East Cliff | SC-P66 | Implement this phase of the Ocean Street plan that includes utility undergrounding, bike lanes, wider sidewalks, pedestrian crossing islands/bulb outs, transit improvements, pedestrian scale street lights, street trees and left turn lanes at Broadway and a right-turn lane at San Lorenzo Blvd. This includes pedestrian and bicycle crossing improvements and detection and connectivity to the pedestrian and bicycle path on the San Lorenzo River and adjacent neighborhoods. | $5,170 | $0 | $5,170 |
| Ocean Street/San Lorenzo River Levee Area Wayfinding | SC-P124 | Install signage on the bike/ped scale to bike/ped facilities connecting key destinations. | $150 | $0 | $150 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Pacific Ave. Sidewalk | SC 50 | Construct 200' of new sidewalk on Pacific Avenue between Front Street and 55 Front St, including installation of a new accessible crosswalk at Front and Pacific; 150' bike lane. | $440 | $440 | $0 |
| River (Rte 9)/Fern Intersection Modification | SC-P110 | Install traffic signal, sidewalk and new access ramps. Provide bike lanes on Fern. | $520 | $0 | $520 |
| River St/River Street South Intersection Modification | SC-P116 | Install a roundabout or traffic signal to improve access and safety to the Downtown core, integrating bike and pedestrian facilities. | $520 | $0 | $520 |
| River Street Pavement Rehabilitation (Water St to Potrero Street) | SC 51 | Pavement rehabilitation of River Street between Water Street and Potrero Street. (0.4 mi) | $2,000 | $1,000 | $1,000 |
| Riverside Ave/Second St Intersection Modification. | SC-P13 | Modify intersection to reduce congestion and improve pedestrian crossing. | $175 | $175 | $0 |
| San Lorenzo River Bike/Ped Trail at RR Bridge | TRL 8a | Widen existing four foot walkway that connects the east end of the Beach Street Pathway with East Cliff Drive at the location of the current railroad bridge over the San Lorenzo River and to connect the east and west banks of the San Lorenzo River Pathway. The crossing currently only accommodates pedestrians. | $1,550 | $1,550 | $0 |
| San Lorenzo River Levee Path Connection | SC-P35 | Install a Multi-Use bicycle/pedestrian facility connecting the end of the San Lorenzo River Levee path on the eastern side of the river, up East Cliff Drive near Buena Vista Ave. | $2,070 | $2,070 | $0 |
| Seabright Avenue Bike Lanes (Pine-Soquel) | SC-P69 | Install Class 2 bike lanes on arterial street to complete the Seabright Avenue bike lane corridor and connect to bike lane corridor on Soquel Avenue and Murray. Includes removal of some parking and some landscape strips. | $2,070 | $2,070 | $0 |
| Seabright/Murray Traffic Signal Modifications | SC-P100 | Remove split phasing on Seabright and add right-turn lane northbound. | $1,030 | $1,030 | $0 |
| Seabright/Water Intersection Improvements | SC-P99 | Modify unsignalized intersection to add northbound right and extend left-turn pocket. | $100 | $0 | $100 |
| Shaffer Road Widening and Railroad Crossing | SC-P91 | Construction of a new crossing of the Railroad line at Shaffer Rd. and widening at the southern leg of Shaffer in conjunction with development. Complete sidewalks and bike lanes. | $1,000 | $1,000 | $0 |
| Sidewalk Program | SC-P09 | Install and maintain sidewalks and access ramps. | $20,660 | $5,500 | $15,160 |
| Soquel Ave at Frederick St Intersection Modifications | SC 42 | Widen to improve eastbound through-lane transition on Soquel Ave and lengthen right-turn pocket and bicycle lane on Frederick St. Upgrade access ramps. | $310 | $310 | $0 |
| Soquel Ave Corridor Widening (Branciforte-Morrissey) | SC-P87 | Minor widening and signal modifications along Soquel Ave corridor from Branciforte to Morrissey Blvd to widen sidewalks, transit improvements, improve pedestrian and bicycle detection and crossings, add a travel lane, maintain some commercial parking and improve existing bike lanes. Replacing the split phasing with protected left-turns at Branciforte to reduce delays for all modes of travel and GHG. | $2,320 | $0 | $2,320 |
| Soquel/Branciforte/Water (San Lorenzo River to Branciforte) Bike Lane Treatments | SC-P123 | Consider bike treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals) to address speed inconsistency and parking conflicts between bicyclists and vehicles. | $410 | $410 | $0 |
| Soquel/Water (Branciforte to Morrissey) Crosswalks | SC-P119 | Evaluate and if found necessary implement additional crosswalks on Soquel/Water with consideration for safety, and update crosswalks to more visible pattern (block). | $300 | $150 | $150 |
| Storey/King Street Intersection Left-Turn Lane | SC-P76 | Remove parking and modify striping for second southbound left turn lane. | $100 | $0 | $100 |
| Swift/Delaware Intersection Roundabout or Traffic Signal | SC-P101 | Install Traffic Signal or Roundabout at Intersection to improve capacity and safety. | $500 | $500 | $0 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Water Street Pavement Rehabilitation(N. Branciforte Ave- Ocean St) | SC 49 | Pavement rehabilitation of Water Street between North Branciforte Avenue and Ocean Street. Grant Condition: Add bicycle and pedestrian treatments at intersections, especially at Branciforte to reduce conflicts between motorized and non-motorized users. | $1,453 | $1,453 | $0 |
| West Cliff Path Minor Widening (David Way Lighthouse to Swanton) | SC 23 | Improve existing path. | $520 | $520 | $0 |
| West Cliff/Bay Street Modifications | SC-P83 | Install signal or roundabout to replace the all-way stop to improve safety and capacity. | $500 | $500 | $0 |
| | | **City of Santa Cruz Total** | **$412,346** | **$263,295** | **$149,051** |
| ***City of Scotts Valley*** | | | | | |
| Bean Creek Rd Sidewalks (SVMS to Blue Bonnet) | SV-P35 | Fill gaps in sidewalks on Bean Creek Rd. | $410 | $410 | $0 |
| Bean Creek Road Realignment | SV-P16 | Realign Bean Creek Road to intersect Scotts Valley Drive farther North to create a four way intersection. | $2,840 | $0 | $2,840 |
| Bike Rest Stops in Scotts Valley | SV-P38 | Bike rest stops (including racks, water) at Camp Evers Park and Skypark. | $230 | $0 | $230 |
| Citywide Access Ramps | SV-P06 | Place handicap ramps at various locations. Avg annual cost: $8K/yr. | $210 | $210 | $0 |
| Citywide Bike Lanes | SV-P41 | Construction of additional bike lanes and paths citywide (including Green Hills). | $3,100 | $0 | $3,100 |
| Citywide General Maintenance and Operations | SV-P27 | Ongoing maintenance, repairs, and operation of road/street system within the City limits. ($400K/yr const; $250/yr unconst). | $14,770 | $13,459 | $1,311 |
| Citywide Sidewalk Program | SV-P05 | Install sidewalks to fill gaps. Annual Cost $50k/yr | $5,170 | $2,600 | $2,570 |
| Civic Center Dr Bike Lanes | SV-P33 | Add bike lanes to narrow road. | $410 | $0 | $410 |
| El Pueblo Rd Ext North | SV-P14 | Connect El Pueblo Road via Janis Way to Victor Square, crossing Carbonero Creek. | $1,240 | $0 | $1,240 |
| El Pueblo Rd Extensions | SV-P15 | Connect El Pueblo Road to Disc Drive. | $410 | $0 | $410 |
| El Rancho Dr Bike Lanes | SV-P36 | Add bike lanes on El Rancho within city limits. | $340 | $0 | $340 |
| Emergency Access Granite Creek/Hwy 17 | SV-P24 | Connect Granite Creek Rd to SR 17 via Navarra Drive to Sucinto Drive, for emergency access. | $570 | $0 | $570 |
| Emergency Access SV DR/Upper Willis Dr | SV-P25 | Connect Scotts Valley Drive to Upper Willis Road for emergency access. | $1,030 | $0 | $1,030 |
| Emergency Access Whispering Pines | SV-P26 | Connect Whispering Pines Drive to Manana Woods for emergency access. | $50 | $0 | $50 |
| Emergency Access-Bethany/Glenwood | SV-P23 | Connect Bethany Drive to Glenwood Drive. | $210 | $0 | $210 |
| Emergency Access-Sundridge/Pueblo | SV-P22 | Connect Sunridge Drive to Disc Drive for emergency access. | $410 | $0 | $410 |
| Erba Lane/Terrace View/SV Drive Realignment | SV-P10 | Realign Terrace View to access Scotts Valley Drive via Erba Lane. | $520 | $0 | $520 |
| Glen Canyon Rd Bike Lanes | SV-P29 | Class 2 Bike lanes from Flora Lane to Green Hills. Oak Creek to Flora Ln are already complete. | $1,030 | $0 | $1,030 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Glen Canyon Rd/Green Hills Rd/S. Navarra Dr Bike Corridor and Roadway Preservation | SV 28 | Repave two roads, add bike lanes (on Green Hills Rd), and signage. Includes road markings like sharrows and green lane treatments to assist commuters, students, and recreational bikers; and bike/walk education and outreach programs ($14k). | $993 | $993 | $0 |
| Glenwood Drive Rehabilitation and Bicycle Improvement Project | SV 29 | Pavement rehabilitation of Glenwood Dr. (K Street Way to city limits), drainage repair, and widen to add bike lanes. (0.58mi) | $865 | $865 | $0 |
| Hwy 17/Midtown Interchange | SV-P01 | Construct new SR17 interchange midway between Mt. Hermon Rd and Granite Creek Rd. Will require right-of-way. | $30,990 | $0 | $30,990 |
| Hwy 17/Mt. Hermon Rd Interchange Operations Improvement | SV-P44 | Add lane to SB off-ramp at Hwy 17/Mt. Hermon Rd interchange. | $1,030 | $0 | $1,030 |
| Kings Village Rd/Town Center Entrance Traffic Signal | SV-P52 | Install new traffic signal at the intersection of Kings Village Rd and new Town Center entrance (near transit center) with protected pedestrian crossings and transit signal priority. New Signalization of the intersection on Kings Village Rd at the transit center exit and future Plan street connection would provide a location for protected pedestrian crossings, and would allow transit operators to easily exit the transit center and maintain operating schedules. | $210 | $105 | $105 |
| Kings Village Road/ Bluebonnet Lane Sidewalk | SV 30 | Construct new, fill gaps, and improve accessibility of sidewalks on both sides of King's Village Rd. (Mt. Hermon to Bluebonnet) and south side of Bluebonnet Lon (KV to Bean Creek). Approx.0.3mi. Curb ramp upgrades at Mt. Hermon. | $306 | $306 | $0 |
| Lockhart Gulch Rd Bike Lanes | SV-P37 | Add Class 2 bike lanes to narrow, primarily residential street. | $720 | $0 | $720 |
| Lockwood Ln Pedestrian Signal Near Golf Course | SV-P21 | Construct a pedestrian signal at unprotected ped crossing on Lockwood Lane. | $50 | $50 | $0 |
| Lockwoode Lane Sidewalk and Bike Lanes | SV-P40 | Construct Bike Lanes and add sidewalk on the west side from Mt. Hermon to the City limit. | $520 | $520 | $0 |
| Mt Hermon Rd and Scotts Valley Drive - Crosswalks | SV-P49 | Increase number of crosswalks on Mt Hermon/Scotts Valley Dr, update crosswalks to block pattern, add pedestrian treatments where necessary at intersections to decrease distance across using refuge islands. Add crosswalks to all sides of intersections (particularly an issue on Scotts Valley Dr). Add HAWK signals to provide a low delay signalized crossing opportunity at select locations. Examples include the Safeway Driveway on Mt. Hermon Rd, at Victor Square/Scotts Valley Dr., and at Tramell Way/Scotts Valley Dr. | $1,030 | $515 | $515 |
| Mt Hermon Rd to El Rancho Drive Bike/Ped Connection | SV-P53 | New bike/ped connection between Mt Hermon Road and El Rancho Drive which could include improved bike/ped facilities on existing interchange or new bike/ped crossing. | $1,030 | $1,030 | $0 |
| Mt Hermon Rd/ Spring Lakes Dr. Pedestrian Intersection Improvements | SV-P54 | Improve pedestrian crossing at Spring Lakes Drive and Mt. Hermon Road. | $50 | $50 | $0 |
| Mt Hermon Road Sidewalk Connections | SV-P30A | Add sidewalks to fill gaps in business district. | $520 | $520 | $0 |
| Mt Hermon, Lockewood, Springs Lake Widening | SV-P13 | Widen, reconstruct and improve portions of roadway and intersection. | $4,130 | $0 | $4,130 |
| Mt Hermon/King's Village Rd-Transit Signal priority | SV-P46 | Transit signal priority at Kings Village Rd/Mt Hermon Rd. | $80 | $80 | $0 |
| Mt Hermon/Scotts Valley - Transit Queue Jump | SV-P47 | Evaluate and if found to be beneficial, remove right turn islands at Mt Hermon Rd/Scotts Valley Road to add transit queue jump lanes/signals. | $620 | $620 | $0 |
| Mt. Hermon Rd Circulation Master Plan | SV-P09 | Provides various circulation and access improvements to the Mount Herman corridor. | $3,620 | $0 | $3,620 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Mt. Hermon Road/Town Center Entrance Traffic Signal | SV-P51 | Install new traffic signal at the intersection of the future Town Center road that will accommodate increased pedestrian travel. Add a right-turn lane on the westbound approach. New signalization of the intersection at the future Town Center's primary access point on Mt. Hermon Road would provide protected pedestrian crossing, ADA accessible curb ramps and detectable surfaces on all intersection corners. Permitted left-turn phasing shall be used for the northbound and southbound approaches, while protected left-turn phasing shall be provided on the eastbound and westbound Mt. Hermon Road approaches. | $260 | $130 | $130 |
| N. Navarra Dr-Sucinto Dr Bike Lanes | SV-P34 | Add bike lanes to developing area behind commercial. | $620 | $0 | $620 |
| Neighborhood Traffic Calming | SV-P28 | Citywide traffic calming devices. | $770 | $770 | $0 |
| Scotts Valley Town Center Bicycle/Pedestrian Facilities | SV-P45 | Bicycle and pedestrian facilities and circulation elements within planned development. | $4,130 | $4,130 | $0 |
| Scotts Valley-wide - Greenway Signage | SV-P48 | Add signage for neighborhood greenways. | $20 | $0 | $20 |
| Sky Park Commercial Area Circulation | SV-P11 | Construct infrastructure improvement for Skypark commercial area. | $2,070 | $0 | $2,070 |
| Synchronize Traffic Signals along Mt. Hermon Road | SV-P42 | Re-time to coordinate traffic signals along Mt. Hermon Road. | $100 | $100 | $0 |
| | | **City of Scotts Valley Total** | **$87,684** | **$27,463** | **$60,221** |
| ***City of Watsonville*** | | | | | |
| 2nd/Maple Ave (Lincoln to Walker) Traffic Calming and Greenway | WAT-P49 | Evaluate and if found necessary, add traffic calming/bicycle traffic priority with wayfinding signage to provide access to MBSST and create low stress grid around downtown. | $25 | $25 | $0 |
| 5th St (Lincoln to Walker) - Traffic Calming and Greenway | WAT-P50 | Evaluate and if found necessary, add traffic calming/bicycle traffic priority with wayfinding signage to provide access to MBSST and create low stress grid around downtown. | $25 | $25 | $0 |
| Airport Blvd Improvements (Freedom Blvd to City Limits) | WAT 38 | Road widening to accommodate extension of bicycle lane and portion of travel lane, installation of bus pull out, new sidewalks and curb ramps, refuge island, rectangular flashing beacon, striping, and roadway rehab. | $1,346 | $1,346 | $0 |
| Airport Blvd Modifications (Hanger Way to Ross Ave) | WAT-P34 | Reconstruct or repave roadway and bike lanes; repair, replace and install curb, gutter, sidewalk and curb ramps; replace and upgrade signage and striping. | $600 | $0 | $600 |
| Airport Boulevard Improvements: Westgate/Larkin to Hanger Way | WAT 40 | Reconstruct roadway, install new sidewalk, upgrade curb ramps and driveway crossings, install median islands, modify traffic signals to include add'l ped crossing and install rectangular rapid flashing beacon at crosswalk. | $1,645 | $1,645 | $0 |
| Alley Improvements | WAT-P36 | Repair & reconstruct some alleys. | $60 | $60 | $0 |
| Bicycle Safety Improvements (Various Locations) | WAT 44 | Improve existing bicycle facilities by installing new striping, markings and signage in place of the existing and installing new green bike lanes at the approaches on various streets. Work will be done at the following locations: Beach St from Lee Rd to Rodriguez St (1.42 mi); Bridge St from Beck St to East Lake Ave (1.48 mi); Green Valley Rd from Harkins Slough Rd to Corralitos Creek Bridge (1.92 mi); Harkins Slough Rd/Walker St from Green Valley Rd to Riverside Dr (1.73 mi); Rodriguez St from Riverside Dr to Main St (0.92 mi). | $525 | $375 | $150 |
| Bridge Maintenance | WAT-P35 | Maintenance of bridges | $115 | $115 | $0 |
| Buena Vista/Calabasas/Freedom Connection | WAT-P30 | Construction of roadway connection from Buena Vista area to Freedom Blvd. Reconstruct Via Nicola. | $5,950 | $0 | $5,950 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Citywide General Maintenance and Operations | WAT-P06 | Ongoing maintenance, repair, and operation of road/street system, including bicycle and pedestrian facilities.(Total Need = $2,600/year, constr=$1500/yr) | $65,350 | $41,400 | $23,950 |
| Citywide Pedestrian Facilities | WAT-P15 | Construct sidewalks and curb ramps where necessary. This work is usually combined with the annual road rehabilitation and maintenance projects. Avg annual cost: $100/yr. | $2,380 | $0 | $2,380 |
| Citywide Transportation Projects | WAT-P24 | Lump sum of transportation projects to be identified in the future. Including major rehabilitation and operational improvements ($1.2M/yr). | $28,510 | $0 | $28,510 |
| Crestview/Wagner Extension | WAT-P29 | Construction of roadway connection from Atkinson Lane area to SR 152. Reconstruct/widen Wagner St. | $4,750 | $0 | $4,750 |
| Downtown Watsonville Universal Streets | WAT-P59 | Evaluate and if feasible, implement universal streets, which are designed for pedestrians and restrict vehicular access, which facilitate new ped access. | $600 | $600 | $0 |
| East Fifth St (Main St to Lincoln St) | WAT-P39 | Repair, replace and install curb, gutter, sidewalk and curb ramps; replace and upgrade signage and striping. | $300 | $0 | $300 |
| East Lake Ave-(Hwy 152) Widening (Martinelli St-Holohan Rd) | CT-P33 | Widen East Lake Ave. (SR 152) from 2 to 4 lanes (Martinelli St-Holohan Rd). | $1,030 | $0 | $1,030 |
| East Lake/Madison - ped crossing | WAT-P57 | Evaluate and if feasible, add pedestrian crossing (HAWK signal if ped volume warrants) at E Lake & Madison for better access to Hall Middle School. | $300 | $300 | $0 |
| Freedom Blvd (Davis Ave to Green Valley Rd) | WAT-P68 | Repair, reconstruct and/or upgrade pavement, bike lanes, sidewalks, transit facilities, signage and striping | $1,730 | $1,730 | $0 |
| Freedom Blvd (Green Valley Rd to Buena Vista Dr) | WAT-P72 | Repair and resurface damaged roadway and bike lanes, replace damaged sidewalks, add pedestrian facilities where none exist. | $5,000 | $5,000 | $0 |
| Freedom Blvd (Green Valley Rd to Davis) Bicycle and Pedestrian Improvements | WAT-P61 | Evaluate and if feasible, install bike treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals) to address speed inconsistency between bicyclists and vehicles. Complete sidewalks, including pedestrian buffer, and pedestrian islands at crossings. | $300 | $300 | $0 |
| Freedom Blvd Pedestrian Crossings (Airport to Lincoln) | WAT-P62 | Evaluate and if feasible, install new and improve existing uncontrolled pedestrian crossings at Roach Road, Davis Avenue, Clifford Lane, Mariposa Avenue, Alta Vista Street, Crestview Drive, Martinelli Street and Marin Street). | $600 | $600 | $0 |
| Freedom Blvd Reconstruction (Alta Vista to Green Valley) | WAT 45 | Remove and replace non-ADA compliant driveways and curb ramps, install high visibility crosswalks, provide sharrows and bicycle signage, upgrade existing bus stop shelter, install new traffic signal at Sydney Ave with pedestrian signal heads, pedestrian actuated traffic signals, audible countdown, pedestrian-level lighting and illumination at crosswalks and reconstruct roadway. | $3,250 | $2,000 | $1,250 |
| Freedom Blvd Undergrounding | WAT-P38 | Underground existing overhead utilities. | $1,270 | $1,270 | $0 |
| Freedom Blvd/Green Valley Rd Neighborhood Bike/Ped Connections | WAT-P64 | Evaluate and if feasible, implement greenway, which gives priority to bicycles and pedestrians on low volume, low speed streets including, pedestrian facilities, way finding and pavement markings, bicycle treatments to connect neighborhoods to goods and services on Freedom Blvd. | $1,800 | $0 | $1,800 |
| Freedom Boulevard Plan Line | WAT 43 | Preparation of a plan line for Freedom Boulevard between Green Valley Road and Buena Vista Drive that delineates multimodal modifications supported by the community. | $160 | $160 | $0 |
| Green Valley Rd Improvement (Freedom Blvd to City Limit) | WAT-P45 | Reconstruct existing roadway, install a median island to encourage safer turning movements, remove and replace existing driveways and curb ramps that do not comply with existing accessibility standards, restripe roadway to provide striping for bike lanes where none exist. | $2,000 | $0 | $2,000 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Green Valley Road Reconstruction (Struve Slough-Freedom Blvd) | WAT 42 | Reconstruct existing roadway and bikelanes, remove existing asphalt pedestrian path and replace with concrete curb, gutter and sidewalk, remove and replace non-ADA compliant curb ramps and driveways, remove and replace existing signage, striping and loop detectors for traffic signal detectors. Increase sidewalk width consistent with the Complete Streets Guidebook. City may have to reduce existing roadway lane widths in order to provide wider sidewalks; may repave instead of reconstruct roadway or reduce limits of reconstruction based on allocated funds. | $1,598 | $1,598 | $0 |
| Harkins Slough Rd (Hwy 1 to Green Valley Rd) | WAT-P69 | Repair, reconstruct and/or upgrade pavement, bike lanes, sidewalks, transit facilities, signage and striping | $1,150 | $0 | $1,150 |
| Hillside Ave to Freedom Blvd Ped/Bike Connection | WAT-P60 | Evaluate and if feasible, install new bike/ped connection from Carey Avenue to Freedom Boulevard between Roache Road and Green Valley Road to connect neighborhood to goods, services and transit on Freedom Boulevard. Include new crossing from new bicycle/pedestrian facility to east side of Freedom Boulevard. | $360 | $0 | $360 |
| Kearney/Rodriguez - Ped Crossing | WAT-P53 | Evaluate and if found necessary, add pedestrian crossing at Kearney and Rodriguez with traffic calming for access to Radcliffe Elementary. | $35 | $35 | $0 |
| Lower Watsonville Slough Trail | WAT-P46 | Install bicycle/pedestrian trail | $770 | $770 | $0 |
| Lump Sum Bicycle Projects | WAT-P19 | Update the City Bicycle Plan and construction of additional routes and paths (250k/yr). | $5,950 | $0 | $5,950 |
| Main St - 3 HAWK Signals | WAT-P54 | Evaluate and if found necessary, add Hawk signals in 3 locations on Main St. | $890 | $890 | $0 |
| Main St (Freedom to Riverside) Ped/Bike Enhancements | WAT-P58 | Evaluate and if feasible improve ped facilities and bike treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals) and bike boxes and bicycle priority at intersections on Main Street intersections. | $890 | $890 | $0 |
| Main St Modifications (500 Block: Fifth St to East Lake Ave) | WAT-P40 | Repair, replace and install curb, gutter, and curb ramps; replace and upgrade signage and striping. Evaluate and if feasible, provide bike treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals), and buffered sidewalk. | $710 | $710 | $0 |
| Main St Modifications (City Limit to Lake Ave) | WAT-P47 | Repave roadway and bike lanes; repair, replace and install curb, gutter, sidewalk and curb ramps: replace and upgrade signage and striping. Evaluate and if feasible, provide bike treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals) and buffered sidewalks. | $1,670 | $1,670 | $0 |
| Main St Modifications (East Lake Ave to Freedom Blvd) | WAT-P73 | Provide complete streets improvements including but not limited to pedestrian crossings, bicycle facilities, bus stops, parking, sidewalks and traffic management | $1,000 | $1,000 | $0 |
| Main St. (Hwy 152)/Freedom Blvd Roundabout | WAT 27a | Installation of a roundabout to replace the currently signalized intersection with safety considerations for bike/ped. Caltrans Project ID - 05-0T150. | $1,500 | $1,500 | $0 |
| Main St/Beach St/Lake Ave Bike Facilities | CT-P38 | Bicycle facilities - Main St (GV Rd to Mont Co line), Beach St (Walker to Lincoln) and Lake Ave (Main St to fairgrounds). County/City Project - Cost unknown. | $0 | $0 | $0 |
| Main/Rodriguez/Union/Brennan (Freedom to Riverside) - Crosswalks | WAT-P55 | Evaluate and if found necessary, increase the number of crosswalks on Main St, Rodriguez, and Union/Brennan to aim for 300 ft distance between crossings. Update pattern of crosswalks to block pattern. | $115 | $115 | $0 |
| MBSST (Coastal Rail Trail): Lee Road, 4000 feet east to City Slough Trail connection | TRL 18L | Construction of 4000-foot long pathway parallel to the railroad tracks: twelve-foot width asphalt (hma). A 500 ft long retaining wall up to 3 ft tall with fence near Lee Road. A drainage structure east of Ohlone Parkway to be modified.Connection to Lee Road shall require installation of pathway or sidewalk to link to the existing sidewalk. At grade crossing at Ohlone Parkway and at a spur line located between Lee Road and Highway 1. | $1,540 | $1,540 | $0 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| MBSST Rail Trail: Walker Street to City Slough Trail connection | TRL 18W | Construction of 2400 ft pedestrian and bicycle path parallel to the existing railroad tracks and within the rail right-of-way. Also includes public outreach and training to improve bicycle and pedestrian safety. | $860 | $860 | $0 |
| Neighborhood Traffic Plan | WAT-P04 | Plan to identify and address concerns regarding speeding, bicycle and pedestrian access and safety, and other neighborhood traffic issues ($5k/yr). | $115 | $115 | $0 |
| Neighborhood Traffic Plan Implementation | WAT-P13 | Address concerns about traffic complaints through Education, Enforcement, and Engineering solutions. Install traffic calming devices that do not impede bicyclist access ($20k/yr). | $470 | $470 | $0 |
| Ohlone Parkway Improvements - Phase 2 (UPRR to West Beach) | WAT-P31 | Roadway, pedestrian, and bicycle facilities. | $600 | $600 | $0 |
| Pajaro Lane to Freedom Blvd Ped/Bike Connection | WAT-P63 | Evaluate and if feasible, new bike/ped connection from Pajaro Lane to Freedom Blvd to connect neighborhood to goods, services and transit on Freedom Boulevard. Include new crossing from new bicycle/pedestrian facility to west side of Freedom Boulevard. | $360 | $0 | $360 |
| Pajaro Valley High School Connector Trail | WAT-P42 | Install bicycle/pedestrian trail (this trail connects Pajaro Valley High School to Airport Blvd). | $710 | $710 | $0 |
| Pennsylvania Dr (Green Valley Rd to Clifford Ave) | WAT-P70 | Repair, reconstruct and/or upgrade pavement, bike lanes, sidewalks, transit facilities, signage and striping | $4,600 | $0 | $4,600 |
| Riverside (Hwy 129) Bike Facilities | CT-P39 | Bicycle facilities - Lee to Lakeview Road. County/City Project -Cost Unknown. | $0 | $0 | $0 |
| Rodriguez St (Main St to Riverside)-Buffered Bike Lane | WAT-P51 | Evaluate and if found necessary, improve bike lane striping, add buffered lanes on Rodriguez St to delineate bike lane from vehicle parking and traffic. | $12 | $12 | $0 |
| Union/Brennan (Freedom to Riverside) - Sharrows | WAT-P52 | Evaluate and if found necessary, add sharrows to Union/Brennan. | $12 | $12 | $0 |
| Upper Struve Slough Trail | WAT-P65 | Construction of 450 foot long pedestrian/bicycle path along upper Struve Slough from Green Valley Road to Pennsylvania Drive. The trail shall consist of a twelve-foot wide by one foot deep aggregate base section with the center eight feet covered with a chip seal. Additional improvements include installing a 130-length of modular concrete block retaining wall, reinforcing a 160-foot length of slough embankment with rock slope protection and installing a 175-foot long by eight foot wide boardwalk. | $530 | $530 | $0 |
| Upper Watsonville Slough Trail | WAT-P43 | Install bicycle/pedestrian trail. | $770 | $770 | $0 |
| Walker St Modifications (Beach St to Watsonville Slough) | WAT-P48 | Repave roadway and bike lanes; repair, replace and install curb, gutter, sidewalk and curb ramps; replace and upgrade signage and striping | $3,200 | $0 | $3,200 |
| Watsonville Shuttle | WAT-P27 | Year round public transit service. | $300 | $0 | $300 |
| Watsonville-wide HOV priority | WAT-P56 | Evaluate HOV priority at signals and HOV queue bypass. | $60 | $60 | $0 |
| West Beach St (Lee Rd to Ohlone Parkway) | WAT-P66 | Repair, reconstruct and/or upgrade pavement, bike lanes, sidewalks, transit facilities, signage and striping | $2,900 | $0 | $2,900 |
| West Beach St (Ohlone Parkway to Walker St) | WAT-P67 | Repair, reconstruct and/or upgrade pavement, bike lanes, sidewalks, transit facilities, signage and striping | $4,600 | $0 | $4,600 |
| West Lake Ave Modifications (Main St to Rodriguez St) | WAT-P41 | Repair, replace and install curb, gutter, sidewalk and curb ramps; replace and upgrade signage and striping | $240 | $0 | $240 |
| | | **City of Watsonville Total** | **$168,138** | **$71,808** | **$96,330** |

*All Figures in year 2016, '000s (thousands of dollars)*

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| ***Consolidated Transportation*** | | | | | |
| Countywide Specialized Transportation | CTSA-P01 | Non-ADA mandated paratransit and other specialized transportation service for seniors and people with disabilities. Includes medical service rides, Elderday, out-of-county rides, Sr. Meal Site, Taxi Script, and same day rides etc. Current avg annual need $2.58M. Constrained=$2M. | $56,700 | $46,000 | $10,700 |
| Lift Line Maintenance/Operations Center | CTSA-P02 | Construct a permanent maintenance center/consolidated operations facility for paratransit program (currently Lift Line). | $15,500 | $0 | $15,500 |
| Medical Specialized Transportation for Veterans | CTSA-P06 | Non-emergency medical transportation for veterans | $6,500 | $0 | $6,500 |
| Medically Fragile Specialized Transportation | CTSA-P04 | Non-emergency transportation service for medically fragile individuals. Includes operations and capital. | $5,000 | $0 | $5,000 |
| Non-ADA Paratransit Service Expansion | CTSA-P03 | Expansion of non-ADA paratransit system to meet needs of growing elderly and disabled populations. May include pre/post natal transport to medical appointments. | $21,700 | $0 | $21,700 |
| | | **Consolidated Transportation Total** | **$105,400** | **$46,000** | **$59,400** |
| ***County Health Services Agency*** | | | | | |
| Santa Cruz County Health Service Agency - Traffic Safety Education | CO 50 | Ongoing education program to decrease the risk and severity of collisions. Includes bicycle and pedestrian programs: Community Traffic Safety Coalition, South County coalition, and Ride n' Stride Bicycle/Pedestrian Education Program. | $6,500 | $2,200 | $4,300 |
| | | **County Health Services Agency Total** | **$6,500** | **$2,200** | **$4,300** |
| ***County of Santa Cruz*** | | | | | |
| 26th Ave Improvements (entire length-Portola Dr to end) | CO-P31a | Roadway and roadside improvements on various Major Collectors including sidewalks, bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $2,580 | $0 | $2,580 |
| 26th to 30th (at Lode/Quartz) Bike/Ped Connection | CO-P78 | New bike/ped connection from Lode and Quartz to Moran Trail, which connects to 30th. | $520 | $0 | $520 |
| 37th/38th Ave (Brommer to Eastcliff) Multimodal Circulation Improvements and Greenway | CO-P27a | Evaluate and if feasible improve vehicle and transit access on 38th Avenue from East Cliff to Brommer and develop greenway on 37th Avenue from East Cliff to Portola. Roadway improvements may include roadway and roadside improvements including sidewalks, bike treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals), transit turnouts, left turn pockets, and intersection improvement. | $2,070 | $570 | $1,500 |
| 41st Ave Improvements Phase 2 (Hwy 1 Interchange to Soquel Dr) | CO-P26a | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $1,240 | $340 | $900 |
| Airport Blvd Improvements (City limits to Green Valley Rd) | CO-P02 | Major rehab, addition of bike lanes, transit facilities, merge lanes, intersection improvements, sidewalks, drainage, and landscaping. | $1,240 | $1,240 | $0 |
| Alba Rd Improvements (Empire Grade to State Hwy 9) | CO-P30b | Roadwork includes major rehabilitation and maintenance of the road and roadsides. | $1,760 | $0 | $1,760 |
| Amesti Road Multimodal Improvements (Green Valley to Brown Valley Rd) | CO-P03 | Roadway rehab and reconstruction, left turn pockets at Green Valley Road, Pioneer Road/Varni Road. Add bike lanes, transit turnouts, sidewalks, merge lanes, landscaping, and intersection improvements. | $6,200 | $600 | $5,600 |
| Aptos Beach Dr Improvements (Esplanade to Rio Del Mar Blvd) | CO-P27b | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvement. | $1,240 | $0 | $1,240 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Aptos Village Plan Improvements | CO 64 | Modifications for ped, bike, bus and auto traffic. Add pedestrian facilities and drainage infrastructure on both sides of Soquel Dr; improve bike lanes; new bike parking; new bus pullout and shelter on north side. Trout Gulch: Replace sidewalks with standard sidewalks on east side, ADA upgrades to west side sidewalks. Install traffic signals at Soquel Dr/Aptos Creek Rd (CO 64c) & Soquel/Trout Gulch. Left turn lanes on Soquel at new street - Parade St and at Aptos Creek Road. RR crossing modifications - new crossing arms, concrete panels for vehicle and pedestrian crossings. New RR xing at Parade St. Phase 1: Trout Gulch Rd improvements w/traffic signal and upgraded RR xg at Soquel Dr. Pavement overlay of Soquel Dr (Spreckels to Trout Gulch) and a portion of Aptos Creek Road. | $4,100 | $4,100 | $0 |
| Beach Road Improvements (City limits to Pajaro Dunes) | CO-P26b | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $1,240 | $340 | $900 |
| Bean Creek Rd Improvements (Scotts Valley City Limits to Glenwood Dr) | CO-P28a | Roadway and roadside improvements on various Minor Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $1,760 | $485 | $1,275 |
| Bear Creek Road Improvements (Hwy 9 to Hwy 35) | CO-P04 | Major rehab, add bike lanes, turnouts, merge lanes, and intersection improvements. Some landscaping and drainage improvements also. | $4,750 | $250 | $4,500 |
| Bonita Dr Improvements (entire length) | CO-P29b | Improvements of roadways and roadsides on various Minor Collectors including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $1,240 | $0 | $1,240 |
| Bonny Doon Rd Improvements (Hwy 1 to Pine Flats Rd) | CO-P43 | Construction of a Class 1 bike lane facility, addition of transit stops, intersection improvements, major road rehabilitation, road maintenance, and drainage improvements. | $8,260 | $0 | $8,260 |
| Bowker Rd Improvements (entire length-Buena Vista Dr to Freedom Blvd) | CO-P33a | Roadway and roadside improvements on various Minor Collectors including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $620 | $0 | $620 |
| Branciforte Dr Improvements (City of Santa Cruz to Vine Hill Rd) | CO-P30c | Improvements of roadways and roadsides on various Major Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road and roadsides. | $1,760 | $0 | $1,760 |
| Branciforte Drive Chip Seal Project (Granite Creek Rd to SC city limits - 1.91mi) | CO 82 | Roadway rehabilitation: Digouts, Rubberized Chip Seal, and restriping of a portion of Branciforte Drive | $433 | $433 | $0 |
| Branciforte Drive Road Recycle & Overlay (PM 2.4 to Granite Ck Rd) | CO 79 | Pavement recycling, asphalt overlay, and restriping of 0.62 miles of Branciforte Drive from Granite Creek to PM 2.4 (0.62 mil). To be constructed with CO 81 (Granite Creek). | $431 | $431 | $0 |
| Brown Valley Rd Improvements (Corralitos Rd to Redwood Rd) | CO-P26d | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $1,240 | $340 | $900 |
| Buena Vista Rd Improvements (San Andreas to Freedom Blvd) | CO-P26e | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $3,000 | $825 | $2,175 |
| Bulb Ave Road Improvements (Garden St to Capitola City Limits) | CO-P65 | Roadway and roadside improvements including curb, gutter, sidewalk, bike lanes, left turn lanes, intersection improvements and roadway rehabilitation. | $770 | $0 | $770 |
| Cabrillo College Dr Improvements (Park Ave to Twin Lakes Church) | CO-P30d | Improvements of roadways and roadsides on various Major Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road and roadsides. | $1,240 | $240 | $1,000 |
| Capital improvement projects consistent with the Sustainable Santa Cruz County Plan | CO-P96 | Construct associated multi-modal infrastructure improvements associated with the Sustainable Santa Cruz County Plan | $22,000 | $11,000 | $11,000 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Capitola Rd Ext Improvements (Capitola Rd to Soquel Ave) | CO-P31b | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $1,240 | $0 | $1,240 |
| Carol Way/Lompico Creek Bridge Replacement | CO-P49 | Replace existing single span-two lane bridge construction of steel girders and long deck with new 30 ft wide single span flat sale concrete bridge. Include (2) 11 ft lanes and (2) 4 ft shoulders. | $1,240 | $0 | $1,240 |
| Casserly Rd Improvements (Hwy 152 to Green Valley Rd) | CO-P26g | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $770 | $208 | $562 |
| Cathedral Dr Improvements (entire length) | CO-P33b | Roadway and roadside improvements on Minor Collector. Roadwork includes major rehabilitation and maintenance of the road. | $620 | $0 | $620 |
| Center Ave/Seacliff Dr Improvements (Broadway to Aptos Beach Dr) | CO-P26h | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $1,240 | $340 | $900 |
| Chanticleer Ave Improvements (Hwy 1 to Soquel Dr) | CO-P26i | Roadway and roadside improvements including bike lanes, sidewalks, drainage and intersection improvements. | $1,240 | $340 | $900 |
| Cliff Dr Improvements (Rio Del Mar to Railroad Crossing) | CO-P29c | Improvements of roadways and roadsides on various Minor Collectors including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $620 | $0 | $620 |
| Clubhouse Drive Improvements (Sumner Av to Rio Del Mar Blvd) | CO-P32a | Road rehabilitation and maintenance. Roadside improvements: left lane pockets, sidewalks, bike lanes and transit turnouts. | $1,450 | $0 | $1,450 |
| College Road Improvements (Hwy 152 to Lakeview Rd) | CO-P23 | Major road rehab, add left turn pocket at Cutter Drive. Also add bike lanes, transit turnouts, sidewalks, landscaping. Drainage improvements, merge lanes, and intersection improvements may also be needed. | $1,760 | $0 | $1,760 |
| Commercial Way Improvements (Mission Dr. to Soquel Dr.) | CO-P28c | Roadway and roadside improvements on various Minor Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $620 | $170 | $450 |
| Corcoran Ave Improvements (Alice St to Felt St) | CO-P27c | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvement. | $620 | $150 | $470 |
| Corralitos Road Rehab and Improvements (Freedom Blvd to Hames Rd) | CO-P08 | Major rehab, transit, bike, and ped facilities. May also include drainage, merge lanes, landscaping and intersection improvements. | $620 | $620 | $0 |
| County wide guardrail | CO-P97 | Install guardrail on County roads | $15,000 | $15,000 | $0 |
| Countywide ADA Access Ramps | CO-P37 | Construction of handicapped access ramps countywide. | $1,240 | $620 | $620 |
| Countywide Bike Projects | CO-P71 | Bike projects based on needs identified through the Santa Cruz County Bicycle Plan and plan updates. These are in addition to projects listed individually in the RTP. | $4,130 | $0 | $4,130 |
| Countywide General Road Maintenance and Operations | CO-P35 | Ongoing maintenance, repair, and operation of road/street system within the unincorporated areas of the county. | $495,000 | $446,857 | $48,143 |
| Countywide Sidewalks | CO-P41 | Install sidewalks. | $72,310 | $7,000 | $65,310 |
| Day Valley Rd Improvements (entire length-Freedom Blvd to Valencia Rd) | CO-P31c | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $1,240 | $0 | $1,240 |
| East Cliff (26th to Moran Way) Sidewalk Improvement | CO-P77 | Install sidewalk from 26th south to link to Moran Way. | $410 | $0 | $410 |

*All Figures in year 2016, '000s (thousands of dollars)*

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| East Cliff Dr Pedestrian Pathway (7th-12th Ave) | CO-P50 | Construct pedestrian pathway on East Cliff. | $1,760 | $1,760 | $0 |
| East Cliff Drive Cape Seal (12th-17th) | CO 66 | Pavement maintenance, isolated section digout and asphalt replacement and cape seal on entire roadway. | $230 | $230 | $0 |
| East Cliff Drive Improvements (32nd Ave to Harbor) | CO-P09 | Roadway rehab, add left turn pockets at 26th and 30th Ave, fill gaps in bikeways and sidewalks, add transit turnouts, intersection improvements. Some landscaping and drainage improvements. | $4,750 | $1,500 | $3,250 |
| East Zayante Rd Improvements (Lompico Rd to just before Summit Rd) | CO-P26j | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $1,760 | $485 | $1,275 |
| Either Way Ln Bridge Replacement Project | CO-P88 | The project will consist of completely replacing the existing narrow one lane structure and roadway approaches with a two lane clear span precast voided concrete slab bridge and standard bridge approaches. | $2,180 | $2,180 | $0 |
| El Dorado Ave Road Improvements (Capitola Rd to RR) | CO-P67 | Roadway and roadside improvements including curb, gutter, buffered sidewalk, bike treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals), left turn lanes, intersection improvements and roadway rehabilitation. | $1,810 | $0 | $1,810 |
| El Rancho Dr Improvements (Mt. Hermon/Hwy 17 to SC city limits) | CO-P26k | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $2,380 | $655 | $1,725 |
| Empire Grade Improvements | CO-P10 | Road rehab and maintenance, left turn pocket at Felton Empire Road, add bike lanes, transit facilities, some sidewalks, landscaping. Drainage improvements, merge lanes, and intersection improvements may also be needed. | $4,750 | $1,190 | $3,560 |
| Eureka Canyon Rd Improvements (Hames Rd to Buzzard Lagoon Rd) | CO-P26l | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $2,380 | $655 | $1,725 |
| Felton Empire Road Improvements (entire length to State Hwy 9) | CO-P28d | Roadway and roadside improvements on various Minor Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $2,380 | $655 | $1,725 |
| Fern Dr @ San Lorenzo River Bridge Replacement Project | CO-P90 | The project will consist of completely replacing the existing three span single lane structure and roadway approaches with a new two lane clear span reinforced concrete box girder bridge and standard bridge approaches. | $2,830 | $2,830 | $0 |
| Forest Hill Dr @ Bear Creek Bridge Replacement Project | CO-P86 | The Project will consist of completely replacing existing steel girder bridge crossing Bear Creek with a new precast concrete voided slab bridge. | $2,050 | $0 | $2,050 |
| Freedom Blvd Multimodal Improvements (Bonita Dr to City of Watsonville) | CO-P11 | Add bike lanes, sidewalks on some segments, transit turnouts, signalization. Left turn pockets at Bowker, Day Valley, White Rd, and Corralitos Rd. Also includes merge lanes, intersection improvements, landscaping, major rehabilitation and maintenance, drainage improvements. | $3,100 | $775 | $2,325 |
| Freedom Blvd Pavement Preservation (Hwy 1 to Pleasant Vly Rd) | CO 74 | Rehabilitate the roadway surface. | $1,430 | $1,430 | $0 |
| Glen Arbor Rd Improvements (State Hwy 9 to State Hwy 9) | CO-P30f | Improvements of roadways and roadsides on various Major Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road and roadsides. | $1,240 | $0 | $1,240 |
| Glen Arbor Road Recycle, Overlay, & Chip Seal (SR 9-Quail Hallow) | CO 80 | Pavement recycling, asphalt overlay, chip seal, and restriping 0.52 miles of Glen Arbor Road from Hwy 9 at bridge to Quail Hollow Rd. The project will also include a subdrain at a point where a natural spring is causing subgrade destabilization and repairs rutting damage adjacent to bus stops. | $467 | $467 | $0 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Glen Canyon Rd Improvements (Branciforte Dr to City of Scotts Valley) | CO-P26m | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $5,990 | $1,640 | $4,350 |
| Glen Coolidge Drive/Hwy 9 Bike Path | CO-P40 | Class 1 bike facility from Glen Coolidge Dr to Hwy 9 to provide eastern access to UCSC. | $2,380 | $0 | $2,380 |
| Glenwood Cutoff General Improvements (Glenwood Dr to Hwy 17) | CO-P61 | Roadway and roadside improvements including bike lanes, left turn lanes, intersection improvements and roadway rehabilitation. | $3,100 | $0 | $3,100 |
| Glenwood Dr. Improvements (Scotts Valley city limits to State Hwy 17) | CO-P26n | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $3,000 | $825 | $2,175 |
| Graham Hill Road Multimodal Improvements (City of SC to Hwy 9) | CO-P12 | Bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes, traffic signals. Major rehabilitation and maintenance. Drainage improvements. Signal upgrade at SR9. | $7,020 | $1,755 | $5,265 |
| Granite Creek Rd Improvements (Branciforte Dr to City of Scotts Valley) | CO-P30h | Improvements of roadways and roadsides on various Major Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road and roadsides. | $1,760 | $0 | $1,760 |
| Granite Creek Road Recycle & Overlay - Part of CO 79B | CO 81 | Pavement recycling, asphalt overlay, and restriping of 1.85 miles of Granite Creek Road from Scotts Valley city limits to PM 0.56. | $1,100 | $1,100 | $0 |
| Green Valley Rd Bridge Replacement Project | CO-P85 | The project will consist of completely replacing the existing two lane structure and roadway approaches with a two lane clear span concrete slab bridge and standard bridge approaches. | $2,110 | $2,110 | $0 |
| Green Valley Rd Pedestrian Safety Project | CO 42b | Build 6-foot wide sidewalk with some curb and gutter on NW side of Green Valley Rd from Airport Blvd to Amesti Rd (1800 ft). | $390 | $390 | $0 |
| Green Valley Road Improvements | CO-P13 | Add two-way left turn lanes from Mesa Verde to Pinto Lake on Green Valley Rd. Also includes some road rehab and maintenance, bike lanes, sidewalks, transit facilities, landscaping, and merge lanes. | $4,130 | $1,030 | $3,100 |
| Hames Rd Improvements (entire length-Freedom Blvd to Eureka Canyon Rd) | CO-P32b | Road rehab and maint. Roadside improvements--left lane pockets, sidewalks, bike lanes and transit turnouts. | $3,620 | $0 | $3,620 |
| Harkins Slough Rd. Improvements (entire length-Buena Vista Dr to State Hwy 1) | CO-P32c | Road rehab and maint. Roadside improvements--left lane pockets, sidewalks, bike lanes and transit turnouts. | $1,760 | $0 | $1,760 |
| Harper St Improvements (entire length-El Dorado Ave to ECM) | CO-P33d | Roadway and roadside improvements on various Minor Collectors including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $1,240 | $310 | $930 |
| Highway 17 To Soquel Corridor Chip Seal Project | CO 83 | Roadway rehabilitation: Digouts, Chip Seal, and restriping of Vine Hill Rd (Hwy 17 to B40), Branciforte Dr (Vine Hill to PM 0.7), Mt. View Rd (B40-N. Rodeo Gulch), N. Rodeo Gulch Rd (Mt. View-PM 1.97), Laurel Rd (N. Rodeo-Soquel San Jose Rd), and Soquel-San Jose Rd. (Laurel Glen to Dawn Lane) - 9.90 mi. | $1,881 | $881 | $1,000 |
| Huntington Dr Improvements (Monroe Ave to Valencia Rd.) | CO-P32d | Road rehab and maint. Roadside improvements--left lane pockets, sidewalks, bike lanes and transit turnouts. | $2,380 | $0 | $2,380 |
| Hwy 152/Holohan - College Intersection | CO 84 | Intersection capacity enhancements and signal modifications, pedestrian and bicycle safety improvements. Add sidewalks and bicycle lanes on Holohan Rd, an additional left-turn lane from Holohan to EB Hwy 152, sidewalk on north side of Hwy 152 from Holohan to Corralitos Creek bridge, adds crosswalks and speed feedback signs. | $3,150 | $3,150 | $0 |
| Jamison Cr Rd Improvements (entire length-Empire Grade to Hwy 236) | CO-P32e | Road rehab and maint. Roadside improvements--left lane pockets, sidewalks, bike lanes and transit turnouts. | $620 | $0 | $620 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| La Madrona Dr Improvements (El Rancho Dr to City of Scotts Valley) | CO-P14 | Bike lanes, sidewalks, transit turnouts, left turn pockets at Sims Road, Highway 17, and El Rancho Road), merge lanes, and intersection improvements. Also includes major rehabilitation, drainage and maintenance. | $3,620 | $905 | $2,715 |
| Lakeview Road Improvements | CO-P15 | Major road rehab, add left turn pocket at College Road, intersection improvements at Carlton Rd. Also add bike lanes, new transit facilities, landscaping. Drainage improvements, merge lanes, and intersection improvements may also be needed. | $1,240 | $0 | $1,240 |
| Larkin Valley Rd Improvements (San Andreas Rd to Buena Vista Dr) | CO-P30i | Improvements of roadways and roadsides on various Major Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road and roadsides. | $620 | $0 | $620 |
| Larkspur Bridge @San Lorenzo River | CO-P91 | The project will consist of completely replacing the existing narrow one lane structure and roadway approaches with a two lane bridge and standard bridge approaches. | $3,930 | $3,930 | $0 |
| Laurel Glen Rd Improvements (Soquel-San Jose Rd to Mt. View/Rodeo Gulch Rd) | CO-P30j | Improvements of roadways and roadsides on various Major Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road and roadsides. | $1,240 | $0 | $1,240 |
| Ledyard Way Improvements (entire length-Soquel Dr to Soquel Dr) | CO-P31d | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $620 | $0 | $620 |
| Lockhart Gulch Improvements (Scotts Valley City limits to end) | CO-P31e | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $1,240 | $0 | $1,240 |
| Lockwood Lane Improvements (Graham Hill Rd to SV limits) | CO-P24 | Major road rehab, add bicycle lanes, sidewalks, some transit facilities, landscaping, and intersection improvements. | $881 | $243 | $638 |
| Lompico Rd Bridge Replacement | CO-P95 | The project will consist of replacing existing steel stringer bridge with a reinforced concrete slab bridge | $1,860 | $0 | $1,860 |
| Lompico Rd Improvements (E Zayante Rd. to end) | CO-P30k | Improvements of roadways and roadsides on various Major Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road and roadsides. | $620 | $0 | $620 |
| Maciel Ave Improvements (Capitola Rd to Mattison Ln) | CO-P29e | Improvements of roadways and roadsides on various Minor Collectors including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $1,450 | $400 | $1,050 |
| Main St Improvements (Porter St to Cherryvale Ave) | CO-P27e | Roadway and roadside improvements on Major Collector including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvement. | $1,760 | $1,760 | $0 |
| Manfre Rd Improvements (entire length-Larkin Valley Rd to Buena Vista Dr) | CO-P33e | Roadway and roadside improvements on various Minor Collectors including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $620 | $0 | $620 |
| Mar Monte Ave Improvements (San Andreas Rd to State Hwy 1) | CO-P30l | Improvements of roadways and roadsides on various Major Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road and roadsides. | $620 | $0 | $620 |
| Mar Vista Dr Improvements (entire length-just before Seacliff Dr to Soquel Dr) | CO-P33f | Roadway and roadside improvements on various Minor Collectors including addition of bike lanes, buffered sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $300 | $0 | $300 |
| Mattison Ln Improvements (Chanticleer Ave to Soquel Ave) | CO-P26p | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $1,450 | $400 | $1,050 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| McGregor Dr Improvements (Capitola city limits to Searidge Rd) | CO-P33g | Roadway and roadside improvements on various Minor Collectors including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $1,240 | $0 | $1,240 |
| Mesa Dr Improvements (Vienna Drive to Ledyard Way) | CO-P31f | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $1,240 | $0 | $1,240 |
| Mill St Improvements (entire length) | CO-P27f | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvement. | $360 | $360 | $0 |
| Mountain View Rd Improvements (Branciforte Dr to Rodeo Gulch Rd) | CO-P27g | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvement. | $1,240 | $0 | $1,240 |
| Mt. Hermon Rd. Improvements (Lockhart Gulch to Graham Hill Rd) | CO-P26q | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $3,000 | $825 | $2,175 |
| Murphy Crossing Improvements | CO-P39 | Bikeway on Murphy Crossing (Hwy 129 to Monterey Co line), major rehabilitation and maintenance of road, drainage improvements may also be needed. | $1,240 | $0 | $1,240 |
| Opal Cliff Dr Improvements (41st Av to Capitola City Limits) | CO-P31g | Roadway, roadside and intersection improvements including sidewalks, bike treatments (such as buffered and/or painted bike lanes), designed to accommodate the number of users and link to East Cliff Drive. | $1,240 | $290 | $950 |
| Pajaro River Bike Path System | CO-P38 | Construction of a Class 1 bike path along the levees and a Class 2 bikeway on Thurwatcher Road and Beach Road. | $9,500 | $2,500 | $7,000 |
| Paul Minnie Ave. Improvements (Rodriguez St to Soquel Ave) | CO-P29f | Improvements of roadways and roadsides on various Minor Collectors including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $1,240 | $340 | $900 |
| Paul Sweet Road Improvements (Soquel Dr to end) | CO-P22 | Major road rehab and maintenance. Also adds bike lanes, sidewalks, landscaping. Drainage improvements, merge lanes, and intersection improvements, and new transit facilities may also be needed. | $1,240 | $310 | $930 |
| Paulsen Rd Improvements (Green Valley Rd to Whiting Rd) | CO-P27h | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvement. | $1,240 | $240 | $1,000 |
| Pine Flat Rd Improvements (Bonny Doon Rd to Empire Grade Rd) | CO-P28f | Roadway and roadside improvements on various Minor Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $2,380 | $655 | $1,725 |
| Pinehurst Dr Improvements (entire length) | CO-P27i | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvement. | $880 | $180 | $700 |
| Pioneer Rd Improvements (Amesti Rd to Green Valley Rd) | CO-P31h | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $880 | $0 | $880 |
| Polo Dr Improvements (Soquel Dr to end) | CO-P29g | Improvements of roadways and roadsides on various Minor Collectors including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $1,450 | $0 | $1,450 |
| Porter St Improvements (Soquel Dr to Paper Mill Rd) | CO-P26r | Roadway and roadside improvements including buffered sidewalks and bicycle treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals) to address speed inconsistency between bicyclists and vehicles, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $1,240 | $340 | $900 |
| Quail Hollow Rd Bridge Replacement Project | CO-P82 | The project will consist of completely replacing the existing two lane structure and roadway approaches with a two lane clear span concrete bridge and standard bridge approaches. | $2,430 | $0 | $2,430 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Quail Hollow Rd Improvements (entire length- East Zayante to Glen Arbor Rd) | CO-P32f | Road rehab and maint. Roadside improvements--left lane pockets, sidewalks, bike lanes and transit turnouts. | $830 | $0 | $830 |
| Rancho Rio Ave @ Newell Creek Bridge Replacement Project | CO-P87 | The project will consist of completely replacing the existing one lane structure and roadway approaches with a two lane clear span concrete slab bridge and standard bridge approaches. | $1,730 | $0 | $1,730 |
| Redwood Lodge Rd (Entire Length) | CO-P51 | Roadway and roadside improvements including curb, gutter, sidewalk, bike lanes, left turn lanes, intersection improvements and roadway rehabilitation. | $3,100 | $0 | $3,100 |
| Redwood Rd Bridge Replacement Project | CO-P89 | The project will consist of completely replacing the existing steel army tread way bridge crossing a tributary of Brown's Creek on Redwood Road with a reinforced concrete slab bridge and standard bridge approaches. | $1,310 | $1,310 | $0 |
| Rio Del Mar Blvd Improvements (Esplanade to Soquel Dr) | CO-P30n | Improvements of roadways and roadsides on various Major Arterials including addition of bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road and roadsides. | $3,000 | $725 | $2,275 |
| Rodeo Gulch Rd Improvements (So & North: Mt. View/Laurel Glen Rd to Hwy 1) | CO-P31i | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $1,760 | $0 | $1,760 |
| Roland Dr Improvements (30th to 35th) | CO-P31j | Roadway and roadside improvements and implementation of greenway, which gives priority to bicycles and pedestrians on low volume, low speed streets including, pedestrian facilities, way finding and pavement markings, bicycle treatments to connect to new bike/ped connection to 41st. | $880 | $0 | $880 |
| San Lorenzo River Valley Trail | CO-P46 | 15 mile, paved multi-use path for bicyclists and pedestrians from Boulder Creek to Santa Cruz. | $25,830 | $0 | $25,830 |
| San Lorenzo Valley Trail: Hwy 9 - Downtown Felton Bike Lanes & Sidewalks | CO-P46a | Install sidewalks and bicycle lanes on Hwy 9 through downtown Felton. | $2,270 | $2,270 | $0 |
| San Lorenzo Valley Trail: Hwy 9 - North Felton Bike Lanes & Sidewalks | CO-P46b | Install sidewalk/pedestrian path on west side, shoulder widening to 5' for bicycle lanes from Felton-Empire/Graham Hill Rd to Glen Arbor Road, Ben Lomond, including frontage of SLV elementary, middle and high schools. Includes new and replacement bike/ped bridges. | $7,640 | $7,640 | $0 |
| San Lorenzo Way Bridge Replacement Project | CO-P83 | The project will consist of completely replacing the existing one lane structure and roadway approaches with a two lane clear span bridge and standard bridge approaches. | $3,190 | $3,190 | $0 |
| Scotts Valley Area Routes Chip Seal Project | CO 85 | Roadway rehabilitation: Digouts, Chip Seal, and restriping Mt. Hermon Rd ( PM 1.31 to SV city limits), Lockewood Ln (GH-SV city limits), and Graham Hill Rd (Sims to Lockewood) - 2.76mi | $940 | $940 | $0 |
| Seacliff Dr Improvements (entire length) | CO-P27j | Roadway and roadside improvements on various Major Collectors including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvement. | $1,760 | $0 | $1,760 |
| Seacliff Village/State Park Drive Improvements | CO 36 | Construct sidewalks, bike lanes, bus turnouts/stops, central plaza, street lighting, EV charging station, parking, landscaping, drainage and roadway overlay in Seacliff core area- consistent with the Seacliff Village Plan adopted by the BOS in 2003. | $3,400 | $3,400 | $0 |
| Seascape Blvd Improvements (Sumner Ave to San Andreas Rd) | CO-P26s | Roadway improvements and pavement rehabilitation. | $620 | $170 | $450 |
| Sims Road Improvements (Graham Hill Rd to La Madrona Dr) | CO-P17 | Road rehab and maintenance, drainage, intersection improvements, landscaping, add bike, ped, and transit facilities. | $1,760 | $440 | $1,320 |
| Smith Grade Improvements (entire length- Empire Grade to Bonny Doon Rd) | CO-P32g | Road rehab and maint. Roadside improvements--left lane pockets, sidewalks, bike lanes and transit turnouts. | $2,380 | $0 | $2,380 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Soquel Ave Improvements (City of SC to Gross Rd) | CO-P18 | Transit turnouts, two way left turn lanes from Chanticleer to Mattison, merge lanes, signalization and intersection improvements. Signals at Chanticleer and Gross Rd. Roadwork: major rehabilitation and maintenance, perhaps drainage improvements. Roadside: sidewalks, landscaping, and new transit facilities. | $3,310 | $3,310 | $0 |
| Soquel Dr Improvements (Soquel Ave to Freedom Blvd) | CO-P19 | Major rehab, merge lanes, intersections improvements, signal coordination, transit turnouts, fill sidewalk and bike facility gaps, some landscaping. | $7,540 | $1,885 | $5,655 |
| Soquel Dr Road Improvements (Robertson St to Daubenbiss) | CO-P62 | Roadway and roadside improvements including curb, gutter, sidewalk, bike treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals), left turn lanes, intersection improvements and roadway rehabilitation. | $410 | $410 | $0 |
| Soquel Dr Traffic Signal and Left Turn Lane (Robertson St) | CO-P58 | Install left turn lane at signalized intersection from Soquel Dr to Robertson St and associated roadside improvements | $1,000 | $0 | $1,000 |
| Soquel-San Jose Rd Improvements (Paper Mill Rd to Summit Rd) | CO-P36 | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $2,580 | $580 | $2,000 |
| Soquel-Wharf Rd Improvements (Robertson St to Porter St) | CO-P28g | Roadway and roadside improvements on various Minor Arterials including addition of bike treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals), transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $1,030 | $515 | $515 |
| Spreckels Dr Improvements (Soquel Dr to Aptos Beach Dr) | CO-P27k | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvement. | $1,240 | $340 | $900 |
| Spreckels Dr/Treasure Island Dr Improvements | CO-P42 | Addition of bike lanes, intersection improvements, major road rehabilitation, road maintenance, and possible drainage improvements. | $620 | $0 | $620 |
| State Park Drive Improvements Phase 2 | CO-P20 | Transit turnouts, two way left turn, merge lanes, intersection improvements, and fill gaps in bike and ped facilities including pedestrian crossing improvements, bike treatments (such as buffered and/or painted bike lanes, bike boxes, bike signals). Plus, major rehabilitation and maintenance, drainage improvements, landscaping. | $1,340 | $335 | $1,005 |
| Summit Rd Improvements | CO-P26u | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $5,580 | $1,530 | $4,050 |
| Sumner Ave Improvements (entire length-Rio Del Mar Blvd to end [just past via Novella]) | CO-P32h | Road rehab and maint. Roadside improvements--left lane pockets, sidewalks, bike lanes and transit turnouts. | $1,450 | $0 | $1,450 |
| Swanton Rd Bridge Replacement | CO-P94 | The project will consist of replacing existing 3 span steel girder bridge with a single span concrete box girder bridge | $2,540 | $0 | $2,540 |
| Thompson Ave Improvements (entire length-Capitola Rd to end) | CO-P33h | Roadway and roadside improvements including major rehabilitation and maintenance of road and includes implementation of greenway, which gives priority to bicycles and pedestrians on low volume, low speed streets including, pedestrian facilities, way finding and pavement markings, bicycle treatments to connect to MBSST. | $1,240 | $0 | $1,240 |
| Thurber Ln Improvements (entire length) | CO-P28h | Roadway and roadside improvements on various Minor Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $1,760 | $485 | $1,275 |
| Thurwachter Road Bike Lanes | CO-P68 | Install bicycle lanes. | $50 | $0 | $50 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Trout Gulch Rd Improvements (Soquel Dr. to end) | CO-P30p | Improvements of roadways and roadsides on various Major Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road and roadsides. | $3,000 | $0 | $3,000 |
| Upper Zayante Rd Improvements | CO-P98 | Roadway and roadside improvements including bike lanes, sidewalks, transit turnouts, left turn pockets, merge lanes and intersection improvements. | $1,500 | $0 | $1,500 |
| Valencia Rd Improvements (Trout Gulch Rd to Valencia School Rd) | CO-P32j | Road rehab and maint. Roadside improvements--left lane pockets, sidewalks, bike lanes and transit turnouts. | $1,760 | $0 | $1,760 |
| Varni Rd Improvements (Corralitos Rd to Amesti Rd) | CO-P28i | Roadway and roadside improvements on various Minor Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $1,240 | $340 | $900 |
| Vine Hill Rd Improvements (Branciforte/Mt. View Rd to State Hwy 17) | CO-P30q | Improvements of roadways and roadsides on various Major Arterials including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road and roadsides. | $1,450 | $0 | $1,450 |
| Wallace Ave Improvements (entire length-Huntington Dr to end) | CO-P33i | Roadway and roadside improvements on various Minor Collectors including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $880 | $0 | $880 |
| Webster St Improvements (Jose Ave to 16th St) | CO-P29h | Improvements of roadways and roadsides on various Minor Collectors including addition of bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvements. Roadwork includes major rehabilitation and maintenance of the road. | $1,240 | $0 | $1,240 |
| Winkle Ave Improvements (entire length from Soquel Dr) | CO-P27l | Roadway and roadside improvements on various Major Collectors including bike lanes, transit turnouts, left turn pockets, merge lanes and intersection improvement. | $2,380 | $655 | $1,725 |
| Zayante Road Corridor Chip Seal Project | CO 86 | Roadway rehabilitation: Digouts, Chip Seal, and restriping East Zayante & Upper E. Zayante from Quail Hallow to SR 35 (up to 9.07mi). Project to be scaled to match available funds | $1,725 | $1,025 | $700 |
| | | **County of Santa Cruz Total** | **$915,568** | **$565,675** | **$349,893** |
| ***Ecology Action*** | | | | | |
| Bike To Work/School Program | RTC 26 | Countywide education, promotion, and incentive program to actively encourage bicycle commuting and biking to school. Coordinates efforts with local businesses, schools, and community organizations to promote bicycling on a regular basis. Provides referrals to community resources. Avg annual cost: $140K/yr-includes in-kind donations and staff time. | $3,870 | $1,870 | $2,000 |
| Ecology Action Countywide SRTS Youth Pedestrian and Bicycle Safety Education | EA 02 | EA will serve approximately 120 second grade classrooms with 'feet on the ground' pedestrian safety education and 88 fifth grade classrooms with bike safety education and 'rodeos' serving a total of 44 local schools. | $8,360 | $440 | $7,920 |
| Ecology Action Transportation Employer Membership Program | RTC 17 | Community organization that promotes alternative commute choices. Work with employers, incentives for travelers to get out of SOVs including: emergency ride home, interest-free bike loans, discounted bus passes. Avg cost: $90K/yr. Coordinates with Bike to Work program. | $2,320 | $1,135 | $1,185 |
| Every Day is Bike to Work Day | EA 03 | Pilot bike commuter initiative to increase bike commuting at 6 large employers in Santa Cruz, Live Oak, and Watsonville areas; includes bike commute and safety workshops, online tracking apps/systems, support/encouragement | $3,360 | $60 | $3,300 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Monterey Bay Electric Vehicle Alliance (MBEVA) | VAR-P22 | Help facilitate this broad collaboration of PEV advocates, businesses, union labor, manufacturers and public agencies to assist the adoption of PEV's in the Monterey Bay region. MBEVA's main goals are to: • Create PEV infrastructure in this region • Educate the public on the benefits of PEV's • Educate gov't agencies on ways to streamline PEV policy, permitting, and implementation and • Help train workforce for PEV related jobs. | $900 | $200 | $700 |
| | | **Ecology Action Total** | **$18,810** | **$3,705** | **$15,105** |
| ***SCCRTC*** | | | | | |
| Bicycle Route Signage Countywide | RTC 32 | Define routes, develop and install signs directing bicyclists to preferred routes to various destinations countywide. | $600 | $600 | $0 |
| Bike Parking Subsidy Program | RTC 16 | Subsidies for bicycle racks and lockers for businesses, schools, government agencies, and non-profit organizations are all eligible. Recipients are responsible for installation and maintenance of the equipment. Avg annual cost: $25K/yr. | $550 | $210 | $340 |
| County-wide Bicycle, Pedestrian and Vehicle Occupancy Counts | RTC-P50 | Conduct counts to assess mode split over time and assess impact of new facilities. | $432 | $232 | $200 |
| Cruz511 TDM and Traveler Information | RTC 02a | Transportation demand management including centralized traveler information system and ride matching services. Outreach, education and incentives; multimodal traveler information system on traffic conditions, incidents, road and lane closures; ride matching service for carpools, vanpools, and bicyclists; services and information about availability and benefits of all transportation modes, including sharing rides, transit, walking, bicycling, telecommuting, alternative work schedules, alternative fuel vehicles, and park-n-ride lots. Avg annual cost: $315k. | $5,290 | $2,640 | $2,650 |
| Environmental Assessment, Economic and Other Analyses of Options for Rail Corridor | RTC-P02a | Environmental assessment, economic and other analyses of a possible future public transit system and other transportation options on the rail corridor right-of-way. | $8,000 | $8,000 | $0 |
| Freeway Service Patrol (FSP) on Hwy 1 and Hwy 17 | RTC 01 | Maintain and expand tow truck patrols on Highways 1 and 17. Work with the CHP to quickly clear collisions, remove debris from travel lanes, and provide assistance to motorists during commute hours to keep incident related congestion to a minimum and keep traffic moving. Avg need: $300k/yr constrained (some from SB1); $430k/yr total cost. | $9,460 | $6,600 | $2,860 |
| MBSST - North Coast Rail Trail | TRL 5 | Monterey Bay Sanctuary Scenic Trail Network (MBSST) sections ph. 1 Wilder Ranch-Coast Dairies (5.1 mi); ph. 2-Yellow Bank Beach/Panther Beach-Davenport (2.1 mi). | $20,000 | $20,000 | $0 |
| MBSST - Rail and Hwy 1 Bicycle and Pedestrian Crossing at Laguna Creek Beach | RTC 27d | Design, approval of CPUC, environmental clearance, and construction of a bicycle and pedestrian crossing of the rail line and Hwy 1 to provide access between the Coastal Rail Trail at Laguna Creek Beach and the parking area on the inland side of Hwy 1. | $2,000 | $0 | $2,000 |
| Measure D Administration and Implementation | RTC-P59 | SCCRTC administration, implementation and oversight of Measure D and the revenues generated from the 2016 Santa Cruz County Transportation Sales Tax - Measure D. Costs include annual independent fiscal audits, reports to the public, preparation and implementation of state-mandated reports, oversight committee, preparation of implementation, funding and financing plans, and other responsibilities as may be necessary to administer, implement and oversee the Ordinance and the Expenditure Plan. | $16,500 | $16,500 | $0 |
| Monterey Bay Sanctuary Scenic Trail Network (Coastal Rail Trail) - Trail Management Program | RTC 27c | Coordinate trail implementation as it traverses multiple jurisdictions to ensure uniformity; serve as Project Manager for construction of some segments; handle environmental clearance; coordinate use in respect to other requirements (closures for ag spraying, etc); solicit ongoing funding and distribute funds to implementing entities through MOUs; coordinate with community initiatives; etc. | $1,030 | $1,030 | $0 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Monterey Bay Sanctuary Scenic Trail Network - Design, Environmental Clearance, and Construction | RTC 27a | Design, environmental clearance and construction of the 32-mile rail component of the 50+ mile network of bicycle and pedestrian facilities on or near the coast, with the rail trail as the spine and additional spur trails to connect to key destinations. (Funded segments listed individually.) | $80,500 | $41,500 | $39,000 |
| Monterey Bay Sanctuary Scenic Trail Network (Coastal Rail Trail) - Maintenance | RTC 27b | Maintenance of the rail trail component of the Monterey Bay Sanctuary Scenic Trail Network - ongoing clean-up, trash/recycling removal, graffiti abatement, brush clearance, surface repairs (from drainage issues, tree root intrusion) etc. | $9,600 | $4,800 | $4,800 |
| Performance Monitoring | RTC-P51 | Transportation data collection and compilation to monitor performance of transportation system to advance goals/targets. Includes travel surveys of commuters, Transportation Demand Management plan, a low-stress bicycle network plan and parking standards plan. | $1,650 | $220 | $1,430 |
| Planning, Programming & Monitoring (PPM) - SB45 | RTC 04 | Development and amendments to state and federally mandated planning and programming documents, monitoring of programmed projects. Avg annual cost: $250k/yr. | $5,680 | $1,870 | $3,810 |
| Rail and Trail Corridor Management and Maintenance | RTC-P03 | Operating expenses for rail line oversight. Avg annual cost:$175K/yr. | $3,850 | $3,850 | $0 |
| Rail Line: Freight Service Upgrades | RTC-P41 | Upgrade rail line to FRA Class 2 to a condition for reasonable ongoing maintenance into the future. Upgrade crossings, replace jointed rail with continuously welded rail, upgrade signals, and replace ties. | $25,000 | $0 | $25,000 |
| Rail Transit: Watsonville-Santa Cruz Corridor | RTC-P02 | Design, construction, and operation of fixed guideway public transit between Santa Cruz and Watsonville. May be a joint project with the SCCRTC, SCMTD, and local jurisdictions. Annual op cost est: $5-10M/yr; capital: $31.5M-$133M depending on service area and frequency (Total cost reflects Scenario G from 2015Rail Transit Study). Cost shown for 15 years of service during RTP period. | $283,000 | $0 | $283,000 |
| Railroad Infrastructure Maintenance and Rehabilitation | RTC 36 | Protect, maintain and rehabilitate the railroad infrastructure on the Santa Cruz Branch Rail Line including bridges, track, drainage, culverts, signals, etc. | $22,410 | $22,410 | $0 |
| Real-Time Transit Info | RTC-P58 | Develop and maintain distribution channel for disseminating real time transit arrival and departure information to Santa Cruz Metro users. To be developed in coordination with Santa Cruz Metro. | $520 | $220 | $300 |
| Recreational Rail Infrastructure | RTC 25 | Seasonal passenger rail service on Santa Cruz Branch rail line. Infrastructure needed for the service is listed here (e.g. platforms, sidings, pedestrian & disabled access, rail vehicles). Unsubsidized operations will be provided by a private operator and operating costs are therefore not included here. All costs are estimated. | $5,340 | $0 | $5,340 |
| Regional State Transit Assistance Projects | RTC-P60 | State Transit Assistance (STA) eligible transit projects | $33,220 | $33,220 | $0 |
| RTC Bikeway Map | RTC-P49 | Update, print and distribute free SC County Bikeway Map and update GIS files as needed. | $320 | $320 | $0 |
| SAFE: Call Box System Along Hwys | RTC-P01 | Motorist aid system of telephone call boxes along all highways plus maintenance and upgrades. Call boxes may be used to request assistance or report incidents. Avg annual cost: $245/yr | $5,390 | $5,390 | $0 |
| Santa Cruz Branch Rail Line Improvements | RTC 03a | Infrastructure preservation for current uses and future transportation purposes. | $570 | $570 | $0 |
| SCCRTC Administration (TDA) | RTC-P07 | SCCRTC as Regional Transportation Planning Agency for Santa Cruz County distributes Transportation Development Act Local Transportation Funds and State Assistance Funds for planning, transit, bicycle facilities and programs, pedestrian facilities and programs and specialized transportation in accordance with state law and the unmet transit needs process. Average annual cost: $650K/yr. | $14,300 | $14,300 | $0 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| SCCRTC Planning | RTC-P08 | SCCRTC Planning Tasks. Includes public outreach, long and short range planning, interagency coordination. Avg annual cost: $625k/yr. | $13,750 | $13,750 | $0 |
| School-Based Mobility/TDM Programs | RTC-P54 | Student transportation programs aimed at improving health and well being, transportation safety and sustainability and that facilitate mode shift from driving alone in a motor vehicle to active and group transportation. | $2,690 | $1,100 | $1,590 |
| Shared Parking Program | RTC-P57 | Develop tools to allow adjacent property owners to develop and share parking facilities. | $150 | $50 | $100 |
| Transportation Demand Management Ordinance and User Guide | RTC-P56 | Develop Model TDM Ordinance and User Guide to include provisions for both residential and non-residential projects and address program and facilities improvements in return for reductions in off-street parking requirements. | $260 | $0 | $260 |
| Vanpool Incentive Program | RTC 15 | Assist in start up and retention of vanpools. Includes financial incentives: new rider subsidies, driver bonuses, and empty seat subsidies. Also may include installation of wifi on vans. Avg Annual Cost: $25k/yr. | $670 | $100 | $570 |
| | | **SCCRTC Total** | **$572,732** | **$199,482** | **$373,250** |
| ***SCCRTC/Caltrans*** | | | | | |
| 1 - Hwy 1 Corridor Investment Program | RTC 24a | Tier 1 – program level design/environmental analysis to establish a Corridor Investment Program (CIP) to reduce congestion along the 9 mile section of Highway 1 between San Andreas Rd/Larkin Valley Rd (Aptos) and Morrissey Boulevard (Santa Cruz). [Other RTC24_ projects are increments of the Highway 1 CIP.] Caltrans Project ID 05-0C730 | $0 | $0 | $0 |
| 2 - Hwy 1: Auxiliary Lanes from 41st Ave to Soquel Ave and Chanticleer Bike/Ped Bridge | RTC 24f | Construct auxiliary lanes and a bicycle/pedestrian overcrossing of Hwy 1 at Chanticleer Ave. Caltrans Project ID 05-0C732 | $32,100 | $32,100 | $0 |
| 3 - Hwy 1 Auxiliary Lanes: State Park Dr-Park Ave and Park Ave-Bay/Porter | RTC 24e | Construct approximately 2.5 miles of auxiliary lanes northbound and southbound between State Park Dr and Park Ave interchange and the Park Ave and Bay/Porter interchange. Includes retaining walls, soundwalls and reconstruction of Capitola Avenue overcrossing with wider sidewalks and bike lanes. [Part of Highway 1 CIP project (RTC 24a)] | $73,000 | $73,000 | $0 |
| 5 - Hwy 1: Reconstruct Morrissey Blvd Interchange | RTC 24h | Reconstruct Morrissey Blvd overcrossing with enhanced pedestrian and bicycle treatments (such as buffered or painted facilities) on both sides of the overcrossing, and/or a bicycle/pedestrian overcrossing at Trevethan Ave, reconfigure ramps and local streets to accommodate the new interchange, and ramp metering.[Part of Highway 1 CIP project (RTC 24a), but listed here as standalone project.] | $45,800 | $0 | $45,800 |
| 6 - Hwy 1: Reconstruct Soquel Avenue Interchange | RTC 24i | Reconstruct the overcrossing with enhanced pedestrian and bicycle facilities on both sides, reconfigure ramps and local streets to accommodate the new interchange, and ramp metering. [Part of Highway 1 CIP project (RTC 24a), but listed here as standalone project.] | $67,330 | $0 | $67,330 |
| 7 - Hwy 1: Reconstruct Bay Ave/Porter St and 41st Avenue Interchange | RTC 24j | Reconstruct highway to operate as a single interchange. Includes construction of a frontage road that includes bike lanes and sidewalks connecting the Bay/Porter and 41st Ave intersections ; reconstruction of the Bay/Porter undercrossing and the 41st Avenue overcrossing with enhanced pedestrian and bicycle treatments on both sides, and reconfiguration of ramps and local streets to accommodate local traffic and ramp metering. [Part of the Highway 1 CIP project (RTC 24a), but is listed here as a standalone project.] | $113,810 | $0 | $113,810 |
| 91 - Hwy 1: Reconstruction of 2 Railroad Crossings in Aptos. | RTC 24o | Reconstruct two railroad crossings over Highway 1 in Aptos. [Part of Highway 1 CIP project (RTC 24a), but listed as a standalone project.] | $41,100 | $0 | $41,100 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| 92 - Hwy 1: Auxiliary Lanes from Rio Del Mar Blvd to State Park Dr Including Bridge over Aptos Creek | RTC 24p | Construct auxiliary lanes and reconstruct bridge over Aptos Creek. [Part of Highway 1 CIP project (RTC 24a), but listed as a standalone project.] | $66,800 | $0 | $66,800 |
| 93 - Hwy 1: Auxiliary Lanes from Freedom Blvd to Rio Del Mar Blvd | RTC 24q | Construct auxiliary lanes. [Part of Highway 1 CIP project (RTC 24a), but listed as a standalone project.] | $16,700 | $0 | $16,700 |
| 94 - Hwy 1: Northbound Auxiliary Lane from San Andreas Rd/Larkin Valley Rd to Freedom Blvd | RTC 24r | Construct northbound auxiliary lane. [Note: This project was not included as part of Highway 1 CIP project (RTC 24a).] | $8,800 | $8,800 | $0 |
| 95 - Hwy 1: Reconstruct Remaining Interchanges | RTC 24k | Interchange modifications not identified as separate projects (San Andreas Rd/Larkin Valley Rd, Freedom Blvd, Rio Del Mar Blvd, State Park Dr, and Park Ave) , including reconfiguration of ramps and local streets for ramp meters, enhanced pedestrian and bike treatments (such as buffered or painted facilities) in each direction and sufficient width to allow addition of HOV lanes. [Part of the Highway 1 CIP project (RTC 24a), but is listed here as a standalone project.] | $127,200 | $0 | $127,200 |
| 96 - Hwy 1: Construction of HOV Lanes from San Andreas Rd/Larkin Valley Rd to Morrissey Blvd | RTC 24m | Construction of High Occupancy Vehicle (HOV or Carpool) Lanes on Highway 1 from San Andreas Rd/Larkin Valley Rd to Morrissey Blvd. Cost excludes auxiliary lanes, reconstruction of interchanges for ramp metering, over and under crossings, and traffic operation system (TOS) elements on the corridor. [These costs are listed separately (RTC 24 a,e,f,g,h,l,j, m,n,o,p,q,r). Could be expensed under a complete Hwy 1 HOV Lane project (RTC 24, $603,000) but currently expensed as a standalone project.] | $61,980 | $0 | $61,980 |
| 97 - Hwy 1: HOV Lanes from San Andreas Rd/Larkin Valley to Morrissey Blvd | RTC 24z | Construct HOV or Carpool lanes on Highway 1 from San Andreas Rd/Larkin Valley Rd to Morrissey Blvd, including auxiliary lanes, reconstruction of interchanges with enhanced bike and pedestrian facilities, arterial and ramp modifications to allow ramp metering, a new bike/ped crossing at Trevethan, and traffic operation system (TOS) element. [Cost if built in entirety: $603,000. See stand alone projects (RTC24f,e,g,h,I,j,a,m) for cost of incremental implementation.] Caltrans Project ID 05-0C730 | $0 | $0 | $0 |
| 98 - Hwy 1: TSM Project from Morrissey to San Andreas Rd. | RTC 24n | Construct the TSM project alternative as described in the Tier 1 environmental study to establish a Highway 1 Corridor Investment Program. Project includes auxiliary lanes, modifications of interchanges with enhanced bike and pedestrian treatment, arterial and ramp modifications to allow ramp metering, a new bike/ped crossing at Trevethan, and traffic operation system (TOS) element. [Cost if built in entirety, rather than incrementally: $249,100. Assumes RTC 24f has been completed.] | $0 | $0 | $0 |
| Hwy 1 Bicycle/Ped Overcrossing at Mar Vista | RTC 30 | Construct a bicycle/pedestrian overcrossing of Hwy 1 in vicinity of Mar Vista Drive, providing improved access to Seacliff and Aptos neighborhoods and schools. | $7,800 | $7,800 | $0 |
| Hwy 1 Ramp Metering: Northern Sections Between San Andreas Road and Morrissey Blvd | RTC 34 | Reconfiguration of ramps and local streets to allow for ramp metering and installation of ramp meters. Could be expensed under a separate stand alone project ($6.7 M) | $0 | $0 | $0 |
| Hwy 1 Ramp Metering: Southern Sections | CT-P01 | Reconfigurations of ramps and installation of ramp meters at interchanges from Hwy 129/Riverside Dr to Mar Monte Ave. | $20,600 | $0 | $20,600 |
| | | **SCCRTC/Caltrans Total** | **$683,020** | **$121,700** | **$561,320** |
| ***SCMTD*** | | | | | |
| ADA Access Improvements | MTD-P51 | Add or improve ADA accessibility to all bus stops and METRO facilities. | $4,222 | $350 | $3,872 |
| ADA Paratransit Service - Continuation of Existing Service | MTD-P10C | Operation & maintenance cost of existing Paratransit service. Avg Annual Cost: $5.5M. | $121,000 | $121,000 | $0 |

*All Figures in year 2016, '000s (thousands of dollars)*

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| ADA Paratransit Vehicle Replacements | MTD 02 | Replace buses/vans for ADA paratransit fleet (including Accessible Taxi program). | $14,040 | $6,000 | $8,040 |
| ADA Service Expansion | MTD-P11 | Add capacity to meet increased trip demand thru 2040. Assumes 2% increase/year starting in 2019. | $2,500 | $1,050 | $1,450 |
| Automatic Vehicle Locator and Automatic Passenger Counter Systems | MTD 24 | Automatic Vehicle Locator (AVL), Automatic Passenger Counters, and automatic vehicle announcing systems on METRO buses. Provide real time bus arrival/departure displays at bus stops. Necessary IT upgrades and data collectionfor system operations, security, planning and maintenance. | $3,200 | $3,200 | $0 |
| Bike Station at Capitola Mall | MTD-P23 | Establish bike station at Capitola Mall, especially to serve UCSC. Would be joint mall, UCSC, MTD project. | $1,030 | $0 | $1,030 |
| Bikes on Buses Expansion | MTD-P20 | Add additional space for bikes on articulated buses when/if METRO purchases or leases 60-ft articulated buses. | $60 | $0 | $60 |
| Bus on Shoulder | MTD-P57 | Plan, design, seek Caltrans approvals, and construct improvements to utilize freeway shoulders to bypass congestion on Highway 1 and possibly Highway 17 to speed inter-city bus service | $12,000 | $0 | $12,000 |
| Bus Rapid Transit | MTD-P15 | Construct park & ride lots, transit centers and grade-separation where feasible to operate bus rapid transit to reduce congestion on Highway 1. | $26,780 | $0 | $26,780 |
| Bus Rebuild and Maintenance | MTD-P31 | Rebuild engines; Fleet maintenance equipment. Avg. cost is ~$250k/bus, increases useful life up to 8 years at 40% of the cost of new buses. | $5,250 | $5,250 | $0 |
| Bus Replacements | MTD-P04 | Replace fleet at the end of normal bus lifetime (approximately every 12 years; $675 each for local fixed route; $900k each for Hwy 17 Over the Road coaches). | $142,420 | $73,000 | $69,420 |
| Bus Stop and Station Improvements | MTD-P52 | Improve customer access and/or amenities at bus stops; add bus stop pads to preserve pavement. | $500 | $500 | $0 |
| Commuter/Subscription Bus Program | MTD-P18 | Capital and operating for subscription buses to areas not currently served by express buses (similar to large vanpool). | $2,070 | $0 | $2,070 |
| Customer IT amenities | MTD-P55 | Upgrade Hwy 17 Wi-Fi and expand to local routes; real-time bus arrival website. | $1,010 | $0 | $1,010 |
| Deviated Fixed-Route Pilot Program | MTD-P43 | Pilot project allowing buses to make minor route modifications to address needs of senior and disabled riders. | $100 | $0 | $100 |
| Electric Non-Fleet Vehicles | MTD-P47 | Replace non-revenue vehicles to EV. | $580 | $0 | $580 |
| EV Fast Charging Stations | MTD-P48 | Install 5 electric vehicle charging stations at transit centers. | $1,030 | $0 | $1,030 |
| Hwy 1 Express Buses | MTD-P27 | Hwy 1 express bus replacements - 6 Buses @ $500k ea. Replace every 12 years. | $6,200 | $0 | $6,200 |
| Hwy 17 Express Service - Continuation of Baseline Service Levels | MTD-P10B | Operation & maintenance cost of existing Highway 17 Express bus service. Avg annual cost: $4.5M. | $99,000 | $99,000 | $0 |
| Hwy 17 Express Service Restoration and Expansion | MTD-P12 | Restore Hwy 17 Express service to FY16 levels, then expand service 2% annually. Restore $300K/yr operating plus 2% annually plus capital costs (2 buses) | $10,000 | $4,000 | $6,000 |
| Inter-County Paratransit Connection | MTD-P44 | Establish paratransit connection location with Santa Clara County. | $1,290 | $0 | $1,290 |
| Local Transit - Continuation of Baseline Service Levels 2019-2040 | MTD-P10 | Operation & maintenance cost of existing local fixed route bus service. Avg annual cost: $38M. | $836,000 | $836,000 | $0 |

*All Figures in year 2016, '000s (thousands of dollars)*

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Local Transit Service Restoration and Expansion | MTD-P14 | Restore local service to FY16 levels, then expand service 2% annually. Restore $6.2M/yr operating plus 2% annually plus capital costs (16 buses) | $173,000 | $72,000 | $101,000 |
| Maintenance Facility Expansion | MTD-P38 | Property acquisition, design, and construction of maintenance facility expansion. | $15,850 | $0 | $15,850 |
| Metro facilities repair/upgrades | MTD-P36 | Maintain and upgrade facilities. | $6,270 | $4,300 | $1,970 |
| Metro rebranding | MTD-P58 | Develop marketing program and establish consistent brand with uniform signage, letterhead, ads. | $500 | $0 | $500 |
| Non-Revenue Vehicle Replacements | MTD-P32 | Replace support vehicles. | $3,450 | $1,200 | $2,250 |
| Pacific Station- Bike Station | MTD-P49 | Establish bike station at Pacific Station. | $410 | $0 | $410 |
| ParaCruz Mobile Data Terminals; Radios | MTD-P30 | Replace mobile data terminals in vehicles | $760 | $400 | $360 |
| ParaCruz Operating Facility | MTD-P28 | Design, Right-of-Way and construction for new ParaCruz Operating Facility. | $12,400 | $0 | $12,400 |
| Park and Ride Facilities | MTD-P53 | Fund purchase and construction or lease of parking areas for commuter bus patrons, either surface lot or parking structure. | $29,400 | $0 | $29,400 |
| Replacement of Watsonville Transit Center | MTD-P56 | Replacement transit center at existing or new location. | $25,000 | $0 | $25,000 |
| Replacement Transit Fareboxes, Ticket Vending Machines, and Fare System Enhancements | MTD 18 | Upgrade GFI Farebox system to enable fare media loading, tracking, registration, interoperability via internet. Necessary IT upgrade. System Integrator to analyze and propose integrated fare media strategy. Replacement fareboxes at end of useful life. Replacement of Ticket Vending Machines at end of useful life. | $5,550 | $1,000 | $4,550 |
| Santa Cruz Metro Center/Pacific Station Renovation | MTD 13 | Renovate Pacific Station or construct new transit center in alternate location. | $25,000 | $0 | $25,000 |
| Senior/Disabled/Low-Income Fixed-Route Transit Incentives | MTD-P42 | Incentives to encourage fixed-route bus ridership. Includes existing discounts for Seniors and persons with disabilities. May include free/reduced rates for seniors during off-peak hours, free bus passes to ADA eligible persons, bus pass subsidies for low income riders transportation to employment, and other incentives to encourage use of fixed-route system. | $17,125 | $0 | $17,125 |
| Signal Priority/Pre-Emption for Buses | MTD-P21 | Enable coach operators to actuate traffic signals to prolong green or change red lights to improve transit running time. | $2,070 | $0 | $2,070 |
| Small Bus Fleet | MTD-P24 | Purchase smaller buses for travel through residential neighborhoods. Cost currently unknown. | $1,700 | $0 | $1,700 |
| Solar Panels for Souza Operations Facility | MTD-P29 | Energy reduction through installation of solar panels on the new Judy K. Souza Operations Facility | $2,000 | $0 | $2,000 |
| South County Operations and Maintenance Facility | MTD-P54 | Acquisition of property and construction of second operations and maintenance facilities to better serve South County. | $50,000 | $0 | $50,000 |
| Transit Mobility Training Program Expansion | MTD-P19 | Expand public outreach and training to encourage fixed route, rather than Paratransit, use. Outreach may also involve other partners (ex. DMV, doctors, senior centers, etc). Avg annual cost: $80K/yr. | $1,240 | $0 | $1,240 |
| Transit Security and Surveillance Systems | MTD-P33 | Enhance passenger safety and facilities security. Emergency response systems. | $1,140 | $0 | $1,140 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Transit System Technology Improvements | MTD-P35 | Automated Data Processing software, telephones, portable computers, servers, Customer Information Kiosks, digital ID processing equipment. Maintain and upgrade office software and hardware, bandwidth, web site, phone network, to enhance productivity, customer service and maintain functionality. | $5,490 | $1,000 | $4,490 |
| Transit Technological Improvements | MTD-P06 | IT software and hardware upgrades for scheduling, customer service, planning systems. Upgrades every 5 years. | $5,170 | $2,500 | $2,670 |
| Transit/Paratransit Driver Emergency Training | MTD-P45 | Provide training equipment for drivers on new mobility devices (scooters, motorized wheelchairs) plus emergency training and biohazard container and clean-up kits for vehicles. | $260 | $0 | $260 |
| | | **SCMTD Total** | **$1,674,067** | **$1,231,750** | **$442,317** |
| ***Seniors Council*** | | | | | |
| Senior Employment Ride Reimbursement | RTC-P43 | Reimburse low income seniors for transit expenses to/from employer sites. | $1,600 | $1,600 | $0 |
| | | **Seniors Council Total** | **$1,600** | **$1,600** | **$0** |
| ***UCSC*** | | | | | |
| Alternative Fuel Fleet Vehicles | UC-P64 | Purchase and upgrade fleet vehicles to alt. fueled vehicles (refuse trucks, street sweepers, fleet cars, etc.) | $3,100 | $500 | $2,600 |
| Alternative Fuel/Electric Shuttle Vehicles | UC-P22 | Capital acquisition of vehicles/conversion of shuttles to EV. | $10,330 | $0 | $10,330 |
| Bike Shuttle Vehicle Acquisition | UC-P51 | Acquire more alt fueled vehicles for bike shuttle (and possible expansion). | $520 | $0 | $520 |
| Bus Tracking and AVL Transit Programs | UC-P62 | GPS bus tracking and Automatic Vehicle Locator programs inform travelling population of transit locations so they can make informed mode choices. | $260 | $260 | $0 |
| College Nine/Communications Pedestrian Bridge | UC-P39 | Construct pedestrian bridge. | $1,030 | $0 | $1,030 |
| College Nine/Crown College Pedestrian Bridge | UC-P37 | Construct pedestrian bridge. | $1,550 | $0 | $1,550 |
| Coolidge Overlook | UC-P42 | Improve overlook for parking, benches and signage for Sanctuary. | $620 | $0 | $620 |
| Disability Van Service | UC-P75 | Operate disability van service ($240k/yr). | $5,450 | $5,450 | $0 |
| East Collector Transit Hub | UC-P46 | New transit hub at East Collector (East Remote) lot. | $5,170 | $0 | $5,170 |
| Electric Vehicle Charging Stations | UC-P65 | Add additional electrical infrastructure and install electric vehicle charging stations around campus. | $810 | $310 | $500 |
| Great Meadow Bike Path Safety Improvements | UCSC 07 | Bike path safety and maintenance improvements: Reconstruct and widen Class 1 bike path, separate pedestrian improvements northbound to minimize conflicts. | $1,135 | $1,135 | $0 |
| Hagar/McLaughlin Intersection Improvements | UC-P10 | Signal, pedestrian safety improvements(including new crosswalk) and roadway improvements. | $520 | $0 | $520 |
| Hagar/Steinhart Intersection Improvements | UC-P14 | Signal, pedestrian safety improvements, transit, roadway improvements. | $1,030 | $0 | $1,030 |
| Hagar-Coolidge Connector Road/Hagar/East Remote Intersection Improvements | UC-P47 | New roadway connector, including bicycle lanes, between Hagar Drive and Coolidge, plus Hagar/East Remote Intersection Improvements: signal, pedestrian safety improvements and roadway improvements. | $3,100 | $0 | $3,100 |

*All Figures in year 2016, '000s (thousands of dollars)*

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Heller Drive Bicycle Lanes (Empire Grade to Porter College) | UC-P56 | Add Class II bicycle lanes in downhill direction as feasible. | $830 | $0 | $830 |
| Kerr/Porter Rd Pedestrian Bridge ADA Upgrades | UC-P72 | Modify bridge to improve access. | $3,100 | $0 | $3,100 |
| Kresge/Core West Pedestrian Bridge: ADA Upgrades | UC-P57 | Modify bridge to enhance ADA access. | $3,100 | $3,100 | $0 |
| McLaughlin Drive Bike Lanes/Pedestrian Enhancements | UC-P30 | Install Class 2 bike lanes and enhance pedestrian circulation on University campus roadway. | $2,580 | $0 | $2,580 |
| Meyer Drive Extension/Jordan Gulch Bridges | UC-P04 | Extension of Meyer Drive from existing Meyer Drive to Hagar Drive. Includes potential construction of two bridges, pedestrian, and bicycle facilities. | $20,660 | $0 | $20,660 |
| Northern Entrance | UC-P08 | Construct new access road including Cave Gulch Bridge to Empire Grade and road and bicycle lanes to Northern Heller Dr. for access and fire safety. | $10,330 | $0 | $10,330 |
| Northern Loop Roadway | UC-P07 | Construct new roadway, including bicycle lanes, on upper campus. Will be phased. Phase I: Chinquapin Extension to support Social Science 3. | $18,590 | $0 | $18,590 |
| Parking Management Technology Improvements | UC-P68 | Updating existing parking management technologies to allow for more effective management, additional parking management at Coastal Marine Campus and 2300 Delaware site. | $410 | $410 | $0 |
| Pedestrian Directional Map/Wayfinding System | UC-P38 | Develop and install signs throughout campus. | $520 | $520 | $0 |
| Porter/Performing Arts Pedestrian Bridge | UC-P36 | Construct pedestrian bridge. | $1,030 | $0 | $1,030 |
| Science Hill/North Academic Core Pedestrian Bridge | UC-P40 | Construct pedestrian bridge. | $1,030 | $0 | $1,030 |
| Sidewalk/Pedestrian Improvements | UC-P50 | Widen sidewalks/improve ped access in areas of campus. | $5,170 | $0 | $5,170 |
| Spring Street Bikeway | UC-P34 | Construct bikeway connecting Spring Street to Hagar Ct. | $310 | $0 | $310 |
| Steinhart Way Multimodal Improvements | UC-P03 | Roadway improvements for shuttles, bikes and pedestrians. | $520 | $0 | $520 |
| Transit Pullouts and Shelters Enhancements | UC-P19 | Construction and installation of transit pullouts and reconstruction of shelters throughout campus. | $1,550 | $0 | $1,550 |
| Transit Vehicles (ongoing) | UC-P23 | Ongoing capital acquisition of transit vehicles for on-campus transit and University shuttles. | $5,170 | $5,170 | $0 |
| Transportation-Related Stormwater Management Projects | UC-P66 | Retrofitting existing transportation facilities and developing new facilities with new stormwater management techniques. | $1,030 | $1,030 | $0 |
| Traveler Safety Education/Information Programs | UC-P61 | Bike/pedestrian safety programs; light and helmet giveaways, safety classes, distracted driver programs, bus etiquette program. | $660 | $100 | $560 |
| UCSC - Metro Station Bus Rapid Transit Improvements | UC-P48 | Bus Rapid Transit Improvements between Metro Station, Bay Street Corridor, and UCSC Roadways. | $5,170 | $0 | $5,170 |
| UCSC Bicycle Facilities | UC-P55 | Add bicycle facilities on campus roadways and paths. Lump sum of projects, including but not limited to UCSC Bicycle Plan that are not listed individually elsewhere in the RTP. | $1,030 | $0 | $1,030 |
| UCSC Bicycle Parking Improvements | UC-P33 | Install bicycle parking facilities to serve bicycle commuters to the University. | $520 | $520 | $0 |
| UCSC Bike Loan Program | UC-P52 | Develop and implement a bike loan program for UC students. | $1,030 | $0 | $1,030 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| UCSC Bike Showers/Storage Lockers | UC-P32 | Install showers and storage facilities to serve bicycle commuters to the University. | $620 | $0 | $620 |
| UCSC Commute Counseling Program | UC-P69 | Staffing program development to individually market to UCSC affiliates on more sustainable means of travel to campus. | $3,100 | $3,100 | $0 |
| UCSC Commuter Incentive Programs | UC-P70 | Provide ongoing support and development of new programs to encourage travel to campus via sustainable modes of travel. | $1,550 | $1,550 | $0 |
| UCSC Lump Sum Roadway Maintenance | UC-P59 | Repaving and rehabilitation of roadways on UCSC campus to maintain existing network. | $10,330 | $3,100 | $7,230 |
| UCSC Main Entrance Improvements | UC-P01 | Realign roadway, transit pullout/shelter, relocate bike parking, construct pedestrian path, historic resource analysis. Work may be done in conjunction with City Roundabout project. | $2,070 | $2,070 | $0 |
| UCSC Parking Operations & Maintenance | UC-P73 | Operate and administer the parking operations for UCSC including planning, TDM, marketing and debt service. | $70,450 | $70,450 | $0 |
| UCSC Pedestrian/Transit Zone | UC-P44 | Pedestrian safety improvements including, colored/textured asphalt and signage at various locations on core campus roadways. | $1,030 | $0 | $1,030 |
| UCSC Traffic Control | UC-P58 | Non-traditional traffic control/crossing guard program at key intersections on UCSC campus to improve pedestrian and vehicle safety, reduce conflicts, improve travel times. | $2,580 | $2,580 | $0 |
| UCSC Transit Service | UC-P74 | Operate the on campus shuttle service and Night Owl ($3.01m/year). | $68,410 | $68,410 | $0 |
| UCSC Vanpool Program | UC-P63 | Maintain, operate and expand upon UCSC vanpool program. | $8,680 | $8,680 | $0 |
| Zimride Emergency Preparedness Database | UC-P67 | Creating a new database through Zimride to have emergency response evacuation of UCSC campus. | $310 | $0 | $310 |
| | | **UCSC Total** | **$288,095** | **$178,445** | **$109,650** |
| ***Various Agencies*** | | | | | |
| Active Transportation Plan | VAR-P39 | Prepare Active Transportation Plans that address bicycle, pedestrian, safe routes to schools and complete streets facilities within the jurisdictions of Santa Cruz County as well as the Santa Cruz Harbor Port District. | $2,380 | $2,380 | $0 |
| Bicycle Sharrows | VAR-P03 | Install sharrows (shared roadway marking) designating areas where bicyclists should ride on streets, especially when bicycle lanes are not available. To be implemented by local jurisdictions. | $520 | $520 | $0 |
| Bicycle Treatments for intersection improvements (ADD) | VAR-P32 | Add painted bike treatments (such as buffered and/or painted bike lanes, bike boxes, bike detection and signals), at major intersections. | $4,130 | $4,130 | $0 |
| Bike Share | VAR-P16 | Establish and maintain an urban centered bike share program allowing county residents to access loaner bikes at key locations such as downtowns, transit centers, shopping districts, and tourist destinations. | $5,170 | $5,170 | $0 |
| Bike-Activated Traffic Signal Program | VAR-P05 | Provide traffic signal equipment to ensure that the traffic signals will detect bicycles just as cars are detected and ensure that the appropriate traffic signal phase is activated by the bicycles. | $1,030 | $1,030 | $0 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Cabrillo College TDM Programs | RTC 33 | Provide students and employees at all four Cabrillo College campuses with education, promotion, and incentives that support the use of sustainable transportation modes. Develop information, programs and services customized to meet the transportation needs of the Cabrillo College community. 'Provide Sustainable Transportation education, promotion, and Go Green program enrollment to Cabrillo College students and employees. Partner with Cabrillo staff and students to reduce SOV trips to the Aptos, Watsonville and Scotts Valley campuses. Provided targeted information and services to Cabrillo members. | $1,560 | $780 | $780 |
| Carsharing Program | VAR-P06 | Program to assist people in sharing a vehicle for occasional use. Implementing Agency TBD, varies. | $2,580 | $1,290 | $1,290 |
| Climate Action Transportation Programs | RTC-P48 | Projects that reduce greenhouse gas emissions through reducing vehicle trips and vehicle miles traveled, increasing fuel efficiency and expanding use of alternatively fueled vehicles. Includes comprehensive outreach and education campaigns, a countywide emergency ride home for those using alternatives, and TDM incentive programs: $100k/year. | $2,580 | $2,330 | $250 |
| Complete Streets Implementation | VAR-P27 | Additional projects for complete streets implementation that would fall under the Complete Streets Guidelines. | $10,330 | $10,330 | $0 |
| Coolidge Drive Reconstruction | VAR-P23 | Reconstruction of roadway and bike lane. | $3,100 | $0 | $3,100 |
| Countywide Pedestrian Signal Upgrades | RTC-P26 | Grant program to fund installation of accessible pedestrian equipment with locator tones including rapid flashing beacons and count down times etc. to facilitate roadway crossings by visually and mobility impaired persons. | $2,070 | $1,035 | $1,035 |
| Countywide Senior Driving Training | VAR-P24 | Coordinate and enhance current programs that help maturing drivers maintain their driving skills and provides transitional info about driving alternatives. (Current programs are run by AARP and CHP.) | $800 | $80 | $720 |
| Eco-Tourism - Sustainable Transportation | VAR-P17 | Provide sustainable transportation information, incentives and promotions to the estimated one million visitors to Santa Cruz County. Work with the Santa Cruz County Conference and Visitors Council, local lodgings, and tourist attractions. | $1,030 | $515 | $515 |
| Electric Bicycle Commuter Incentive Program | VAR-P44 | Financial incentives, promotion and/or education to encourage residents to use electric bikes instead of commuting by car. | $3,400 | $1,000 | $2,400 |
| Environmental Mitigation Program | VAR-P38 | Allocate funds to protect, preserve, and restore native habitat that construction of transportation projects listed in SCCRTC's RTP could potentially impact. EMP funds will be for uses such as, but not limited to, purchasing land prior to project development to bank for future mitigation needs, funding habitat improvements in advance of project development to leverage and enhance investments by partner agencies. | $5,680 | $5,680 | $0 |
| Hwy 1 Bike/Ped Bridge (Cabrillo-New Brighton) | CT-P07a | Construction of bike/ped bridge connecting New Brighton State Beach and Cabrillo College as part of larger Nisene SP to the Sea trail concept. Lead agency TBD. | $8,260 | $0 | $8,260 |
| Live Oak Transit Hub | VAR-P46 | Transfer node near rail corridor at 17th Ave - may include transit, rideshare, bicycle, bikeshare, pedestrian to provide regional connections to/from other parts of the county. | $530 | $530 | $0 |
| Local Arterial ITS Infrastructure | VAR-P11 | ITS (Intelligent Transportation Systems): advanced electronics and information technologies to increase the safety and efficiency of the surface transportation system, including vehicle detection devices along major arterials in urbanized areas to alert motorists of incidents. | $620 | $0 | $620 |
| Lump Sum Bridge Preservation | VAR-P14 | Painting, Barrier Rail Replacement, Low Water Crossing, Rehab, and Replacement bridges for SHOPP and Highway Bridge Program (HBP). | $54,500 | $54,500 | $0 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| Lump Sum Emergency Response Local Roads | VAR-P13 | Lump sum for repair of local roads damaged in emergency. (Based on average ER/FEMA/CalEMA funds, storm damage, fire, etc. Costs of repairs assumed under lump sum maintenance and operations within local jurisdiction listings.) | $23,370 | $23,370 | $0 |
| Mission St/Hwy 1 Bike/Truck Safety Campaign | VAR-P18 | Partnership with road safety shareholders including Caltrans, UCSC, City of Santa Cruz, Ecology Action, trucking companies and others to improve bike/truck safety along the Mission Street corridor. Provide safety presentations, videos, brochures, safety equipment, etc. | $520 | $520 | $0 |
| Mobility Management Center | VAR-P04 | Centralized one-stop-shop for information and resources on specialized transportation options. May be combined with 511 and local senior information and assistance efforts. Implementing agency TBD. Est. annual cost: $100-300k/yr. | $7,750 | $0 | $7,750 |
| Neighborhood Greenways | VAR-P33 | Implement greenways which gives priority to bicycles and pedestrians on low volume, low speed streets including, way finding and pavement markings, bicycle treatments in areas identified for more intensified development in Sustainable Communities Strategy. | $5,170 | $0 | $5,170 |
| Park and Ride Lot Development | VAR-P26 | Upgrade and maintain existing park and ride lots for commuters countywide. Secure additional park and ride lot spaces for motorized vehicles and bicycles. Long range plan: identify, purchase land, construct Park & Ride lots. | $8,260 | $2,260 | $6,000 |
| Planning for Transit Oriented Development for Seniors | VAR-P25 | Evaluate opportunities for Transit Oriented Development serving seniors including access to medical facilities. | $80 | $80 | $0 |
| Plug-in Electric Vehicle Access, Education & Promotion | VAR-P21 | Target motorist looking for a cleaner vehicle by providing access, education and promotion on ever evolving plug-in electric vehicles (PEV). Provide PEV car share, rental and demo drives, educational workshops, online, and hard copy information. Promote through current EA groups, partners, media and other available sources. | $830 | $0 | $830 |
| Public Transit Marketing | VAR-P20 | Initiatives that increase public transit ridership including discount passes, free fare days, commuter clubs, and promotional and marketing campaigns. | $1,550 | $775 | $775 |
| Public/Private Partnership Bicycle and Pedestrian Connection Plan | VAR-P29 | Develop model for assisting local jurisdictions in working with private property owners to allow bicycle and pedestrian access through private property in areas identified for more intensified development in Sustainable Communities Strategy. | $150 | $150 | $0 |
| Public/Private Partnership Transit Stops and Pull Outs Plan | VAR-P30 | Develop model for assisting local jurisdictions in working with businesses to install transit pullouts and shelters on property in areas identified as high quality transit corridors in Sustainable Communities Strategy. | $150 | $150 | $0 |
| Safe Paths of Travel | VAR-P08 | Regional program to construct and/or repair pedestrian facilities adjacent to high frequency use origins and destinations, particularly near transit stops. | $3,100 | $3,100 | $0 |
| Safe Routes to Schools Studies | VAR-P10 | Studies to assess pedestrian and bicycle safety near schools. | $210 | $210 | $0 |
| Safety Plan | VAR-P36 | Develop a safety plan that addresses traffic related injuries and fatalities for all modes of transportation. | $310 | $310 | $0 |
| Santa Cruz County Open Streets | VAR-P40 | Community events promoting alternatives to driving alone as part of a sustainable, healthy, and active life-style. Temporarily opens roadways to bicycle and pedestrian travel only, diverting automobiles to other roadways.(Average annual cost - $100k/yr) | $2,000 | $200 | $1,800 |
| School Complete Streets Projects | VAR-P35 | Implement ped/bike programs and facilities near schools. | $10,330 | $10,330 | $0 |

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| School Safety Programs | VAR-P19 | Bicycle and walking safety education and encouragement programs targeting K-12 schools in Santa Cruz County including Ecology Action's Safe Routes to School and Bike Smart programs. Provide classroom and on the bike safety training in an age appropriate method. Provide a variety of bicycle, walking, busing and carpooling encouragement projects ranging from bike to school events, to incentive driven tracking, and educational support activities. Est. annual cost $150k. | $3,820 | $1,910 | $1,910 |
| TDM Individualized Employer/Multiunit Housing Program | RTC-P53 | Implement individualized employer and multiunit housing TDM programs with incentives for existing development. | $4,650 | $2,325 | $2,325 |
| Transit Oriented Development Grant Program | RTC-P25 | Smart growth grant program to fund TODs that encourage land use and transportation system coordination. May include joint child care/PNR/transit centers. | $5,170 | $2,570 | $2,600 |
| Transit Priority | VAR-P34 | Install transit queues at major intersections. | $5,170 | $2,585 | $2,585 |
| Transit Service to San Jose Airport | VAR-P43 | Provide transit service to San Jose airport from Santa Cruz. Current average annual need $0.5M | $11,000 | $0 | $11,000 |
| Transportation Demand Management Plan | VAR-P37 | Collaborate with other organizations to develop a coordinated plan for transportation demand management program implementation for Santa Cruz County. | $310 | $310 | $0 |
| Transportation for Caregivers of Seniors/People with Disabilities | VAR-P42 | Transportation service for caregivers of seniors or people with disabilities. Including, but not limited to programs such as, volunteer rides, taxi script, ride to work program. Current avg annual need $.5M. Constrained=$0M. | $11 | $0 | $11 |
| Transportation for Low Income Youth | VAR-P15 | Safe, reliable transportation services for foster care children to/from school. Avg annual cost: $100k/yr. | $2,580 | $0 | $2,580 |
| Transportation for Low-Income Families | VAR-P41 | Transportation service for low income families with children. Includes medical service rides, out-of-county rides, volunteer rides, taxi script, ride to work program, etc. Current avg annual need $.5M. Constrained=$0M. | $11,000 | $0 | $11,000 |
| Transportation System Electrification | VAR-P07 | Partnership with local gov't agencies, electric vehicle manufactures, businesses, and Ecology Action to establish electric vehicle charging stations for EV's, plug-in hybrids, NEV's, as well as ebikes and escooters. Work with manufacturers on developing advanced electric vehicles and educating the public regarding the ease of use and benefits of electric vehicles. | $51,650 | $51,650 | $0 |
| Uncontrolled Pedestrian Crossing Improvements | VAR-P31 | Implement improvements to uncontrolled pedestrian crossing such as painted and/or raised crosswalks, flashing beacons and pedestrian islands. | $5,170 | $2,570 | $2,600 |
| Watsonville Transit Hub | VAR-P47 | Expand transportation mode options at transfer node near rail corridor and current transit center to increase use of transit, rideshare, bicycle, bikeshare, pedestrian to provide regional connections to/from other parts of the county. | $585 | $585 | $0 |
| West Side Transit Hub | VAR-P45 | Transfer node near rail corridor at Natural Bridges Dr - may include transit, rideshare, bicycle, bikeshare, pedestrian to provide regional connections to/from other parts of the county and the university. | $580 | $580 | $0 |
| | | **Various Agencies Total** | **$275,746** | **$197,840** | **$77,906** |
| ***Volunteer Center*** | | | | | |
| Volunteer Center Transportation Program | VC-P1 | Program providing specialized transportation to seniors and people with disabilities. Constrained=existing TDA allocations. | $3,750 | $1,640 | $2,110 |
| | | **Volunteer Center Total** | **$3,750** | **$1,640** | **$2,110** |

*All Figures in year 2016, '000s (thousands of dollars)*

| Project Title | ID | Project Description/Scope | Est total cost | Constrained | Uncon-strained |
|---|---|---|---|---|---|
| ***Watsonville Airport*** | | | | | |
| Lump Sum Watsonville Municipal Airport Capital Projects | AIR-P01 | Projects from the Watsonville Airport Capital Improvement Program. Includes new hangers, reconstruction of aviation apron, security features, and runway extensions. | $21,700 | $21,700 | $0 |
| Watsonville Municipal Airport Operations | AIR-P02 | Ongoing operations/maintenance. Average $2M/year. | $44,000 | $44,000 | $0 |
| | | **Watsonville Airport Total** | **$65,700** | **$65,700** | **$0** |
| | | **Total Within Projected Funds (Constrained)** | | **$3,757,313** | |
| | | **Minimum New Funds Needed (Unconstrained)** | | | **$3,356,681** |

***For some projects no cost estinate was available thus was not included in this total**

# Appendix G

## Escalated Project Costs

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# Appendix G: Escalated Project Costs

The Federal Transportation Act and state guidelines require that the RTP reflect the cost of implementing projects in "year of expenditure dollars" (YOE) and must be financially constrained to match escalated projected revenues. While it is unknown the exact year that most projects will be implemented, this spreadsheet demonstrates how much it would cost to implement the constrained RTP project list if the annual escalation rate were 1.75%. Since the actual year that a project will be constructed may vary and numerous economic and external factors can impact project costs, actual costs and escalation rates will likely vary. Additional information on each project is provided in a separate appendix. This list only includes "Constrained" projects which could be funded within the projected revenues identified in this document.

*Figures in $000s (thousands)*

| RTP # | Regionally Significant | Project | Constrained Cost *Current Year* | Escalated Cost Rounded Estimate | Year of Expenditure |
|---|---|---|---|---|---|
| AIR-P01 | ✓ | Lump Sum Watsonville Municipal Airport Capital Projects | $ 21,700 | $ 26,190 | Ongoing |
| AIR-P02 | ✓ | Watsonville Municipal Airport Operations | $ 44,000 | $ - | Ongoing |
| CAP 11 | | Clares Street Traffic Calming | $ 750 | $ 780 | 2018-2020 |
| CAP 15 | | Park Avenue Sidewalks | $ 650 | $ 670 | 2018-2020 |
| CAP 16 | | Bay Avenue/Capitola Avenue Intersection Modifications/Roundabout | $ 1,000 | $ 1,040 | 2018-2020 |
| CAP 17 | | Upper Pacific Cove Parking Lot Pedestrian Trail and Depot Park Metro Development | $ 310 | $ 320 | 2018-2020 |
| CAP 18 | | Brommer Street Complete Street Improvements (250' west of 38th Ave to 41st Ave) | $ 770 | $ 800 | 2018-2020 |
| CAP-P03 | | Upper Capitola Avenue Improvements | $ 1,340 | $ 1,540 | 2021-2035 |
| CAP-P04b | | Capitola Village Multimodal Enhancements - Phase 2/3 | $ 3,100 | $ 3,560 | 2021-2035 |
| CAP-P05 | | Cliff Drive Improvements | $ 1,550 | $ 1,780 | 2021-2035 |
| CAP-P06 | ✓ | Citywide General Maintenance and Operations | $ 40,666 | $ 49,090 | Ongoing |
| CAP-P07 | | Bay Avenue/Hill Street Intersection | $ 210 | $ 240 | 2021-2035 |
| CAP-P07p | ✓ | Stockton Ave Bridge Rehab | $ 1,500 | $ 1,720 | 2021-2035 |
| CAP-P09 | ✓ | Park Avenue/Kennedy Drive Improvements | $ 360 | $ 410 | 2021-2035 |
| CAP-P12 | | Monterey Avenue Multimodal Improvements | $ 360 | $ 410 | 2021-2035 |
| CAP-P16 | | Clares Street Pedestrian Crossing west of 40th Ave | $ 250 | $ 290 | 2021-2035 |
| CAP-P17 | | Citywide Traffic Calming | $ 1,450 | $ 1,790 | 2021-2040 |
| CAP-P27 | | Wheelchair Access Ramps | $ 200 | $ 220 | 2018-2035 |
| CAP-P28 | | Monterey Avenue at Depot Hill | $ 260 | $ 300 | 2021-2035 |
| CAP-P29 | | Bay Avenue Traffic Calming and Bike/Ped Enhancements | $ 210 | $ 240 | 2021-2035 |
| CAP-P30 | | 47th Avenue Traffic Calming and Greenway | $ 100 | $ 110 | 2021-2035 |
| CAP-P32 | | Bay Avenue/Monterey Avenue Intersection Modification | $ 310 | $ 360 | 2021-2035 |
| CAP-P34 | | Capitola Village Enhancements: Capitola Ave | $ 1,030 | $ 1,460 | 2035-2040 |
| CAP-P37 | ✓ | 41st Ave/Capitola Road Intersection Improvements | $ 520 | $ 600 | 2021-2035 |
| CAP-P38 | | 40th Ave/Clares St Intersection Improvements | $ 1,050 | $ 1,210 | 2021-2035 |
| CAP-P40 | | 46th/47th Ave (Clares to Cliff Dr) Bike Lanes/Traffic Calming | $ 20 | $ 20 | 2018-2020 |
| CAP-P41 | | Brommer/Jade/Topaz St Bike Lanes/Traffic Calming (Western City Limit on Brommer to 47thAve) | $ 20 | $ 20 | 2021-2035 |
| CAP-P42 | | Clares St Bike Lanes/Sharrows (Capitola Rd to 41st Ave) | $ 100 | $ 100 | 2018-2020 |
| CAP-P43 | | Clares St/41st Ave Bicycle Intersection Improvement | $ 10 | $ 10 | 2021-2035 |
| CAP-P44 | | Gross/41st Ave Bicycle Intersection Improvement | $ 20 | $ 20 | 2018-2020 |
| CAP-P46 | | 40th Ave (at Deanes Ln)Bike/Ped connection | $ 10 | $ 10 | 2018-2020 |
| CAP-P47 | ✓ | 41st Ave (Soquel to Portola) Crosswalks | $ 20 | $ 20 | 2018-2020 |
| CAP-P48 | | Capitola Mall (Capitola Rd to Clares) Bike Path | $ 50 | $ 50 | 2018-2020 |
| CAP-P50 | | Capitola-wide HOV priority | $ 40 | $ 50 | 2021-2035 |
| CAP-P51 | | Citywide Sidewalk Program | $ 520 | $ 660 | 2021-2040 |
| CAP-P52 | | Citywide Bike Projects | $ 400 | $ 490 | 2021-2040 |
| CAP-P53 | | Capitola Rd & 45th Avenue I/S Improvements | $ 400 | $ 460 | 2021-2035 |
| CAP-P54 | | Wharf Road and Stockton Avenue I/S Improvements | $ 350 | $ 400 | 2021-2035 |
| CAP-P55 | | Porter Street and Highway 1 I/S Improvements | $ 250 | $ 290 | 2021-2035 |

| RTP # | Regionally Significant | Project | Constrained Cost *Current Year* | Escalated Cost Rounded Estimate | Year of Expenditure |
|---|---|---|---|---|---|
| CAP-P56 | | Monterey Avenue and Park Avenue I/S Improvements | $ 400 | $ 570 | 2035-2040 |
| CAP-P57 | | Stockton Avenue and Capitola Avenue I/S Improvements | $ 350 | $ 400 | 2021-2035 |
| CHP-P01 | ✓ | Hwy 17 Safety Program | $ 2,200 | $ 2,660 | Ongoing |
| CO 36 | | Seacliff Village/State Park Drive Improvements | $ 3,400 | $ 3,910 | 2021-2035 |
| CO 42b | ✓ | Green Valley Rd Pedestrian Safety Project | $ 390 | $ 400 | 2018-2020 |
| CO 50 | ✓ | Santa Cruz County Health Service Agency - Traffic Safety Education | $ 2,200 | $ 2,660 | Ongoing |
| CO 64 | ✓ | Aptos Village Plan Improvements | $ 4,100 | $ 4,240 | 2018-2020 |
| CO 66 | | East Cliff Drive Cape Seal (12th-17th) | $ 230 | $ 240 | 2018-2020 |
| CO 74 | | Freedom Blvd Pavement Preservation (Hwy 1 to Pleasant Vly Rd) | $ 1,430 | $ 1,480 | 2018-2020 |
| CO 79 | | Branciforte Drive Road Recycle & Overlay (PM 2.4 to Granite Ck Rd) | $ 431 | $ 450 | 2018-2020 |
| CO 80 | | Glen Arbor Road Recycle, Overlay, & Chip Seal (SR 9-Quail Hallow) | $ 467 | $ 480 | 2018-2020 |
| CO 81 | | Granite Creek Road Recycle & Overlay - Part of CO 79B | $ 1,100 | $ 1,140 | 2018-2020 |
| CO 82 | | Branciforte Drive Chip Seal Project (Granite Creek Rd to SC city limits - 1.91mi) | $ 433 | $ 450 | 2018-2020 |
| CO 83 | | Highway 17 To Soquel Corridor Chip Seal Project | $ 881 | $ 910 | 2018-2020 |
| CO 84 | | Hwy 152/Holohan - College Intersection | $ 3,150 | $ 3,620 | 2021-2035 |
| CO 85 | | Scotts Valley Area Routes Chip Seal Project | $ 940 | $ 970 | 2018-2020 |
| CO 86 | | Zayante Road Corridor Chip Seal Project | $ 1,025 | $ 1,060 | 2018-2020 |
| CO-P02 | ✓ | Airport Blvd Improvements (City limits to Green Valley Rd) | $ 1,240 | $ 1,420 | 2021-2035 |
| CO-P03 | | Amesti Road Multimodal Improvements (Green Valley to Brown Valley Rd) | $ 600 | $ 690 | 2021-2035 |
| CO-P04 | | Bear Creek Road Improvements (Hwy 9 to Hwy 35) | $ 250 | $ 350 | 2035-2040 |
| CO-P08 | | Corralitos Road Rehab and Improvements (Freedom Blvd to Hames Rd) | $ 620 | $ 710 | 2021-2035 |
| CO-P09 | ✓ | East Cliff Drive Improvements (32nd Ave to Harbor) | $ 1,500 | $ 1,860 | 2021-2040 |
| CO-P10 | ✓ | Empire Grade Improvements | $ 1,190 | $ 1,480 | 2021-2040 |
| CO-P11 | ✓ | Freedom Blvd Multimodal Improvements (Bonita Dr to City of Watsonville) | $ 775 | $ 890 | 2021-2035 |
| CO-P12 | ✓ | Graham Hill Road Multimodal Improvements (City of SC to Hwy 9) | $ 1,755 | $ 2,480 | 2035-2040 |
| CO-P13 | ✓ | Green Valley Road Improvements | $ 1,030 | $ 1,460 | 2035-2040 |
| CO-P14 | | La Madrona Dr Improvements (El Rancho Dr to City of Scotts Valley) | $ 905 | $ 1,280 | 2035-2040 |
| CO-P17 | | Sims Road Improvements (Graham Hill Rd to La Madrona Dr) | $ 440 | $ 620 | 2035-2040 |
| CO-P18 | ✓ | Soquel Ave Improvements (City of SC to Gross Rd) | $ 3,310 | $ 4,000 | 2021-2040 |
| CO-P19 | ✓ | Soquel Dr Improvements (Soquel Ave to Freedom Blvd) | $ 1,885 | $ 2,170 | 2021-2035 |
| CO-P20 | | State Park Drive Improvements Phase 2 | $ 335 | $ 470 | 2035-2040 |
| CO-P22 | | Paul Sweet Road Improvements (Soquel Dr to end) | $ 310 | $ 440 | 2035-2040 |
| CO-P24 | | Lockwood Lane Improvements (Graham Hill Rd to SV limits) | $ 243 | $ 280 | 2021-2035 |
| CO-P26a | ✓ | 41st Ave Improvements Phase 2 (Hwy 1 Interchange to Soquel Dr) | $ 340 | $ 390 | 2021-2035 |
| CO-P26b | | Beach Road Improvements (City limits to Pajaro Dunes) | $ 340 | $ 390 | 2021-2035 |
| CO-P26d | | Brown Valley Rd Improvements (Corralitos Rd to Redwood Rd) | $ 340 | $ 480 | 2035-2040 |
| CO-P26e | | Buena Vista Rd Improvements (San Andreas to Freedom Blvd) | $ 825 | $ 1,170 | 2035-2040 |
| CO-P26g | | Casserly Rd Improvements (Hwy 152 to Green Valley Rd) | $ 208 | $ 290 | 2035-2040 |
| CO-P26h | | Center Ave/Seacliff Dr Improvements (Broadway to Aptos Beach Dr) | $ 340 | $ 390 | 2021-2035 |
| CO-P26i | | Chanticleer Ave Improvements (Hwy 1 to Soquel Dr) | $ 340 | $ 390 | 2021-2035 |
| CO-P26j | | East Zayante Rd Improvements (Lompico Rd to just before Summit Rd) | $ 485 | $ 690 | 2035-2040 |
| CO-P26k | | El Rancho Dr Improvements (Mt. Hermon/Hwy 17 to SC city limits) | $ 655 | $ 930 | 2035-2040 |
| CO-P26l | | Eureka Canyon Rd Improvements (Hames Rd to Buzzard Lagoon Rd) | $ 655 | $ 930 | 2035-2040 |
| CO-P26m | ✓ | Glen Canyon Rd Improvements (Branciforte Dr to City of Scotts Valley) | $ 1,640 | $ 2,320 | 2035-2040 |
| CO-P26n | | Glenwood Dr. Improvements (Scotts Valley city limits to State Hwy 17) | $ 825 | $ 1,170 | 2035-2040 |
| CO-P26p | | Mattison Ln Improvements (Chanticleer Ave to Soquel Ave) | $ 400 | $ 460 | 2021-2035 |
| CO-P26q | ✓ | Mt. Hermon Rd. Improvements (Lockhart Gulch to Graham Hill Rd) | $ 825 | $ 1,170 | 2035-2040 |
| CO-P26r | | Porter St Improvements (Soquel Dr to Paper Mill Rd) | $ 340 | $ 390 | 2021-2035 |
| CO-P26s | | Seascape Blvd Improvements (Sumner Ave to San Andreas Rd) | $ 170 | $ 200 | 2021-2035 |
| CO-P26u | | Summit Rd Improvements | $ 1,530 | $ 2,160 | 2035-2040 |

| RTP # | Regionally Significant | Project | Constrained Cost *Current Year* | Escalated Cost Rounded Estimate | Year of Expenditure |
|---|---|---|---|---|---|
| CO-P27a | | 37th/38th Ave (Brommer to Eastcliff) Multimodal Circulation Improvements and Greenway | $ 570 | $ 650 | 2021-2035 |
| CO-P27c | | Corcoran Ave Improvements (Alice St to Felt St) | $ 150 | $ 170 | 2021-2035 |
| CO-P27e | | Main St Improvements (Porter St to Cherryvale Ave) | $ 1,760 | $ 2,130 | 2021-2040 |
| CO-P27f | | Mill St Improvements (entire length) | $ 360 | $ 430 | 2021-2040 |
| CO-P27h | | Paulsen Rd Improvements (Green Valley Rd to Whiting Rd) | $ 240 | $ 340 | 2035-2040 |
| CO-P27i | | Pinehurst Dr Improvements (entire length) | $ 180 | $ 250 | 2035-2040 |
| CO-P27k | | Spreckels Dr Improvements (Soquel Dr to Aptos Beach Dr) | $ 340 | $ 480 | 2035-2040 |
| CO-P27l | | Winkle Ave Improvements (entire length from Soquel Dr) | $ 655 | $ 930 | 2035-2040 |
| CO-P28a | | Bean Creek Rd Improvements (Scotts Valley City Limits to Glenwood Dr) | $ 485 | $ 690 | 2035-2040 |
| CO-P28c | | Commercial Way Improvements (Mission Dr. to Soquel Dr.) | $ 170 | $ 240 | 2035-2040 |
| CO-P28d | | Felton Empire Road Improvements (entire length to State Hwy 9) | $ 655 | $ 930 | 2035-2040 |
| CO-P28f | | Pine Flat Rd Improvements (Bonny Doon Rd to Empire Grade Rd) | $ 655 | $ 930 | 2035-2040 |
| CO-P28g | | Soquel-Wharf Rd Improvements (Robertson St to Porter St) | $ 515 | $ 730 | 2035-2040 |
| CO-P28h | | Thurber Ln Improvements (entire length) | $ 485 | $ 690 | 2035-2040 |
| CO-P28i | | Varni Rd Improvements (Corralitos Rd to Amesti Rd) | $ 340 | $ 480 | 2035-2040 |
| CO-P29e | | Maciel Ave Improvements (Capitola Rd to Mattison Ln) | $ 400 | $ 460 | 2021-2035 |
| CO-P29f | | Paul Minnie Ave. Improvements (Rodriguez St to Soquel Ave) | $ 340 | $ 390 | 2021-2035 |
| CO-P30d | | Cabrillo College Dr Improvements (Park Ave to Twin Lakes Church) | $ 240 | $ 340 | 2035-2040 |
| CO-P30n | | Rio Del Mar Blvd Improvements (Esplanade to Soquel Dr) | $ 725 | $ 830 | 2021-2035 |
| CO-P31g | | Opal Cliff Dr Improvements (41st Av to Capitola City Limits) | $ 290 | $ 410 | 2035-2040 |
| CO-P33d | | Harper St Improvements (entire length-El Dorado Ave to ECM) | $ 310 | $ 360 | 2021-2035 |
| CO-P35 | ✓ | Countywide General Road Maintenance and Operations | $ 446,857 | $ 539,400 | Ongoing |
| CO-P36 | ✓ | Soquel-San Jose Rd Improvements (Paper Mill Rd to Summit Rd) | $ 580 | $ 690 | 2021-2040 |
| CO-P37 | ✓ | Countywide ADA Access Ramps | $ 620 | $ 750 | Ongoing |
| CO-P38 | | Pajaro River Bike Path System | $ 2,500 | $ 3,010 | 2021-2040 |
| CO-P41 | ✓ | Countywide Sidewalks | $ 7,000 | $ 8,450 | Ongoing |
| CO-P46a | ✓ | San Lorenzo Valley Trail: Hwy 9 - Downtown Felton Bike Lanes & Sidewalks | $ 2,270 | $ 2,610 | 2021-2035 |
| CO-P46b | ✓ | San Lorenzo Valley Trail: Hwy 9 - North Felton Bike Lanes & Sidewalks | $ 7,640 | $ 8,780 | 2021-2035 |
| CO-P50 | | East Cliff Dr Pedestrian Pathway (7th-12th Ave) | $ 1,760 | $ 2,020 | 2021-2035 |
| CO-P62 | ✓ | Soquel Dr Road Improvements (Robertson St to Daubenbiss) | $ 410 | $ 470 | 2021-2035 |
| CO-P83 | | San Lorenzo Way Bridge Replacement Project | $ 3,190 | $ 4,510 | 2035-2040 |
| CO-P85 | | Green Valley Rd Bridge Replacement Project | $ 2,110 | $ 2,420 | 2021-2035 |
| CO-P88 | | Either Way Ln Bridge Replacement Project | $ 2,180 | $ 3,080 | 2035-2040 |
| CO-P89 | | Redwood Rd Bridge Replacement Project | $ 1,310 | $ 1,510 | 2021-2035 |
| CO-P90 | | Fern Dr @ San Lorenzo River Bridge Replacement Project | $ 2,830 | $ 3,250 | 2021-2035 |
| CO-P91 | | Larkspur Bridge @San Lorenzo River | $ 3,930 | $ 5,560 | 2035-2040 |
| CO-P96 | | Capital improvement projects consistent with the Sustainable Santa Cruz County Plan | $ 11,000 | $ 13,440 | 2021-2040 |
| CO-P97 | | County wide guardrail | $ 15,000 | $ 18,560 | 2021-2040 |
| CT-P09e | ✓ | Measure D Hwy 9 Corridor Projects | $ 7,349 | $ 8,440 | 2021-2035 |
| CT-P45 | ✓ | State Highway Preservation (bridge, roadway, roadside) | $ 467,163 | $ 563,910 | Ongoing |
| CT-P46 | ✓ | Collision Reduction & Emergency Projects | $ 219,714 | $ 265,210 | Ongoing |
| CT-P47 | ✓ | Minors | $ 2,580 | $ 3,110 | Ongoing |
| CT-P48 | | Hwy 17 Wildlife Habitat Connectivity | $ 9,198 | $ 10,570 | 2021-2035 |
| CTSA-P01 | ✓ | Countywide Specialized Transportation | $ 46,000 | $ 55,530 | Ongoing |
| EA 02 | | Ecology Action Countywide SRTS Youth Pedestrian and Bicycle Safety Education | $ 440 | $ 530 | Ongoing |
| EA 03 | | Every Day is Bike to Work Day | $ 60 | $ 60 | 2018-2020 |
| MTD 02 | ✓ | ADA Paratransit Vehicle Replacements | $ 6,000 | $ 7,240 | Ongoing |
| MTD 18 | ✓ | Replacement Transit Fareboxes, Ticket Vending Machines, and Fare System Enhancements | $ 1,000 | $ 1,210 | Ongoing |

| RTP # | Regionally Significant | Project | Constrained Cost *Current Year* | Escalated Cost Rounded Estimate | Year of Expenditure |
|---|---|---|---|---|---|
| MTD 24 | | Automatic Vehicle Locator and Automatic Passenger Counter Systems | $ 3,200 | $ 3,310 | 2018-2020 |
| MTD-P04 | ✓ | Bus Replacements | $ 73,000 | $ 88,120 | Ongoing |
| MTD-P06 | ✓ | Transit Technological Improvements | $ 2,500 | $ 3,020 | Ongoing |
| MTD-P10 | ✓ | Local Transit - Continuation of Baseline Service Levels 2019-2040 | $ 836,000 | $ 1,009,130 | Ongoing |
| MTD-P10B | ✓ | Hwy 17 Express Service - Continuation of Baseline Service Levels | $ 99,000 | $ 119,500 | Ongoing |
| MTD-P10C | ✓ | ADA Paratransit Service - Continuation of Existing Service | $ 121,000 | $ 146,060 | Ongoing |
| MTD-P11 | ✓ | ADA Service Expansion | $ 1,050 | $ 1,270 | 2021-2040 |
| MTD-P12 | ✓ | Hwy 17 Express Service Restoration and Expansion | $ 4,000 | $ 4,860 | 2021-2040 |
| MTD-P14 | ✓ | Local Transit Service Restoration and Expansion | $ 72,000 | $ 87,240 | 2021-2040 |
| MTD-P30 | ✓ | ParaCruz Mobile Data Terminals; Radios | $ 400 | $ 480 | Ongoing |
| MTD-P31 | ✓ | Bus Rebuild and Maintenance | $ 5,250 | $ 6,340 | Ongoing |
| MTD-P32 | ✓ | Non-Revenue Vehicle Replacements | $ 1,200 | $ 1,450 | Ongoing |
| MTD-P35 | ✓ | Transit System Technology Improvements | $ 1,000 | $ 1,210 | Ongoing |
| MTD-P36 | ✓ | Metro facilities repair/upgrades | $ 4,300 | $ 5,190 | Ongoing |
| MTD-P51 | | ADA Access Improvements | $ 350 | $ 360 | 2018-2020 |
| MTD-P52 | | Bus Stop and Station Improvements | $ 500 | $ 520 | 2018-2020 |
| RTC 01 | ✓ | Freeway Service Patrol (FSP) on Hwy 1 and Hwy 17 | $ 6,600 | $ 7,970 | Ongoing |
| RTC 02a | | Cruz511 TDM and Traveler Information | $ 2,640 | $ 3,190 | Ongoing |
| RTC 03a | ✓ | Santa Cruz Branch Rail Line Improvements | $ 570 | $ 690 | Ongoing |
| RTC 04 | ✓ | Planning, Programming & Monitoring (PPM) - SB45 | $ 1,870 | $ 2,260 | Ongoing |
| RTC 15 | ✓ | Vanpool Incentive Program | $ 100 | $ 120 | 2021-2040 |
| RTC 16 | ✓ | Bike Parking Subsidy Program | $ 210 | $ 250 | Ongoing |
| RTC 17 | ✓ | Ecology Action Transportation Employer Membership Program | $ 1,135 | $ 1,370 | Ongoing |
| RTC 24e | ✓ | 3 - Hwy 1 Auxiliary Lanes: State Park Dr-Park Ave and Park Ave-Bay/Porter | $ 73,000 | $ 83,870 | 2021-2035 |
| RTC 24f | ✓ | 2 - Hwy 1: Auxiliary Lanes from 41st Ave to Soquel Ave and Chanticleer Bike/Ped Bridge | $ 32,100 | $ 36,410 | 2018-2035 |
| RTC 24r | | 94 - Hwy 1: Northbound Auxiliary Lane from San Andreas Rd/Larkin Valley Rd to Freedom Blvd | $ 8,800 | $ 12,450 | 2035-2040 |
| RTC 26 | ✓ | Bike To Work/School Program | $ 1,870 | $ 2,260 | Ongoing |
| RTC 27a | ✓ | Monterey Bay Sanctuary Scenic Trail Network - Design, Environmental Clearance, and Construction | $ 41,500 | $ 50,070 | 2021-2040 |
| RTC 27b | ✓ | Monterey Bay Sanctuary Scenic Trail Network (Coastal Rail Trail) - Maintenance | $ 4,800 | $ 5,790 | Ongoing |
| RTC 27c | ✓ | Monterey Bay Sanctuary Scenic Trail Network (Coastal Rail Trail) - Trail Management Program | $ 1,030 | $ 1,240 | Ongoing |
| RTC 30 | ✓ | Hwy 1 Bicycle/Ped Overcrossing at Mar Vista | $ 7,800 | $ 8,730 | 2018-2035 |
| RTC 32 | ✓ | Bicycle Route Signage Countywide | $ 600 | $ 660 | 2018-2035 |
| RTC 33 | ✓ | Cabrillo College TDM Programs | $ 780 | $ 940 | Ongoing |
| RTC 36 | | Railroad Infrastructure Maintenance and Rehabilitation | $ 22,410 | $ 27,050 | Ongoing |
| RTC-P01 | ✓ | SAFE: Call Box System Along Hwys | $ 5,390 | $ 6,510 | Ongoing |
| RTC-P02a | | Environmental Assessment, Economic and Other Analyses of Options for Rail Corridor | $ 8,000 | $ 9,080 | 2018-2035 |
| RTC-P03 | ✓ | Rail and Trail Corridor Management and Maintenance | $ 3,850 | $ 4,650 | Ongoing |
| RTC-P07 | ✓ | SCCRTC Administration (TDA) | $ 14,300 | $ 17,260 | Ongoing |
| RTC-P08 | ✓ | SCCRTC Planning | $ 13,750 | $ 16,600 | Ongoing |
| RTC-P25 | ✓ | Transit Oriented Development Grant Program | $ 2,570 | $ 3,100 | Ongoing |
| RTC-P26 | ✓ | Countywide Pedestrian Signal Upgrades | $ 1,035 | $ 1,250 | Ongoing |
| RTC-P43 | ✓ | Senior Employment Ride Reimbursement | $ 1,600 | $ 1,930 | Ongoing |
| RTC-P48 | ✓ | Climate Action Transportation Programs | $ 2,330 | $ 2,810 | Ongoing |
| RTC-P49 | ✓ | RTC Bikeway Map | $ 320 | $ 390 | 2021-2040 |
| RTC-P50 | ✓ | County-wide Bicycle, Pedestrian and Vehicle Occupancy Counts | $ 232 | $ 280 | Ongoing |
| RTC-P51 | ✓ | Performance Monitoring | $ 220 | $ 270 | Ongoing |

| RTP # | Regionally Significant | Project | Constrained Cost *Current Year* | Escalated Cost Rounded Estimate | Year of Expenditure |
|---|---|---|---|---|---|
| RTC-P53 | ✓ | TDM Individualized Employer/Multiunit Housing Program | $ 2,325 | $ 2,810 | Ongoing |
| RTC-P54 | ✓ | School-Based Mobility/TDM Programs | $ 1,100 | $ 1,330 | Ongoing |
| RTC-P57 | | Shared Parking Program | $ 50 | $ 60 | 2021-2035 |
| RTC-P58 | | Real-Time Transit Info | $ 220 | $ 270 | Ongoing |
| RTC-P59 | | Measure D Administration and Implementation | $ 16,500 | $ 19,920 | Ongoing |
| RTC-P60 | | Regional State Transit Assistance Projects | $ 33,220 | $ 40,100 | Ongoing |
| SC 23 | | West Cliff Path Minor Widening (David Way Lighthouse to Swanton) | $ 520 | $ 540 | 2018-2020 |
| SC 25 | ✓ | Hwy 1/9 Intersection Modifications | $ 7,850 | $ 8,910 | 2018-2035 |
| SC 37 | ✓ | Murray St Bridge Retrofit | $ 11,440 | $ 13,140 | 2021-2035 |
| SC 38 | ✓ | Hwy 1/San Lorenzo Bridge Replacement | $ 20,000 | $ 22,980 | 2021-2035 |
| SC 42 | ✓ | Soquel Ave at Frederick St Intersection Modifications | $ 310 | $ 320 | 2018-2020 |
| SC 48 | | Ocean St Pavement Rehabilitation | $ 1,030 | $ 1,180 | 2021-2035 |
| SC 49 | | Water Street Pavement Rehabilitation(N. Branciforte Ave- Ocean St) | $ 1,453 | $ 1,670 | 2021-2035 |
| SC 50 | | Pacific Ave. Sidewalk | $ 440 | $ 460 | 2018-2020 |
| SC 51 | | River Street Pavement Rehabilitation (Water St to Potrero Street) | $ 1,000 | $ 1,040 | 2018-2020 |
| SC-P07 | | Citywide Operations and Maintenance | $ 86,249 | $ 104,110 | Ongoing |
| SC-P09 | | Sidewalk Program | $ 5,500 | $ 6,640 | Ongoing |
| SC-P100 | | Seabright/Murray Traffic Signal Modifications | $ 1,030 | $ 1,180 | 2021-2035 |
| SC-P101 | | Swift/Delaware Intersection Roundabout or Traffic Signal | $ 500 | $ 570 | 2021-2035 |
| SC-P104 | | Measure H Road Projects | $ 41,800 | $ 50,460 | Ongoing |
| SC-P105 | | Market Street Sidewalks and Bike Lanes | $ 1,030 | $ 1,460 | 2035-2040 |
| SC-P109 | ✓ | Bay/High Intersection Modification | $ 2,150 | $ 2,470 | 2021-2035 |
| SC-P119 | ✓ | Soquel/Water (Branciforte to Morrissey) Crosswalks | $ 150 | $ 170 | 2021-2035 |
| SC-P123 | | Soquel/Branciforte/Water (San Lorenzo River to Branciforte) Bike Lane Treatments | $ 410 | $ 470 | 2021-2035 |
| SC-P125 | | Citywide Safe Routes to School Projects - ATP | $ 1,404 | $ 1,450 | 2018-2020 |
| SC-P126 | | Almar Ave Sidewalks | $ 200 | $ 230 | 2021-2035 |
| SC-P128 | | Citywide Street Sweeping | $ 19,800 | $ 23,900 | Ongoing |
| SC-P13 | | Riverside Ave/Second St Intersection Modification. | $ 175 | $ 180 | 2018-2020 |
| SC-P22 | | Chestnut St. Pathway | $ 570 | $ 650 | 2021-2035 |
| SC-P23 | | Delaware Avenue Complete Streets | $ 150 | $ 170 | 2021-2035 |
| SC-P29 | ✓ | Morrissey Blvd. Bike Path over Hwy 1 | $ 300 | $ 340 | 2021-2035 |
| SC-P30 | | Murray St to Harbor Path Connection | $ 210 | $ 240 | 2021-2035 |
| SC-P35 | | San Lorenzo River Levee Path Connection | $ 2,070 | $ 2,930 | 2035-2040 |
| SC-P47 | | Chestnut Street Bike Lanes | $ 100 | $ 110 | 2021-2035 |
| SC-P59 | | King Street Bike Facility (entire length) | $ 2,070 | $ 2,380 | 2021-2035 |
| SC-P69 | | Seabright Avenue Bike Lanes (Pine-Soquel) | $ 2,070 | $ 2,380 | 2021-2035 |
| SC-P77 | ✓ | Bay Street Corridor Modifications | $ 970 | $ 1,370 | 2035-2040 |
| SC-P81 | ✓ | Hwy 1/Mission St at Chestnut/King/Union Intersection Modification | $ 4,650 | $ 6,580 | 2035-2040 |
| SC-P83 | ✓ | West Cliff/Bay Street Modifications | $ 500 | $ 570 | 2021-2035 |
| SC-P86 | ✓ | Ocean St Streetscape and Intersection, Plymouth to Water | $ 2,000 | $ 2,830 | 2035-2040 |
| SC-P90 | | High St/Moore St Intersection Modification | $ 100 | $ 100 | 2018-2020 |
| SC-P91 | | Shaffer Road Widening and Railroad Crossing | $ 1,000 | $ 1,410 | 2035-2040 |
| SC-P93 | | Beach/Cliff Intersection Signalization | $ 210 | $ 240 | 2021-2035 |
| SV 28 | | Glen Canyon Rd/Green Hills Rd/S. Navarra Dr Bike Corridor and Roadway Preservation | $ 993 | $ 1,030 | 2018-2020 |
| SV 29 | | Glenwood Drive Rehabilitation and Bicycle Improvement Project | $ 865 | $ 900 | 2018-2020 |
| SV 30 | | Kings Village Road/ Bluebonnet Lane Sidewalk | $ 306 | $ 320 | 2018-2020 |
| SV-P05 | | Citywide Sidewalk Program | $ 2,600 | $ 3,140 | Ongoing |
| SV-P06 | | Citywide Access Ramps | $ 210 | $ 250 | Ongoing |
| SV-P21 | | Lockwood Ln Pedestrian Signal Near Golf Course | $ 50 | $ 60 | 2021-2035 |
| SV-P27 | | Citywide General Maintenance and Operations | $ 13,459 | $ 16,250 | Ongoing |
| SV-P28 | | Neighborhood Traffic Calming | $ 770 | $ 930 | Ongoing |

| RTP # | Regionally Significant | Project | Constrained Cost *Current Year* | Escalated Cost Rounded Estimate | Year of Expenditure |
|---|---|---|---|---|---|
| SV-P30A | | Mt Hermon Road Sidewalk Connections | $ 520 | $ 590 | 2018-2035 |
| SV-P35 | | Bean Creek Rd Sidewalks (SVMS to Blue Bonnet) | $ 410 | $ 470 | 2021-2035 |
| SV-P40 | | Lockwoode Lane Sidewalk and Bike Lanes | $ 520 | $ 600 | 2021-2035 |
| SV-P42 | ✓ | Synchronize Traffic Signals along Mt. Hermon Road | $ 100 | $ 100 | 2018-2020 |
| SV-P45 | | Scotts Valley Town Center Bicycle/Pedestrian Facilities | $ 4,130 | $ 4,740 | 2021-2035 |
| SV-P46 | ✓ | Mt Hermon/King's Village Rd-Transit Signal priority | $ 80 | $ 90 | 2021-2035 |
| SV-P47 | ✓ | Mt Hermon/Scotts Valley - Transit Queue Jump | $ 620 | $ 710 | 2021-2035 |
| SV-P49 | | Mt Hermon Rd and Scotts Valley Drive - Crosswalks | $ 515 | $ 630 | 2021-2040 |
| SV-P51 | ✓ | Mt. Hermon Road/Town Center Entrance Traffic Signal | $ 130 | $ 150 | 2021-2035 |
| SV-P52 | | Kings Village Rd/Town Center Entrance Traffic Signal | $ 105 | $ 120 | 2021-2035 |
| SV-P53 | | Mt Hermon Rd to El Rancho Drive Bike/Ped Connection | $ 1,030 | $ 1,460 | 2035-2040 |
| SV-P54 | | Mt Hermon Rd/ Spring Lakes Dr. Pedestrian Intersection Improvements | $ 50 | $ 60 | 2021-2035 |
| TRL 07SC | ✓ | MBSST (Coastal Rail Trail): Segment 7 (Natural Bridges to Pacific Ave) | $ 7,400 | $ 7,660 | 2018-2020 |
| TRL 18L | ✓ | MBSST (Coastal Rail Trail): Lee Road, 4000 feet east to City Slough Trail connection | $ 1,540 | $ 1,590 | 2018-2020 |
| TRL 18W | ✓ | MBSST Rail Trail: Walker Street to City Slough Trail connection | $ 860 | $ 890 | 2018-2020 |
| TRL 5 | | MBSST - North Coast Rail Trail | $ 20,000 | $ 21,730 | 2018-2035 |
| TRL 8-9a | | MBSST (Coastal Rail Trail_ - Segment 8 and 9) | $ 32,934 | $ 37,840 | 2021-2035 |
| TRL 8a | | San Lorenzo River Bike/Ped Trail at RR Bridge | $ 1,550 | $ 1,780 | 2021-2035 |
| UC-P01 | | UCSC Main Entrance Improvements | $ 2,070 | $ 2,380 | 2021-2035 |
| UC-P23 | | Transit Vehicles (ongoing) | $ 5,170 | $ 6,240 | Ongoing |
| UC-P33 | | UCSC Bicycle Parking Improvements | $ 520 | $ 630 | Ongoing |
| UC-P38 | | Pedestrian Directional Map/Wayfinding System | $ 520 | $ 630 | Ongoing |
| UC-P57 | | Kresge/Core West Pedestrian Bridge: ADA Upgrades | $ 3,100 | $ 3,560 | 2021-2035 |
| UC-P58 | | UCSC Traffic Control | $ 2,580 | $ 3,110 | Ongoing |
| UC-P59 | | UCSC Lump Sum Roadway Maintenance | $ 3,100 | $ 3,740 | Ongoing |
| UC-P61 | | Traveler Safety Education/Information Programs | $ 100 | $ 120 | Ongoing |
| UC-P62 | | Bus Tracking and AVL Transit Programs | $ 260 | $ 290 | 2018-2035 |
| UC-P63 | | UCSC Vanpool Program | $ 8,680 | $ 10,480 | Ongoing |
| UC-P64 | | Alternative Fuel Fleet Vehicles | $ 500 | $ 600 | Ongoing |
| UC-P65 | | Electric Vehicle Charging Stations | $ 310 | $ 350 | 2018-2035 |
| UC-P66 | | Transportation-Related Stormwater Management Projects | $ 1,030 | $ 1,240 | Ongoing |
| UC-P68 | | Parking Management Technology Improvements | $ 410 | $ 490 | Ongoing |
| UC-P69 | | UCSC Commute Counseling Program | $ 3,100 | $ 3,740 | Ongoing |
| UC-P70 | | UCSC Commuter Incentive Programs | $ 1,550 | $ 1,870 | Ongoing |
| UC-P73 | | UCSC Parking Operations & Maintenance | $ 70,450 | $ 85,040 | Ongoing |
| UC-P74 | | UCSC Transit Service | $ 68,410 | $ 82,580 | Ongoing |
| UC-P75 | | Disability Van Service | $ 5,450 | $ 6,580 | Ongoing |
| UCSC 07 | | Great Meadow Bike Path Safety Improvements | $ 1,135 | $ 1,180 | 2018-2020 |
| VAR-P03 | | Bicycle Sharrows | $ 520 | $ 630 | Ongoing |
| VAR-P05 | | Bike-Activated Traffic Signal Program | $ 1,030 | $ 1,240 | Ongoing |
| VAR-P06 | | Carsharing Program | $ 1,290 | $ 1,480 | 2021-2035 |
| VAR-P07 | | Transportation System Electrification | $ 51,650 | $ 64,660 | 2021-2040 |
| VAR-P08 | | Safe Paths of Travel | $ 3,100 | $ 3,740 | Ongoing |
| VAR-P10 | | Safe Routes to Schools Studies | $ 210 | $ 250 | Ongoing |
| VAR-P13 | | Lump Sum Emergency Response Local Roads | $ 23,370 | $ 28,210 | Ongoing |
| VAR-P14 | | Lump Sum Bridge Preservation | $ 54,500 | $ 65,790 | Ongoing |
| VAR-P16 | | Bike Share | $ 5,170 | $ 6,380 | 2021-2040 |
| VAR-P17 | | Eco-Tourism - Sustainable Transportation | $ 515 | $ 620 | Ongoing |
| VAR-P18 | ✓ | Mission St/Hwy 1 Bike/Truck Safety Campaign | $ 520 | $ 630 | Ongoing |
| VAR-P19 | | School Safety Programs | $ 1,910 | $ 2,310 | Ongoing |
| VAR-P20 | | Public Transit Marketing | $ 775 | $ 940 | 2021-2040 |
| VAR-P22 | | Monterey Bay Electric Vehicle Alliance (MBEVA) | $ 200 | $ 240 | Ongoing |

| RTP # | Regionally Significant | Project | Constrained Cost *Current Year* | Escalated Cost Rounded Estimate | Year of Expenditure |
|---|---|---|---|---|---|
| VAR-P24 | | Countywide Senior Driving Training | $ 80 | $ 100 | Ongoing |
| VAR-P25 | | Planning for Transit Oriented Development for Seniors | $ 80 | $ 100 | Ongoing |
| VAR-P26 | ✓ | Park and Ride Lot Development | $ 2,260 | $ 2,670 | 2021-2040 |
| VAR-P27 | | Complete Streets Implementation | $ 10,330 | $ 12,400 | 2021-2040 |
| VAR-P29 | | Public/Private Partnership Bicycle and Pedestrian Connection Plan | $ 150 | $ 170 | 2021-2035 |
| VAR-P30 | | Public/Private Partnership Transit Stops and Pull Outs Plan | $ 150 | $ 170 | 2021-2035 |
| VAR-P31 | | Uncontrolled Pedestrian Crossing Improvements | $ 2,570 | $ 3,130 | 2021-2040 |
| VAR-P32 | | Bicycle Treatments for intersection improvements (ADD) | $ 4,130 | $ 5,020 | 2021-2040 |
| VAR-P34 | | Transit Priority | $ 2,585 | $ 3,080 | 2021-2040 |
| VAR-P35 | | School Complete Streets Projects | $ 10,330 | $ 11,870 | 2021-2035 |
| VAR-P36 | | Safety Plan | $ 310 | $ 370 | 2021-2040 |
| VAR-P37 | | Transportation Demand Management Plan | $ 310 | $ 370 | 2021-2040 |
| VAR-P38 | | Environmental Mitigation Program | $ 5,680 | $ 6,860 | Ongoing |
| VAR-P39 | | Active Transportation Plan | $ 2,380 | $ 2,870 | Ongoing |
| VAR-P40 | | Santa Cruz County Open Streets | $ 200 | $ 240 | Ongoing |
| VAR-P44 | | Electric Bicycle Commuter Incentive Program | $ 1,000 | $ 1,200 | 2021-2040 |
| VAR-P45 | | West Side Transit Hub | $ 580 | $ 670 | 2021-2035 |
| VAR-P46 | | Live Oak Transit Hub | $ 530 | $ 610 | 2021-2035 |
| VAR-P47 | | Watsonville Transit Hub | $ 585 | $ 670 | 2021-2035 |
| VC-P1 | | Volunteer Center Transportation Program | $ 1,640 | $ 1,980 | Ongoing |
| WAT 01A | | Hwy 1/Harkins Slough Road Interchange: Bicycle/Pedestrian Bridge | $ 9,900 | $ 11,010 | 2018-2035 |
| WAT 27a | ✓ | Main St. (Hwy 152)/Freedom Blvd Roundabout | $ 1,500 | $ 1,720 | 2021-2035 |
| WAT 38 | ✓ | Airport Blvd Improvements (Freedom Blvd to City Limits) | $ 1,346 | $ 1,390 | 2018-2020 |
| WAT 40 | ✓ | Airport Boulevard Improvements: Westgate/Larkin to Hanger Way | $ 1,645 | $ 1,700 | 2018-2020 |
| WAT 42 | | Green Valley Road Reconstruction (Struve Slough-Freedom Blvd) | $ 1,598 | $ 1,650 | 2018-2020 |
| WAT 43 | | Freedom Boulevard Plan Line | $ 160 | $ 170 | 2018-2020 |
| WAT 44 | | Bicycle Safety Improvements (Various Locations) | $ 375 | $ 390 | 2018-2020 |
| WAT 45 | | Freedom Blvd Reconstruction (Alta Vista to Green Valley) | $ 2,000 | $ 2,300 | 2021-2035 |
| WAT-P04 | | Neighborhood Traffic Plan | $ 115 | $ 130 | 2021-2035 |
| WAT-P06 | | Citywide General Maintenance and Operations | $ 41,400 | $ 49,970 | Ongoing |
| WAT-P13 | | Neighborhood Traffic Plan Implementation | $ 470 | $ 540 | 2021-2035 |
| WAT-P31 | | Ohlone Parkway Improvements - Phase 2 (UPRR to West Beach) | $ 600 | $ 690 | 2021-2035 |
| WAT-P35 | | Bridge Maintenance | $ 115 | $ 130 | 2021-2035 |
| WAT-P36 | | Alley Improvements | $ 60 | $ 70 | 2021-2035 |
| WAT-P38 | ✓ | Freedom Blvd Undergrounding | $ 1,270 | $ 1,800 | 2035-2040 |
| WAT-P40 | ✓ | Main St Modifications (500 Block: Fifth St to East Lake Ave) | $ 710 | $ 820 | 2021-2035 |
| WAT-P42 | | Pajaro Valley High School Connector Trail | $ 710 | $ 820 | 2021-2035 |
| WAT-P43 | | Upper Watsonville Slough Trail | $ 770 | $ 1,090 | 2035-2040 |
| WAT-P46 | | Lower Watsonville Slough Trail | $ 770 | $ 1,090 | 2035-2040 |
| WAT-P47 | ✓ | Main St Modifications (City Limit to Lake Ave) | $ 1,670 | $ 2,360 | 2035-2040 |
| WAT-P49 | | 2nd/Maple Ave (Lincoln to Walker) Traffic Calming and Greenway | $ 25 | $ 30 | 2021-2035 |
| WAT-P50 | | 5th St (Lincoln to Walker) - Traffic Calming and Greenway | $ 25 | $ 30 | 2021-2035 |
| WAT-P51 | | Rodriguez St (Main St to Riverside)- Buffered Bike Lane | $ 12 | $ 10 | 2018-2020 |
| WAT-P52 | | Union/Brennan (Freedom to Riverside) - Sharrows | $ 12 | $ 10 | 2018-2020 |
| WAT-P53 | | Kearney/Rodriguez - Ped Crossing | $ 35 | $ 40 | 2021-2035 |
| WAT-P54 | ✓ | Main St - 3 HAWK Signals | $ 890 | $ 1,260 | 2035-2040 |
| WAT-P55 | ✓ | Main/Rodriguez/Union/Brennan (Freedom to Riverside) - Crosswalks | $ 115 | $ 130 | 2021-2035 |
| WAT-P56 | | Watsonville-wide HOV priority | $ 60 | $ 70 | 2021-2035 |
| WAT-P57 | | East Lake/Madison - ped crossing | $ 300 | $ 420 | 2035-2040 |
| WAT-P58 | | Main St (Freedom to Riverside) Ped/Bike Enhancements | $ 890 | $ 1,010 | 2018-2035 |
| WAT-P59 | | Downtown Watsonville Universal Streets | $ 600 | $ 690 | 2021-2035 |
| WAT-P61 | | Freedom Blvd (Green Valley Rd to Davis) Bicycle and Pedestrian Improvements | $ 300 | $ 340 | 2021-2035 |

| RTP # | Regionally Significant | Project | Constrained Cost *Current Year* | Escalated Cost Rounded Estimate | Year of Expenditure |
|---|---|---|---|---|---|
| WAT-P62 | | Freedom Blvd Pedestrian Crossings (Airport to Lincoln) | $ 600 | $ 850 | 2035-2040 |
| WAT-P65 | | Upper Struve Slough Trail | $ 530 | $ 750 | 2035-2040 |
| WAT-P68 | | Freedom Blvd (Davis Ave to Green Valley Rd) | $ 1,730 | $ 1,990 | 2021-2035 |
| WAT-P72 | | Freedom Blvd (Green Valley Rd to Buena Vista Dr) | $ 5,000 | $ 5,740 | 2021-2035 |
| WAT-P73 | | Main St Modifications (East Lake Ave to Freedom Blvd) | $ 1,000 | $ 1,150 | 2021-2035 |

# Appendix H

## Regional Transportation Plan Checklist

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# Regional Transportation Plan Checklist

*(Revised February 2010)*

*(To be completed electronically in Microsoft Word format by the MPO/RTPA and submitted along with the draft RTP to Caltrans)*

| | |
|---|---|
| **Name of MPO/RTPA:** | Santa Cruz County Regional Transportation Commission |
| **Date Draft RTP Completed:** | December 8, 2017 |
| **RTP Adoption Date:** | June 14, 2018 |
| **What is the Certification Date of the Environmental Document (ED)?** | June 13, 2018 |
| **Is the ED located in the RTP or is it a separate document?** | Separate document. Available online at: http://sccrtc.org/funding-planning/long-range-plans/2040-rtp/ |

*By completing this checklist, the MPO/RTPA verifies the RTP addresses all of the following required information within the RTP.*

## Regional Transportation Plan Contents

| General | | Yes/No | Page # |
|---|---|---|---|
| 1. | Does the RTP address no less than a 20-year planning horizon? (23 CFR 450.322(a)) | Yes | ES-1, App E, App F |
| 2. | Does the RTP include both long-range and short-range strategies/actions? (23 CFR part 450.322(b)) | Yes | Chp 6, App F, App G |
| 3. | Does the RTP address issues specified in the policy, action and financial elements identified in California Government Code Section 65080? | Yes | Chps 4,5,6,7, App E, App F |
| 4. | Does the RTP address the 10 issues specified in the Sustainable Communities Strategy (SCS) component as identified in Government Code Sections 65080(b)(2)(B) and 65584.04(i)(1)? (MPOs only) | NA | - |
| | a) Identify the general location of uses, residential densities, and building intensities within the region? (MPOs only) | NA | - |

| | | | |
|---|---|---|---|
| | b) Identify areas within the region sufficient to house all the population of the region, including all economic segments of the population over the course of the planning period of the regional transportation plan taking into account net migration into the region, population growth, household formation and employment growth? (MPOs only) | NA | - |
| | c) Identify areas within the region sufficient to house an eight-year projection of the regional housing need for the region pursuant to Government Code Section 65584? (MPOs only) | NA | - |
| | d) Identify a transportation network to service the transportation needs of the region? (MPOs only) | NA | - |
| | e) Gather and consider the best practically available scientific information regarding resource areas and farmland in the region as defined in subdivisions (a) and (b) of Government Code Section 65080.01? (MPOs only) | NA | - |
| | f) Consider the state housing goals specified in Sections 65580 and 65581? (MPOs only) | NA | - |
| | g) Utilize the most recent planning assumptions, considering local general plans and other factors? (MPOs only) | NA | - |
| | h) Set forth a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the greenhouse gas emissions from automobiles and light trucks to achieve, if there is a feasible way to do so, the greenhouse gas emission reduction targets approved by the ARB? (MPOs only) | NA | - |
| | i) Provide consistency between the development pattern and allocation of housing units within the region (Government Code 65584.04(i)(1)? (MPOs only) | NA | - |
| | j) Allow the regional transportation plan to comply with Section 176 of the federal Clean Air Act (42 U.S.C. Section 7506)? (MPOs only) | NA | - |
| 5. | Does the RTP include Project Intent i.e. Plan Level Purpose and Need Statements? | Yes | App F project descriptions |
| 6. | Does the RTP specify how travel demand modeling methodology, results and key assumptions were developed as part of the RTP process? (Government Code 14522.2) (MPOs only) | NA | - |

| Consultation/Cooperation | | Yes/No | Page # |
|---|---|---|---|
| 1. | Does the RTP contain a public involvement program that meets the requirements of Title 23, CFR part 450.316(a)? | Yes | App A, 1-12 |
| 2. | Did the MPO/RTPA consult with the appropriate State and local representatives including representatives from environmental and economic communities; airport; transit; freight during the preparation of the RTP? (23CFR450.316(3)(b)) | Yes | App A |
| 3. | Did the MPO/RTPA who has federal lands within its jurisdictional boundary involve the federal land management agencies during the preparation of the RTP? | Yes | App A |
| 4. | Where does the RTP specify that the appropriate State and local agencies responsible for land use, natural resources, environmental protection, conservation and historic preservation consulted? (23 CFR part 450.322(g)) | Yes | A-18 to A-21 |
| 5. | Did the RTP include a comparison with the California State Wildlife Action Plan and (if available) inventories of natural and historic resources? (23 CFR part 450.322(g)) | Yes | EIR |
| 6. | Did the MPO/RTPA who has a federally recognized Native American Tribal Government(s) and/or historical and sacred sites or subsistence resources of these Tribal Governments within its jurisdictional boundary address tribal concerns in the RTP and develop the RTP in consultation with the Tribal Government(s)? (Title 23 CFR part 450.316(c)) | | |
| 7. | Does the RTP address how the public and various specified groups were given a reasonable opportunity to comment on the plan using the participation plan developed under 23 CFR part 450.316(a)? (23 CFR 450.316(i)) | Yes | App A |
| 8. | Does the RTP contain a discussion describing the private sector involvement efforts that were used during the development of the plan? (23 CFR part 450.316 (a)) | Yes | App A |
| 9. | Does the RTP contain a discussion describing the coordination efforts with regional air quality planning authorities? (23 CFR 450.316(a)(2)) (MPO nonattainment and maintenance areas only) | NA | EIR |
| 10. | Is the RTP coordinated and consistent with the Public Transit-Human Services Transportation Plan? | Yes | 2-10 |
| 11. | Were the draft and adopted RTP posted on the Internet? (23 CFR part 450.322(j)) | Yes | www.sccrtc.org/ |

| | | | |
|---|---|---|---|
| 12. | Did the RTP explain how consultation occurred with locally elected officials? (Government Code 65080(D)) (MPOs only) | NA | - |
| 13. | Did the RTP outline the public participation process for the sustainable communities strategy? (Government Code 65080(E) (MPOs only) | NA | - |

| **Modal Discussion** | | Yes/No | Page # |
|---|---|---|---|
| 1. | Does the RTP discuss intermodal and connectivity issues? | Yes | Ch 2,3,6 |
| 2. | Does the RTP include a discussion of highways? | Yes | 2-2 to 2-6, 3-6 to 3-7, 6-3 |
| 3. | Does the RTP include a discussion of mass transportation? | Yes | 2-8 to 2-15, 3-8 to 3-10, 6-4 |
| 4. | Does the RTP include a discussion of the regional airport system? | Yes | 2-22 to 2-23 |
| 5. | Does the RTP include a discussion of regional pedestrian needs? | Yes | 2-17 to 2-19, 6-4 to 6-6 |
| 6. | Does the RTP include a discussion of regional bicycle needs? | Yes | 2-15 to 2-19, 6-4 to 6-6 |
| 7. | Does the RTP address the California Coastal Trail? (Government Code 65080.1) (For MPOs and RTPAs located along the coast only) | Yes | 2-19 |
| 8. | Does the RTP include a discussion of rail transportation? | Yes | 2-10 to 2-15, 6-4 |
| 9. | Does the RTP include a discussion of maritime transportation (if appropriate)? | NA | - |
| 10. | Does the RTP include a discussion of goods movement? | Yes | 3-11 to 3-13 |

| **Programming/Operations** | | Yes/No | Page # |
|---|---|---|---|
| 1. | Is a congestion management process discussed in the RTP? (23 CFR part 450.450.320(b)) (MPOs designated as TMAs only) | NA | - |
| 2. | Is the RTP consistent (to the maximum extent practicable) with the development of the regional ITS architecture? | Yes | 2-21 to 2-22 |
| 3. | Does the RTP identify the objective criteria used for measuring the performance of the transportation system? | Yes | Ch 4, 7, App D |
| 4. | Does the RTP contain a list of un-constrained projects? | Yes | App F |

| Financial | | Yes/No | Page # |
|---|---|---|---|
| 1. | Does the RTP include a financial plan that meets the requirements identified in 23 CFR part 450.322(f)(10)? | Yes | Ch 5, App E |
| 2. | Does the RTP contain a consistency statement between the first 4 years of the fund estimate and the 4-year STIP fund estimate? (2006 STIP Guidelines, Section 19) | Yes | 5-8 |
| 3. | Do the projected revenues in the RTP reflect Fiscal Constraint? (23 CFR part 450.322(f)(10)(ii)) | Yes | Ch 5, App E |
| 4. | Does the RTP contain a list of financially constrained projects? Any regionally significant projects should be identified. (Government Code 65080(4)(A)) | Yes | App F, App G |
| 5. | Do the cost estimates for implementing the projects identified in the RTP reflect "year of expenditure dollars" to reflect inflation rates? (23 CFR part 450.322(f)(10)(iv)) | Yes | App G |
| 6. | After 12/11/07, does the RTP contain estimates of costs and revenue sources that are reasonably expected to be available to operate and maintain the freeways, highway and transit within the region? (23 CFR 450.322(f)(10)(i)) | Yes | Ch 5, App E |
| 7. | Does the RTP contain a statement regarding consistency between the projects in the RTP and the ITIP? (2006 STIP Guidelines section 33) | NA | - |
| 8. | Does the RTP contain a statement regarding consistency between the projects in the RTP and the FTIP? (2006 STIP Guidelines section 19) | Yes | 5-7 |
| 9. | Does the RTP address the specific financial strategies required to ensure the identified TCMs from the SIP can be implemented? (23 CFR part 450.322(f)(10)(vi) (nonattainment and maintenance MPOs only) | NA | - |

| Environmental | | Yes/No | Page # |
|---|---|---|---|
| 1. | Did the MPO/RTPA prepare an EIR or a program EIR for the RTP in accordance with CEQA guidelines? | Yes | EIR |
| 2. | Does the RTP contain a list of projects specifically identified as TCMs, if applicable? | Yes | 6-3 to 6-5, App E |
| 3. | Does the RTP contain a discussion of SIP conformity, if applicable? **(MPOs only)** | NA | - |
| 4. | Does the RTP specify mitigation activities? (23 CFR part 450.322(f)(7)) | Yes | 8-2 to 8-4, EIR |

| | | | |
|---|---|---|---|
| 5. | Where does the EIR address mitigation activities? | Yes | EIR ES |
| 6. | Did the MPO/RTPA prepare a Negative Declaration or a Mitigated Negative Declaration for the RTP in accordance with CEQA guidelines? | NA – prepared EIR | - |
| 7. | Does the RTP specify the TCMs to be implemented in the region? **(federal nonattainment and maintenance areas only)** | NA | - |

☒ ***I have reviewed the above information and certify that it is correct and complete.***

George Dondero

*(Must be signed by MPO/RTPA Executive Director or designated representative)*

6/12/2018

*Date*

George Dondero

*Print Name*

Executive Director

*Title*

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# Appendix I

## Resolutions

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# RESOLUTION NO. 31-18

Adopted by the Santa Cruz County Regional Transportation Commission
on the date of June 14, 2018
on the motion of Commissioner Bertrand
duly seconded by Commissioner Rotkin

## A RESOLUTION TO ADOPT CEQA FINDINGS, A STATEMENT OF OVERRIDING CONSIDERATIONS, AND A MITIGATION MONITORING AND REPORTING PROGRAM RELATED TO THE ENVIRONMENTAL IMPACT REPORT CERTIFIED BY THE ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS FOR THE 2040 SANTA CRUZ COUNTY REGIONAL TRANSPORTATION PLAN

WHEREAS, the Santa Cruz County Regional Transportation Commission is the state-designated Regional Transportation Planning Agency (RTPA) for Santa Cruz County; and

WHEREAS, California Government Code Section 65080 (c) requires that each RTPA adopt and submit an updated Regional Transportation Plan to the California Transportation Commission and the Department of Transportation every five years in non-urban regions; and

WHEREAS, the Santa Cruz County Regional Transportation Plan has been prepared in accordance with California Transportation Commission 2010 Regional Transportation Plan Guidelines, pursuant to Government Code, Section 14522; and

WHEREAS, pursuant to the California Environmental Quality Act (CEQA) (Public Res. Code, §21000 et seq.) and the State CEQA Guidelines (14 Cal. Code Regs. §15000 et seq.), the Association of Monterey Bay Area Governments (AMBAG) is the lead agency for the 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) and Regional Transportation Plan for Monterey, San Benito and Santa Cruz County Environmental Impact Report (EIR), which incorporates the 2040 Santa Cruz County Regional Transportation Plan; and

WHEREAS, AMBAG has overseen, in coordination with the Santa Cruz County Regional Transportation Commission, the Transportation Agency for Monterey County and San Benito County Council of Governments the preparation of the EIR for each County's Regional Transportation Plans; and

WHEREAS, AMBAG was designated the Santa Cruz County Regional Transportation Plan EIR lead agency by Santa Cruz County Regional Transportation Commission; and

WHEREAS, AMBAG has prepared and certified the Program EIR (SCH# 2013061052) for the 2040 MTP/SCS, which incorporates the 2040 Santa Cruz County Regional Transportation Plan, in compliance with CEQA; and

WHEREAS, the Final EIR consists of: (1) the Final EIR volume, which is a complete revision of the Draft EIR; and (2) all appendices to the Final EIR, including Appendix F, which

consists of comments received on the Draft EIR, a list of persons, organizations and public agencies commenting of the Draft EIR, responses to significant environmental issues raised in the review and consultation process and other information; and

WHEREAS, CEQA Findings have been prepared in compliance with Public Resources Code §§21081 and CEQA Guidelines Section §15091 for every significant impact of the 2040 Santa Cruz County Regional Transportation Plan identified in the EIR and for each alternative evaluated in the EIR, including an explanation of the rationale for each finding (attached hereto as **Exhibit A**); and

WHEREAS, the 2040 Santa Cruz County Regional Transportation Plan will have significant unavoidable impacts that cannot be avoided or substantially lessened, and a Statement of Overriding Considerations has been prepared in compliance with Public Resources Code §21081 and CEQA Guidelines §15093 (attached hereto as **Exhibit A**), which concludes that specific economic, legal, social, technological, and other benefits of the 2040 Santa Cruz County Regional Transportation Plan outweigh the significant and unavoidable impacts identified in the EIR; and

WHEREAS, a Mitigation Monitoring and Reporting Program has been prepared in compliance with Public Resources Code §21081.6 and CEQA Guidelines §15097 (attached hereto as **Exhibit B**) to ensure implementation of the mitigation measures identified in the Final EIR; and

WHEREAS, all other legal prerequisites to the adoption of this Resolution have occurred; and

WHEREAS, prior to taking action on the Project, the Santa Cruz County Regional Transportation Commission has considered all of the information in the EIR administrative record pertaining to the 2040 Santa Cruz County Regional Transportation Plan, including the Final EIR, and all oral and written evidence presented to it during all meetings and hearings;

NOW BE IT RESOLVED BY THE SANTA CRUZ COUNTY REGIONAL TRANSPORTATION COMMISSION:

1. The Santa Cruz County Regional Transportation Commission accepts that the Final EIR consists of: (1) the Final EIR (2) all appendices to the Final EIR (Appendices A-F), including Appendix F, which consists of comments and recommendations received on the Draft EIR, a list of persons, organizations, and public agencies commenting of the Draft EIR, responses to significant environmental points raised in the review and consultation process, and other information;

2. The Santa Cruz County Regional Transportation Commission makes and adopts the Findings required by Public Resources Code §§21081 and 21081.5. and CEQA Guidelines §15091 and 15096(h), which are attached hereto and included in Exhibit A and incorporated fully by this reference;

3. The Santa Cruz County Regional Transportation Commission adopts the Statement of Overriding Considerations as required by Public Resources Code §21081, and CEQA Guidelines §15093 and 15096(h), which is attached hereto and included in Exhibit A and incorporated fully by this reference; and,

4. The Santa Cruz County Regional Transportation Commission adopts the Mitigation Monitoring and Reporting Program as required by Public Resources Code §21081.6 and CEQA Guidelines §15097, which is attached hereto as Exhibit B and incorporated fully by this reference.

| | |
|---|---|
| AYES: | COMMISSIONERS Bertrand, Bottorff, Chase, Coffman-Gomez Coonerty, Leopold, Rotkin, and Commisioner Alternates |
| NOES: | COMMISSIONERS V.Johnson, Mulhearn, and Noroyan |
| ABSTAIN: | COMMISSIONERS |
| ABSENT: | COMMISSIONERS |

John Leopold, Chair
ATTEST:
George Dondero, Secretary

Exhibit A: CEQA Findings, Statement of Overriding Consideration,
Exhibit B: Mitigation Monitoring and Reporting Program

Distribution: Santa Cruz County Clerk of the Board
RTC Planner
AMBAG

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RESOLUTION NO. 32-18

Adopted by the Santa Cruz County Regional Transportation Commission
on the date of June 14, 2018
on the motion of Commissioner Bertrand
duly seconded by Commissioner Rotkin

**A RESOLUTION ADOPTING THE 2040 SANTA CRUZ COUNTY REGIONAL TRANSPORTATION PLAN**

WHEREAS, the Santa Cruz County Regional Transportation Commission (RTC) is the state-designated Regional Transportation Planning Agency (RTPA) for Santa Cruz County; and

WHEREAS, California Government Code Section 65080 (c) requires that each RTPA adopt and submit an updated Regional Transportation Plan to the California Transportation Commission and the Department of Transportation every five years in non-urban regions; and

WHEREAS, the Commission has prepared a 2040 Santa Cruz County Regional Transportation Plan which describes goals and policies, financial projections, and programs and projects to be prioritized by the Commission, local jurisdictions, and local, state and regional agencies through 2040; and

WHEREAS, the Regional Transportation Plan was prepared through the conduct of a continuing, comprehensive and coordinated transportation planning process in conformance with all applicable state and federal requirements; and

WHEREAS, the Regional Transportation Plan has been prepared in accordance with California Transportation Commission 2010 Regional Transportation Plan Guidelines, pursuant to Government Code, Section 14522; and

WHEREAS, the required consultation with other agencies was conducted and adequate opportunity for public review and comment was provided, in accordance with state and federal law and consistent with the region's public participation plan, including, but not limited to wide circulation and review by RTC advisory committees representing project sponsors and transportation stakeholders; representatives of State and Federal governmental agencies; representatives of special interest groups; representatives of the private business sector; and residents of Santa Cruz County; and

WHEREAS, a public hearing was conducted on January 18, 2018 to hear and consider comments on the 2040 Santa Cruz County Regional Transportation Plan; and

WHEREAS, the Regional Transportation Plans for Santa Cruz, San Benito and Monterey Counties are compiled within the 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy prepared by the Association of Monterey Bay Area Governments; and

WHEREAS, the environmental impacts of the 2040 Santa Cruz County Regional Transportation Plan are analyzed as part of the 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy and Regional Transportation Plans for Monterey, San Benito and Santa Cruz County EIR,

prepared by AMBAG as the lead agency and reviewed by RTC as responsible agency, with RTC making appropriate findings;

WHEREAS, the North Central Coast Air Basin, within which Santa Cruz County is located, meets Federal Criteria Pollutant Ambient Air Quality Standards, is in Attainment Status for these standards, and is therefore exempt from a Clean Air Act conformity analysis.

WHEREAS, the nature of the action being taken would not, in and of itself, directly cause any environmental impacts, since the action of adopting the RTP alone does not alone enable programs and projects to proceed;

NOW BE IT RESOLVED BY THE SANTACRUZ COUNTY REGIONAL TRANSPORTATION COMMISSION:

1. The 2040 Santa Cruz County Regional Transportation Plan is hereby adopted following certification of the Final EIR by the Association of Monterey Bay Area Governments and the adoption of the Final EIR Findings, Statement of Overriding Consideration, and Mitigation Monitoring Reporting Program by the Santa Cruz County Regional Transportation Commission.

AYES: COMMISSIONERS Bertrand, Bottorff, Chase, Coffman-Gomez Coonerty, Leopold, Rotkin, and Commissioner Alternates

NOES: COMMISSIONERS V.Johnson, Mulhearn, and Noroyan

ABSTAIN: COMMISSIONERS

ABSENT: COMMISSIONERS

John Leopold, CHAIR

ATTEST:

George Dondero, SECRETARY

Distribution: AMBAG, Caltrans, CTC, SCMTD, Cities, County, FHWA

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# 4.4 TRANSPORTATION & TRAFFIC

## 4.4.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Regulatory Setting
- Summary of Transportation Modes & Use
- Transportation Plans & Studies
- Road Network & Traffic Conditions
- Bicycle & Pedestrian Circulation
- Public Transit
- Rail Service
- Planned Improvements
- Transportation Management
- Parking

This section was prepared with assistance from Ron Marquez, traffic consultant to the City of Santa Cruz Public Works Department, and Jeff Waller of Hatch Mott MacDonald (formerly Higgins and Associates), who ran the TRAFFIX model and developed Level of Service calculations under the direction of City staff and consultants. A summary of the traffic analysis methodology is included in Appendix C. Traffic volumes and intersection level of service calculations are included in Technical Appendices F-5 and F-6, respectively. The technical appendices are available for review at the City of Santa Cruz Planning Department[1] and are also included on the Draft EIR CD and on the online version of the Draft EIR on the City's website at www.cityofsantacruz.com, Planning Department.

### REGULATORY SETTING

A number of local, regional and state agencies are involved with transportation planning and implementation of transportation programs and improvements within the City of Santa Cruz. The City maintains local roadways and bike and pedestrian facilities. The California Department of Transportation (Caltrans) has jurisdiction over State highway segments that traverse the City, including portions of Highways 1, 9, and 17. To help fund local roadway and intersection improvements, the City has developed a "Traffic Impact Fee" (TIF) that is applied to new development at the time of issuance of building permits (see discussion below in the "Planned Transportation Improvements" subsection for more details), and the City is active in acquiring transportation funding from federal and state sources.

[1] Located at 809 Center Street, Room 107, Santa Cruz, California during business hours: Monday through Thursday, 8 AM to 12 PM and 1 to 5 PM.

The City's Zoning Ordinance includes a trip reduction program requirement for specified classifications of employers (Chapter 10.46-Citywide Trip Reduction Program). Key purposes are: to establish programs and requirements for new and existing employers that will help to reduce traffic congestion and to improve air quality; to assist employers in identifying and utilizing cost-effective programs and methods to reduce vehicle trips made by employees; and to ensure the City plays a significant role in promoting alternatives to the use of single-occupant vehicles. The Zoning Ordinance also provides regulations regarding parking and parking space requirements for different land uses in Chapter 12 that include provisions for reduced parking for specified shared parking opportunities.

In addition to the City and Caltrans, other local and regional agencies responsible for transportation services and/or transportation planning include:

- *The Association of Monterey Bay Area Governments* (AMBAG) addresses transportation problems and concerns through its regional transportation system management element and preparation of regional traffic forecasts related to local land use and population projections. AMBAG is the federally designated Metropolitan Planning Organization (MPO) for transportation planning activities in the tri-county Monterey Bay Region. It is the lead agency responsible for developing and administering plans and programs to maintain eligibility and receive federal funds for the transportation systems in the region. AMBAG works with regional transportation planning agencies, transit providers, the Monterey Bay Unified Air Pollution Control District (MBUAPCD), state and federal governments, and organizations having interest in or responsibility for transportation planning and programming. AMBAG also coordinates transportation planning and programming activities with the three counties and 18 local jurisdictions within the Monterey Bay Region. AMBAG develops the Metropolitan Transportation Plan (MTP) and the Metropolitan Transportation Improvement Program (MTIP). (AMBAG website; online at http://www.ambag.org/programs/met_transp_plann.html).
- *The Santa Cruz Metropolitan Transit District* (SCMTD) provides transit services throughout Santa Cruz County.
- *The Santa Cruz Regional Transportation Commissio*n (SCCRTC) oversees planning and funding programs for local and regional projects within Santa Cruz County using state and federal transportation funds. The City of Santa Cruz has one City representative on the 12-member SCCRTC board and many City transportation projects are funded through grant programs administered by the SCCRTC (Fukuji Planning and Design, July 2003).
- *The University of California at Santa Cruz (UCSC)* implements a transportation systems management and parking program that provides a comprehensive package of commute options, including carpools, bicycles, and transit; free bus passes; and shuttle buses serving all areas of the campus.

## SUMMARY OF TRANSPORTATION MODES & USE

The movement of people and goods is provided via a range of transportation modes including private and shared auto on a network of local and regional roads and highways; public transit; bicycle; walking; and rail service that is currently used for freight movement and limited seasonal visitor use. Transportation modes provide access for work, shopping, recreation, and

personal and social purposes. The state highways through the City also carry regional and statewide traffic. Key activity centers in the City include:

- The Mission Street corridor in the Westside;
- Ocean Street;
- Soquel Avenue in the eastside; the downtown area; the beach-Boardwalk area;
- the Harvey West-River Street area; and
- UCSC (Fukiji Planning and Design, July 2003).

The joint City-UCSC "Master Transportation Study" (MTS) found that 70% of daily residential mobility within the City is for local trips. For peak-hour travel citywide, 50% is local and 50% is regional travel. Of regional trips, commute in and commute out trips are roughly split in half (Fukiji Planning and Design, July 2003). Surveys conducted as part of the MTS found that 30% of trips in Santa Cruz are for work compared to 25% for social purposes, 18% for personal purposes, 14% for school, and 13% for shopping (Ibid.).

Daily citywide residential trips were made by auto, bus, bicycle and walking. City resident travel patterns identified in the MTS are shown on Figure 4.4-1.[2] For the PM peak period (4 PM to 7 PM), 80% of all travel modes used a car (68% drove alone and 12% carpooled) and 20% bicycled, walked or rode transit. Of these travel groups, full and part-time employees comprised 84% of the trips, compared to 16% for students and retired persons (Fukiji Planning and Design, July 2003). The Santa Cruz County Regional Transportation Commission reports that the number of people per vehicle has remained fairly constant over the last 15 years at an average of 1.2 persons per vehicle in the morning and 1.3 in the evening based on annual vehicle occupancy counts for Highway 1 and Highway 17 (Santa Cruz County Regional Transportation Commission, June 2010).

## LOCAL & REGIONAL TRANSPORTATION PLANS & STUDIES

### City-UCSC Master Transportation Study

In April 2000, the City of Santa Cruz and the University of California at Santa Cruz initiated a partnership to jointly fund a community-based approach to planning the City's transportation future that resulted in the completion of "The Master Transportation Study" (MTS). The Mission Statement of the study is to *"Create a Transportation Plan for the City of Santa Cruz that is inspiring, innovative and implementable with broad-based community support."* The MTS integrates pedestrian, bicycle, transit and street transportation plans and programs as a foundation for updating the City's General Plan, City zoning ordinance, UCSC's Long Range Development Plan and other city and regional transportation planning documents (Fukuji Planning and Design, July 2003). The MTS is not an adopted plan, but was reviewed and accepted by the City Council.

The MTS recommends a series of City-initiated strategies, short-term transit strategies and long-term recommendations to reduce single-occupant trips, increase multiple-occupant vehicles,

[2] All EIR figures are included in Chapter 7.0 at the end of the EIR (before appendices) for ease of reference as some figures are referenced in several sections.

increase transit, bicycle and pedestrian modes, and improve traffic system efficiency. Elements of these recommendations include an emphasis on carpooling and recommended support of a Bus Rapid Transit (BRT) system. The recommended travel mode splits as envisioned in the MTS would shift as follows:

- SINGLE-OCCUPANT VEHICLES (SOV): Decrease by 13% for internal trips and 4% for external trips.
- MULTIPLE-OCUPPANT VEHICLES (MOV): Increase by 4% for internal trips and 3% for external trips.
- BUS USE: Increase by 2% for internal trips and 1% for external trips.
- BIKE USE: Increase by 3% for internal trips.
- PEDESTRIAN USE: Increase by 4% for internal trips (Fukuji Planning and Design, July 2003).

  (Fukuji Planning and Design, July 2003).

The following projects are identified as MTS high priority projects:

- Metrobase Transit District Consolidations Operations Facility,
- Right-of-Way Acquisition on rail corridor,
- Bike and pedestrian path on rail right-of-way,
- Local bike projects and expanded bus service.

## Santa Cruz County Regional Transportation Plan (RTP)

The Santa Cruz County Regional Transportation Commission (SCCRTC) deals with transportation issues in Santa Cruz County. The purpose of the SCCRTC is to:

- Set priorities for major capital improvements to the County's transportation infrastructure, including highways, major roads, rail and alternative transportation facilities.
- Pursue and allocate funding for all elements of the County's transportation system.
- Adopt policies to improve mobility, access and air quality.
- Plan for future projects and programs to improve the regional transportation system.
- Inform businesses and the public about alternatives to driving alone and the need to better manage our existing transportation system.
- Conduct programs to encourage the use of alternative transportation modes (Santa Cruz County Regional Transportation Commission website: www.sccrtc.org).

The *Regional Transportation Plan* (RTP) is a state-mandated, long-range plan that serves as a blueprint to guide future transportation funding decisions. The RTP, prepared by the SCCRTC, outlines transportation challenges and establishes investment priorities for all of Santa Cruz County. The plan includes lists of transit, highway, local road, bike, and pedestrian needs in the region and estimates the amount of local, state and federal dollars that may be available for these projects over the next 25 years. The plan is updated to reflect the latest funding and project needs every four to five years (Santa Cruz County Regional Transportation Commission website, online at: http://www.sccrtc.org/rtp.html.)

The current version was adopted by the SCCRTC in June 2010. The "2010 RTP" is a minor update of the last version, completed in 2005, and provides guidance for transportation policy and projects through the year 2035. The 2010 RTP is the SCCRTC's comprehensive planning document, which identifies the goals, projects, and programs that will maintain and improve the County's transportation system over the next twenty-five years. Identified improvements and projects are categorized as either "Constrained", meaning there are foreseeable funds for the improvement or "Unconstrained", meaning new revenues would need to be generated or become available. Individual projects listed in the 2010 RTP must still undergo separate design and environmental processes, and can only be implemented as local, state and federal funds become available (Santa Cruz County Regional Transportation Commission, June 2010).

The 2010 RTP carries forward goals from the 2001 and 2005 RTPs, which are to:

- Preserve and maintain the existing transportation system, emphasizing safety and efficiency
- Increase mobility by providing an improved and integrated multi-modal transportation system.
- Coordinate land use and transportation decisions to ensure that the region's social, cultural, and economic vitality are sustained for current and future generations.
- Ensure that the transportation system complements and enhances the natural environment of the Monterey Bay region and reduce greenhouse gas emissions.
- Make the most efficient use of limited transportation financial resources.
- Solicit broad public input on all aspects of regional and local transportation plans. Santa Cruz County Regional Transportation Commission, June 2010).

The 2010 RTP assigns future transportation funds to a range of projects and programs designed to maintain the current transportation system, provide traffic congestion relief and broaden transportation options. Key proposals include:

- Maintenance of the existing transportation network including roads, highways, bike lanes, sidewalks, and transit.
- Safety and operational improvements to Highways 1, 9, 17, 129 and 152.
- Adding auxiliary lanes and High Occupancy Vehicle (HOV) lanes on Highway 1 between Aptos and Santa Cruz.
- Modifications to major arterial roads -- including bus, pedestrian and bicycle facilities.
- Expanded bus service, with additional Highway 17 Express buses and more Park and Ride lots to serve Silicon Valley, University of California Santa Cruz (UCSC), and south county commuters.
- Construction of the Monterey Bay Sanctuary Scenic Trail Network along the coast.
- Local bicycle and pedestrian projects designed to increase bicycle commuting, and provide safe bicycle and pedestrian routes to schools.
- Expansion of specialized transport services in response to projected increases in senior and disabled populations.

- Increased availability of information about road conditions, transit operations, and other transportation options.
- Landscaping and lighting improvements to make transportation corridors part of livable communities (Santa Cruz County Regional Transportation Commission, June 2010).

The 2010 RTP also includes a new discussion on greenhouse gas (GHG) emissions in relation to transportation planning. In the absence of tools to measure the effectiveness of specific RTC policies towards reducing GHGs and without having the specific GHG reduction targets from the state during development of the 2010 RTP, the new chapter introduces some of the best practices which could be included in a portfolio of strategies to meet future emission reduction goals in Santa Cruz County. The RTP includes many projects that pro-actively implement GHG reduction strategies such as: operating a Commute Solutions program to encourage ridesharing; funding freeway service patrols to remove incidents and improve traffic flow; adding high occupancy vehicle lanes in the Highway 1 corridor to encourage carpools, vanpools and transit use; acquiring the rail corridor for goods movement, bicycle and pedestrian access and possible passenger service; and supporting bicycle, pedestrian and transit projects (Santa Cruz County Regional Transportation Commission, June 2010).

## Monterey Bay Area Metropolitan Transportation Plan (AMBAG)

AMBAG is the MPO (Metropolitan Planning Organization) for the Monterey Bay Area, and as the region's MPO, AMBAG is required to produce certain documents that maintain the region's eligibility for federal transportation assistance. The Metropolitan Transportation Plan (MTP) is the federally mandated long-range transportation plan for the Monterey Bay Area. This plan lays out a financially constrained list of transportation projects over the following 25 years that will enhance regional mobility (AMBAG website, "Metropolitan Transportation Plan", online at: http://www.ambag.org/programs/met_transp_plann/mtp.html).

Federal regulations require that this long-range transportation plan be both financially constrained and fall under the on-road motor vehicle emissions budget included in the Federal Air Quality Maintenance Plan. The MTP, referenced as *Monterey Bay Area Mobility 2035*, was approved by the AMBAG Board of Directors on June 8, 2010, and includes goals, policies, programs and projects to meet the stated objectives and meet the transportation needs and deficiencies. Programs and projects are taken from each county's RTP and first incorporated, in their entirety, into the MTP (AMBAG, June 2010).

As a region that meets federal standards for ozone precursors, the region is considered to be in 'attainment' for those standards. As an attainment region, the MTP is only required to be updated every five years. Because new state legislation, SB 375, calls for MPOs to prepare a Sustainable Communities Strategy (SCS) to be used to synchronize and coordinate both the metropolitan transportation planning process and the regional housing needs allocation process, AMBAG is treating this 2010 update of the MTP as a minor update. Beginning with the 2012 update, AMBAG is moving to a four-year update cycle to align regional planning efforts for transportation with an eight year housing planning cycle. (AMBAG website, "Metropolitan Transportation Plan", online at: http://www.ambag.org/programs/met_transp_plann/mtp.html).

### Caltrans' Corridor System Management Plan

Caltrans is in the process of developing a "Corridor System Management Plan" (CSMP) for Highway 1 from the junction of Highway 68 in Monterey County to King Street/Mission Street in Santa Cruz to develop strategies to manage the corridor and sustain existing transportation investments (Caltrans, October 2010). The draft plan indicates that the following strategies will be used to manage State Route 1 over the next 20 years:

- Maintenance and preservation of the roadway.
- Support improvement of transit service, including new express bus service on the HOV lanes planned for the Santa Cruz corridor.
- Support land use and transportation planning efforts such as AMBAG's "Blueprint Plan".
- Reduce congestion by encouraging programs that increase the use of transit, improve bicycle and pedestrian programs and encourage programs such as carpools, ridesharing, telecommuting and park-and-ride facilities to reduce demand.
- Intelligent Transportation Systems/Traveler Information/Traffic Management to clear congestion after collisions.
- Operational Improvements, including auxiliary lanes, intersection improvements, ramp metering (Caltrans, October 2010).

## ROAD NETWORK & TRAFFIC CONDITIONS

### Road and Highway Network

#### LOCAL ROADWAYS

The City's road system consists of arterial highways and arterial, collector and local streets (see Figure4.4-2). These different classifications relate to different transportation functions and are classified in terms of access, mobility, design and use. Additionally, visitor/coastal access and truck routes have been designated to facilitate the movement of visitor traffic and commodities.

Highways and arterial streets carry the City's heaviest traffic flows and provide regional and inter-community access. State highways through the City are described in the following section. Major arterial streets within the City include:

- Ocean Street (the primary north-south arterial);
- Mission Street, Water Street, Soquel Avenue and Broadway Avenue-Laurel Street (the primary east-west arterials);
- Other designated arterial streets include Bay Street, Delaware Avenue, Morrissey Blvd., Murray Street-San Lorenzo Blvd., Seabright Avenue, Market Street, Beach Street, Second Street, Front Street, Pacific Avenue, Cedar Avenue, Center Street, Walnut Street, River Street and High Street.

Collector streets provide circulation within and between neighborhoods and commercial and industrial areas. These streets usually serve relatively short trips and are meant to collect traffic from local streets and distribute them to the arterial network. Examples of collector streets

include: California Street, Chestnut Street, Escalona Drive, Fairmount Street, Frederick Street, King Street, Swift Street, and West Cliff Drive.

Local streets provide direct access to abutting land uses, collectors, or arterials, and usually do not accommodate bus routes.

Visitor/coastal access routes are intended to be inviting to visitors and to provide convenient, clear access to and from visitor and coastal destinations. Highways 1 and 17, Ocean Street and Mission Street are key visitor routes into Santa Cruz and the City's beach areas. West Cliff Drive also provides a scenic route along the coast.

Truck routes are intended to channel trucks through the community and away from residential and other areas where they would be a nuisance. The truck routes in the City are Highway 1 – Mission Street, Highway 17, Bay Street north of Mission, Empire Grade west of Bay, Highway 9, Morrissey Boulevard, and Soquel Avenue.

### STATE HIGHWAYS

State highways that go through the City of Santa Cruz include segments of Highways 1, 17, and 9. Though referenced as "state routes" in Caltrans documents, the more common term, "highway", is used in this EIR. Highways 1 and 17 serve regional traffic, including motorists who commute to jobs in the Santa Clara Valley and motorists who travel into Santa Cruz County for recreational opportunities offered in the county. A short segment of Highway 9 also is within city limits.

**Highway 1** provides access to San Francisco to the north and Monterey to the south. Regionally, Highway 1 is the major inter- and intra-county route for Santa Cruz County. Within the City of Santa Cruz, it is oriented in an east-west direction, although the interregional alignment of Highway 1 is primarily north-south. It is a four-lane arterial along Mission Street from the west side of Santa Cruz to Chestnut Street Extension, a four-lane expressway between Mission Street-Chestnut Street and River Street, and a four-lane freeway east of River Street. The speed limit on Highway 1 is 25 miles per hour (mph) along Mission Street, 45 mph along the expressway section, and 55 and 65 mph on the freeway sections further east. Recurrent congestion results in queuing on Highway 1 that extends for several miles during peak hours. Accidents, events, and other incidents in the corridor can further increase congestion related delays in either direction, on any day, including weekends.

**Highway 9** is a two-lane state highway that connects the City of Santa Cruz with the San Lorenzo Valley, and eventually, Saratoga and Los Gatos. Approximately 0.5 miles of Route 9 are located within Santa Cruz city limits.

**Highway 17** connects Santa Cruz with Scotts Valley and San Jose and other Santa Clara County communities. It is a four-lane freeway north of the Highway 1/ Highway 9 intersection. Highway 17 is the primary route between the Santa Clara Valley and Santa Cruz County that serves as both a commute route for Santa Cruz County residents that work in Santa Clara County and for recreational visitors that come to Cruz County. Congestion occurs both during weekday commute times and on summer weekends. This winding, four-lane road has steep sections, frequent road crossings, and substandard median shoulders and outside shoulders for

most of its length. In addition to the challenging roadway configuration, weather-related conditions such as thick fog, heavy rains and mudslides affect roadway operations.

## Existing Traffic Conditions & Level of Service

Traffic conditions are measured by average daily traffic (ADT), peak hour traffic volumes, and level of service (LOS), average delay, and volume to capacity (V/C) ration. Average daily traffic is the total number of cars passing over a segment of the roadway, in both directions, on an average day. Peak hour volumes are the total number of cars passing over a roadway segment during the peak hour in the morning (AM) or afternoon/evening (PM). In the City of Santa Cruz, the peak hour for weekdays occurs in the evening.

"Level of Service" (LOS) is used to identify the magnitude of traffic congestion and delay at intersections. Traffic flows along city streets are typically controlled by the volume and capacity of the nearest intersection (City of Santa Cruz, 1994). Intersections are rated based on a grading scale of LOS "A" through LOS "F", with LOS A representing free flowing conditions and LOS F representing forced flow conditions. The intermediate levels of service represent incremental levels of congestion and delay between these two extremes.

The signalized intersection LOS methodology addresses the capacity, LOS, and other performance measures for lane groups and intersection approaches and the LOS for the intersection as a whole. Capacity is evaluated in terms of the ratio of demand flow rate to capacity (v/c ratio), whereas LOS is evaluated on the basis of control delay per vehicle (in seconds per vehicle). Control delay is the portion of the total delay attributed to traffic signal operation for signalized intersections. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay as listed in the following table from the *Highway Capacity Manual 2000,* Transportation Research Board.

**LOS CRITERIA FOR SIGNALIZED INTERSECTIONS**

| LOS | LOS Control Delay per Vehicle (seconds/vehicle) |
|---|---|
| A | ≤ 10 |
| B | > 10–20 |
| C | > 20–35 |
| D | > 35–55 |
| E | > 55–80 |
| F | > 80 |

Capacity analysis at two-way stop control (TWSC) intersections depends on a clear description and understanding of the interaction of drivers on the minor or stop-controlled approach with drivers on the major street. Both gap acceptance and empirical models have been developed to describe this interaction. LOS for a TWSC intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS is not defined for the intersection as a whole as shown in the following table.

**LOS CRITERIA FOR TWSC INTERSECTIONS**

| LOS | LOS Control Delay per Vehicle (s/veh) |
|---|---|
| A | **0–10** |
| B | **> 10–15** |
| C | **> 15–25** |
| D | **> 25-35** |
| E | **> 35-50** |
| **F** | **> 50** |

**SOURCE:** *Highway Capacity Manual 2000,* Transportation Research Board

The City of Santa Cruz has established LOS D as the minimum acceptable LOS for overall intersection operations during weekday AM and PM peak hours. However, the existing General Plan recognizes that some major regional intersections (which were once part of the "Congestion Management Program" – a formerly mandated state program[3]) as experiencing lower levels of service than the City's LOS D standard. Thus, the existing General Plan accepts a lower (i.e., worse) LOS at these intersections (listed below) per existing Circulation Policy 5.1.2 due to environmental, economic, and/or feasibility constraints with implementing improvements at these locations.

- Mission St. / Chestnut St.-Hwy 1 (F)
- Highway 1 / River St.-Hwy 9 (F)
- Ocean St. / Plymouth St. (F)
- Water St. / Ocean St. (F)
- Soquel Ave. / Ocean St. (F)
- Soquel Ave. / Water St. / Morrissey Blvd. (E)

Caltrans, which has jurisdiction over state highways, endeavors to maintain a target LOS at the transition between LOS C and D. However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS (Caltrans, December 2002). If an existing State highway facility is operating at less than the appropriate target LOS, the existing LOS should be maintained (Ibid.).

The critical volume to capacity ratio (V/C) is another measure of the operating conditions of an intersection as opposed to LOS. The ratio provided in the worksheets is a calculation of the volume to capacity for the critical movements at the intersection. It is not the average of all the movements at the intersection. V/C is not used as a measure to define the levels of service.

[3] The Code of Federal Regulations, Title 23 Volume 1, adopted in April. 2005 require Transportation Management Areas (TMAs) to prepare Congestion Management Programs. TMAs are defined as urbanized areas with a population over 200,000. There are eight such areas in California plus Santa Barbara that asked to be included.

## LOCAL INTERSECTION LEVELS OF SERVICE

**Weekday Peak Hour Traffic Conditions**. In the City of Santa Cruz, the peak hour for weekdays occurs in the evening. The PM peak hour (roughly 4 PM to 7PM) generally has the highest number of trips compared to the AM peak hour (7 AM to 10 AM) or the midday peak hour (Fukuji Planning and Design, July 2003). Intersection traffic counts were collected during the weekday PM peak hour (4:00 – 6:00 PM) at nearly 80 intersections throughout the City. The counts were done in May 2006, November 2006 and February 2007. The intersection counts are included in Appendix F-5.

The City's consulting traffic engineer compared traffic counts taken for the General Plan traffic with counts taken in 2008 and 2009 that were obtained from the SCCRTC to ensure the validity of the counts for the General Plan EIR analysis. The review indicates that all but one of the counts the City made in 2006 were higher than those reported by the Commission (Marquez, March 2010; see Appendix C for details). Traffic counts were also compared to traffic volumes reported by Caltrans; overall the counts reported for 2006 are 8% higher than those reported in 2008 (Ibid.).

In Fall 2010, UCSC completed new traffic counts at intersections within the City. Of the 24 intersections that the City was able to compare, traffic volumes increased for about half of these and half decreased. Overall, on average, traffic has decreased by 5%. The increased traffic increases were at intersections along Mission Street, High Street, and at the River/Water, Bay/W. Cliff, Delaware/Swift and Front/Laurel intersections (see Appendix C). The increased traffic has been addressed in the City's traffic model. Traffic from projects that were being constructed and/or occupied after the General Plan traffic counts were taken have been added to the "Existing" baseline conditions (see Appendix C) as these projects would be generating traffic at the time the EIR NOP was released. As a result, the existing-baseline condition for this EIR is slightly higher overall than the 2010 counts (Marquez, personal communication, February 2011), except for three intersections – Bay/West Cliff, King/Storey, and Laurel/Front. However, overall, the City continues to see lower counts than were experienced four years ago. Thus, the traffic estimates made for the General Plan 2030 are conservatively high and represent a worst-case scenario for CEQA purposes.

Quantitative Levels of Service (LOS) analysis was performed for the study intersections based the *2000 Highway Capacity Manual* methodologies, prepared by the Transportation Research Board. Intersection operations were evaluated using the Traffix analysis software. Intersection traffic flow operations are evaluated using a level of service (LOS) concept. The technical LOS calculations are included in Technical Appendix F-6, which is available for review at the City of Santa Cruz Planning Department[4] and is also included on the Draft EIR CD and on the online version of the Draft EIR on the City's website at www.cityofsantacruz.com, Planning Department.

Existing intersection PM peak hour levels of service are summarized in Table 4.4-1. All of the study intersections currently operate at an acceptable LOS except for the following 11 intersections, of which six intersections are signalized, and five intersections are unsignalized.

[4] Located at 809 Center Street, Room 107, Santa Cruz, California during business hours: Monday through Thursday, 8 AM to 12 PM and 1 to 5 PM.

For these intersections. Table 4.4-1 also identifies the delay (in seconds) and V/C ratio[5] for the intersections operating at unacceptable levels. For unsignalized intersections, the unacceptable LOS is usually due to delays on a minor leg of the intersection.

- Highway 1 / Highway 9-River Street (F)
- Highway 9-River / Street-Encinal (E)
- Ocean Street / San Lorenzo Blvd. -East Cliff Drive (E)
- Ocean Street / Water Street (E)
- Mission Street / Bay Street (E)
- Bay Street / Escalona Drive (F)
- Bay Street / California Street (F)
- Bay Street / California Avenue (F)
- Laurent Street / High Street (F)
- Western Drive / High Street (E)
- Seabright Avenue / Water Street (F)

**Summer and Weekend Peak Hour Traffic Conditions**. The City also experiences significant traffic during the summers and holiday weekends due to tourist traffic. A portion of the City's circulation system is affected by seasonal surges resulting from coastal access demands from all of northern California. Santa Cruz has recognized that it is not practical to build to accommodate this seasonal demand, and has considered beach access congestion to be acceptable as long as it does not divert traffic onto residential streets. The 2030 Plan has focused on addressing the congestion associated with the weekday travel of City residents, employees and customers.

### STATE HIGHWAY TRAFFIC OPERATIONS & LEVEL OF SERVICE

Based on the most recent Caltrans traffic data (2009 counts), the average daily trips (ADT) on state highways within Santa Cruz is as follows:

- Highway 1, Morrissey Boulevard. ADT is approximately 88,000 to 97,000 trips with 6,300 to 6,900 trips occurring during the peak hour.
- Highway 17, between Santa Cruz and Scotts Valley. ADT is approximately 63,000 - 73,000 trips with 5,700 – 6,300 trips occurring during the peak hour.
- Highway 9 within Santa Cruz City Limits. ADT is approximately 5,000 trips with approximately 510-550 trips in the peak hour as measured at the City limits, north of Encinal.

[5] The V/C ratio is the average adjusted volume of vehicles for each movement over the serviceable capacity of each movement at the intersection. The volume for each approach is adjusted for percentage of trucks and buses, for peaking characteristics, and for abutting parking characteristics. The capacity of each movement is adjusted for lane width, grade, and green time available.

**TABLE 4.4-1**
**Existing Intersection PM Peak Hour Levels of Service**

| | Intersection | PM Peak LOS | Delay [in seconds] | V/C Ratio |
|---|---|---|---|---|
| **SIGNALIZED INTERSECTIONS** | | | | |
| 1 | Hwy 1/Western | B | | |
| 2 | Mission/Swift | B | | |
| 3 | Mission/Miramar | B | | |
| 4 | Mission/Almar-Younglove | B | | |
| **5** | **Mission/Bay** | **E** | **55.8** | **0.944** |
| 6 | Mission/Laurel | B | | |
| 7 | Mission/Walnut | B | | |
| 8 | Mission/King-Union | C | | |
| 9 | Mission/Chestnut-Hwy. 1 | D | | |
| 10 | High/Moore | A | | |
| 11 | Bay-Coolidge/High | D | | |
| 12 | Bay/Nobel-Iowa | B | | |
| 13 | Bay/King | B | | |
| 14 | California/Laurel | C | | |
| 15 | Chestnut/Laurel | B | | |
| 16 | Center/Laurel | B | | |
| 17 | Center/Mission | B | | |
| 18 | Pacific/Laurel | B | | |
| 19 | Front/Laurel | C | | |
| 20 | Front/Metro Center | A | | |
| 21 | Front/Cathcart | A | | |
| 22 | Front/Soquel | C | | |
| 23 | Front/Cooper | A | | |
| 24 | Front-Pacific/Mission-Water | B | | |
| 25 | River/Water | C | | |
| 26 | N. Pacific/River | B | | |
| 27 | River/Potrero | B | | |
| **28** | **River/Hwy. 1** | **F** | **83.9** | **0.942** |
| **29** | **River/Encinal** | **E** | **73.9** | **1.099** |
| 30 | San Lorenzo/Laurel-Broadway | B | | |
| 31 | Riverside/San Lorenzo | C | | |
| 32 | Riverside/Third | C | | |
| 33 | Riverside/Beach | A | | |
| **34** | **Ocean/San Lorenzo-East Cliff** | **E** | **64.7** | **1.061** |
| 35 | Ocean/Broadway | C | | |
| 36 | Ocean/Soquel | D | | |
| **37** | **Ocean/Water** | **E** | **73.6** | **1.081** |
| 38 | Ocean/Kennan-Washburn | A | | |
| 39 | Ocean-Hwy.17/Ocean-Plymouth | C | | |
| 40 | Market/Water | C | | |

**TABLE 4.4-1**
**Existing Intersection PM Peak Hour Levels of Service**

| | Intersection | PM Peak LOS | Delay [in seconds] | V/C Ratio |
|---|---|---|---|---|
| 41 | N. Branciforte/Water | D | | |
| 42 | Branciforte/Soquel | C | | |
| 43 | S. Branciforte/Broadway | B | | |
| 44 | Seabright/Soquel | C | | |
| 45 | Seabright/Broadway | B | | |
| 46 | Seabright/Murray | D | | |
| 47 | Morrissey/Water-Soquel | C | | |
| 48 | Morrissey/Fairmount | A | | |
| 49 | Frederick/Soquel | C | | |
| 50 | Hagemann-Trevethan/Soquel | A | | |
| 51 | Park/Soquel | B | | |
| 52 | Capitola Rd./Soquel Ave. | C | | |
| 53 | La Fonda/Soquel | B | | |
| 54 | Riverside-Dakota/Soquel (new) | A | | |
| 55 | River S./Soquel | B | | |
| 56 | Seventh Ave./Soquel Ave. | C | | |
| 57 | Seventh Ave./Capitola Rd. | C | | |
| 58 | Seventh Ave./Eaton | D | | |
| **UNSIGNALIZED INTERSECTIONS** | | | | |
| **59** | **Bay/California St** | **F** | **434.0** | **1.704** |
| **60** | **Bay/California Ave** | **F** | **67.6** | **1.130** |
| 61 | West Cliff/Bay | C | | |
| 62 | Beach/Pacific Ave | C | | |
| 63 | Pacific Avenue/Center | B | | |
| 64 | Storey/King | B | | |
| 65 | River/Fern | B | | |
| 66 | King/Laurel | B | | |
| **67** | **Laurent/High** | **F** | **59.6** | **1.066** |
| 68 | Market/Isbel-Goss | B | | |
| 69 | North Branciforte/Goss | B | | |
| 70 | Highway 1/Shaffer Rd | B | | |
| 71 | Cedar/Laurel | C | | |
| **72** | **Bay/Escalona** | **F** | **782.2** | **2.015** |
| **73** | **Western/High** | **E** | **45.9** | **05.44** |
| 74 | Cliff/Beach | B | | |
| 75 | Riverside/Second-Liebrandt | A | | |
| **76** | **Seabright/Water** | **F** | **112.8** | **0.589** |
| 77 | Swift and Delaware | C | | |
| 78 | Seventh Ave./Brommer | C | | |
| 79 | Seventh Ave./E. Cliff | C | | |

**SOURCE:** Hatch Mott MacDonald

**State Route 1 (Highway 1)**. The highest average daily traffic volumes along Highway 1 within Santa Cruz County occur in Capitola at the 41st Avenue interchange with 94,000 to 104,000 ADT (Caltrans, October 2010). The segment near the Morrissey Blvd. interchange carried the second highest volume of traffic. Highway 1 west of Morrissey Boulevard is currently operating at LOS D-E (Caltrans, October 2010). Congestion along Highway 1 extends for several miles during peak hours.

According to the *Transportation Concept Report* for Highway 1, the target level of service for State Highway 1 east of Morrissey Boulevard is LOS D (Caltrans, April 2006). Additionally, according to the *Caltrans Guide for the Preparation of Traffic Impact Studies (Caltrans, 2002),* if an existing State Highway facility is operating at less than the target LOS, the guide states that the existing LOS should be maintained (Caltrans, 2002).

Caltrans is in the process of developing a "Corridor System Management Plan" (CSMP) for Highway 1 from the junction of Highway 68 in Monterey County to King Street/Mission Street in Santa Cruz to develop strategies to manage the traffic and congestion along the corridor and sustain existing transportation investments. According to the draft plan released in October 2010, a small segment of the City is located in Segment 4 (Larkin Valley to Branciforte Creek Bridge), with the remainder of the City being located in Segment 5 (Branciforte Creek Bridge to King Street). The draft CSMP indicates that between Branciforte Creek and King Street, traffic volumes are projected to increase from 54,000 average daily trips (AADT) in 2008 to 60,000 in 2025. Existing and future LOS along Highway 1 as identified by Caltrans in this draft plan is identified below (Caltrans, October 2010).

| | Existing LOS (2007) | Future LOS (2030) |
|---|---|---|
| ❑ Hwy 1, Larkin Valley Road to Branciforte Creek Bridge | E - F | F |
| ❑ Branciforte Creek Bridge to King St. | D - E | E - F |

The *Concept Report* for Highway 1 indicates that to achieve LOS D on Highway 1, added capacity, operational improvements, and investment in the multi-modal system will be required (Caltrans, April 2006). The Route Concept Report for Highway 1 includes the addition of High Occupancy Vehicle (HOV) lanes to Highway 1 in each direction to reduce congestion, encourage carpooling, expand express bus service, and improve safety from Morrissey Boulevard to San Andreas/Larkin Valley Road. Caltrans' draft *Corridor System Management Plan* for Routes 1 and 183 indicates that LOS along added Highway 1 HOV lanes during peak hours would range between B and C in the year 2035 (Caltrans, October 2010). While the overall LOS would remain unchanged in the other lanes with addition of an HOV lane, average speeds would be increased and delays and average travel time would be reduced (Ibid.).

In October 2008, Caltrans completed improvements to Highways 1 and 17 as part of the Route 1/17 Merge Lanes Project, which was designed to improve merging by adding additional merge lanes from Highway 1 to Highway 17. The project added merge lanes to the connection between northbound Route 1 and northbound Route 17 and to southbound Route 1 through the 1/17 interchange. Existing bridge structures were widened or replaced, soundwalls were constructed, and landscaping was installed.

**State Route 17 (Highway 17)**. Highway 17 near Pasatiempo Boulevard is currently operating at LOS F (Caltrans, April 2006). According to the *Transportation Concept Report* for Highway 17, the target peak level of service for State Highway 17 between the Ocean Street and Scotts Valley is LOS E (Caltrans, January 2006). The Route Concept Report for Highway 17 indicates that widening is not envisioned and this segment of the highway is considered to be a four-lane freeway (Caltrans, January 2006).

## Traffic Forecasts

The SCCRTC's *Regional Transportation Plan* (RTP) indicates that annual Vehicle Miles Traveled (VMT) throughout Santa Cruz County will increase over 2005 levels within the next 30 years. These VMT projections are made using AMBAG's Regional Travel Demand Model (RTDM). The current RTDM is developed and calibrated for 2005 and forecast for the year 2035.[6] Overall the RTP forecasts the following traffic conditions between the years 2005 and 2035 within Santa Cruz County:

- Daily person trips (trips per person) are projected to increase by 16%.
- Single-occupant auto travel for work trips is projected to increase by 13%.
- Daily vehicle miles of travel are projected to increase by 40%.
- The largest increases in vehicle miles traveled are projected to be on freeways (Santa Cruz County Regional Transportation Commission, June 2010, page 2-10).

According to the SCCRTC, there are three reasons why traffic congestion is a major issue in Santa Cruz County, as well as elsewhere in the state and nation. First, more people are driving more miles and per person vehicle registrations are at an all time high. Second, investment in transportation facilities and services has not kept pace with growing demands for road space and transportation alternatives due to decreases in the amount of transportation funding available for local projects. Third, there has been a lack of consensus on how to invest in the County's transportation system (Santa Cruz County Regional Transportation Commission, June 2010).

The joint City-UCSC "Master Transportation Study" (MTS) also made traffic projections for the years 2000 to 2020 based on AMBAG traffic model projections and population projections, which have now been superseded by more current projections as described in the POPULATION AND HOUSING (Chapter 4.2) section of this EIR. The AMBAG projections at the time the MTS was prepared assumed a 15% increase in population growth within the City (from 67,900 to 78,100 people in 2020) and a 24% increase in employment growth (from 37,800 workers to 47,000 workers 2020) (Fukuji Planning and Design, July 2003). However, current adopted AMBAG forecasts show a lower level of forecast growth with estimated population at 65,884 in 2030 and 41,548 workers in 2030.

[6] The AMBAG model relies on land-use and socio-economic data from the AMBAG forecast and road and transit network information to estimate traffic volumes and determine trip generation rates by mode. Where possible, the model is calibrated using existing roadway data (Santa Cruz County Regional Transportation Commission, June 2010).

The MTS includes a goal of no net growth in traffic between 2000 and 2020 and examined two scenarios to substantially decrease single-occupant travel and increase use of other transportation modes. One scenario increases transit use moderately and carpooling substantially. The second scenario increases transit substantially and carpooling moderately. Both scenarios were based on implementation of regional transportation improvements of either the addition of a HOV lane on Highway 1 or development of a Bus Rapid Transit (BRT) corridor along the Union Pacific Railroad right-of-way (Fukuji Planning and Design, July 2003). In Scenario 1, to achieve no growth in the year 2020 traffic, single-occupant travel internal to Santa Cruz needs to be reduced by 29%, carpooling increased by 75%, transit use increased by 50%, and bicycling and walking modes increased by 38% and 100%, respectively (Ibid.). Without a change in travel patterns, the MTS predicted a 19% increase in vehicle miles traveled between the years 2000 and 2020.

## BICYCLE & PEDESTRIAN CIRCULATION

### Bicycle Circulation

The existing bikeway system in the City of Santa Cruz has developed over the last 35 years. The City of Santa Cruz' bicycle system is comprised of off-street multi-use paths (Class I), on-street bicycle lanes (Class II) and on-street bicycle routes (Class III). Class I and Class II bike facilities are shown on Figure 4.4-3. Class I bike paths are currently limited to West Cliff Drive, the San Lorenzo River levees, a new path under Highway 1 from the river levee, and a new path under Highway 1 at Lee Street, all of which are also shared by pedestrians. A Class I path also is provided on the UCSC campus.

Support facilities include different classes of bicycle parking facilities, which are required by City parking regulations, and shower facilities at major employment facilities. All of the SCMTD buses are equipped with front-mounted bicycle racks capable of carrying two bicycles (City of Santa Cruz, November 2008). The University of California operates a bike shuttle near the intersection of Bay/Mission Streets to transport bicycles to the University.

In October 2007, the City of Santa Cruz was awarded the Silver Level Bicycle Friendly Community by the League of American Bicyclists. According to data contained in the 2000 Census, approximately 4.7% of the commuters within the City of Santa Cruz are bicyclists (City of Santa Cruz, 2008). The City's existing Bicycle Plan, adopted in November 2008, forecasts a bicycling increase to 7% of the peak hour traffic within a 5-year period.

The emphasis of the 2008 Bicycle Transportation Plan shifted from earlier plans in 2000 and 2004 Plans, which were focused on completing large-scale bicycle projects on the major commute corridors. Many of those significant projects have been completed—Bay Street, Beach Street, Broadway-Laurel, High Street, Soquel Avenue, and major portions of the San Lorenzo River Path. The bicycling projects to be pursued in the next five years include completing those significant projects begun in the earlier Plans, as well as building the connector projects that can get bicyclists from origin to destination easily and safely. One new possibility for an east-west bicycle travel corridor is the Union Pacific rail right-of- way, which the SCCRTC has purchased and begun a planning process.

### Pedestrian Circulation

The City has approximately 135 miles of sidewalks. Approximately 50 miles of sidewalk is missing from the existing system; predominate problem areas are the upper eastside and Westlake areas that have large continuous sidewalk links missing (Fukuji Planning and Design, July 2003).

The "Pedestrian System" chapter of the Master Transportation Study is considered the City's Pedestrian Plan. The MTS was accepted by the City Council on December 9, 2003. The MTS goals for Santa Cruz's pedestrian system are to:

- Provide multiple transportation modes thereby creating a flexible and adaptive transportation system throughout the City of Santa Cruz.
- Close all "gaps" in the pedestrian network and connect all major destinations and activity centers.
- Ensure that the City's diverse user groups have access to a sustainable and efficient mode of transportation / Create a system that is "scaleable" and responds to changing community needs, and provide flexibility and variety in the City's transportation network.
- Adopt design standards for the pedestrian system to assure a high level of user amenities, safety and quality.

Overall, priorities for the City's pedestrian system include completion and maintenance of the City sidewalk system, improve safety, adopt pedestrian-friendly street designs, enhance key pedestrian connections, and encourage walking (Fukuji Planning and Design, July 2003). .

## PUBLIC TRANSIT

Transit service within Santa Cruz County is primarily provided by the Santa Cruz Metropolitan Transit District (SCMTD). Regional bus routes provide service to destinations in Santa Clara and Monterey Counties including daily weekday service via Highway 17 by the SCMTD. SCMTD buses provide service from the downtown Santa Cruz transit center to the San Jose Caltrain station, with connections to San Francisco, Sacramento, Stockton and other cities. Greyhound bus service also is provided from Downtown Santa Cruz to select destinations.

The City of Santa Cruz operated the Summer Beach Shuttle in the past when private donations were available. The Shuttle provided service to and from destinations within the City of Santa Cruz, such as the Downtown and the Santa Cruz Boardwalk. Use of the County Government Center parking lot was used in conjunction with the beach shuttle. Due to lack of funding, the Summer Beach Shuttle was discontinued over ten years ago. Recently the business sector has initiated a Beach-Downtown Shuttle for the summer of 2010. Budget constraints have prevented the City from continuing operation of a beach shuttle.

## SCMTD Service

The Santa Cruz Metropolitan Transit District (SCMTD), also known as Santa Cruz Metro, provides transit service within Santa Cruz County. SCMTD provides the following types of service: regional (Highway 17 Express), intercity (8 routes), urban local-feeder (16 routes), UCSC (7 routes) and rural routes (7 routes) (Wilbur Smith Associates, December 2008). The Highway 17 Express Bus service was initiated after the 1989 Loma Prieta earthquake in response to an emergency need for transit over the Hill while Highway 17 was being repaired, and is currently a joint operation between the SCMTD, . Amtrak, and the Santa Clara Valley Transportation Authority (VTA). The route currently connects Santa Cruz (downtown METRO station) and San Jose (Diridon station); at the Diridon station, passengers can connect to the Santa Clara Valley Transportation Authority' transit system and Caltrain and Amtrak regional rail systems (Ibid.).

The District serves transit centers in Santa Cruz, Capitola, Felton, Scotts Valley and downtown Watsonville. SCMTD routes also meet Monterey-Salinas Transit (MST) routes at the Watsonville Transit Center. The two operators have provided reciprocal transfers since 1989. Additionally, SCMTD partners with the University of California, Santa Cruz (UCSC) to provide late night fixed route and demand response service in the general Westside Santa Cruz area (AMBAG, June 2010).

The SCMTD complements its regular fixed-route bus service with ParaCruz, a shared ride-door-to-door paratransit service that provides public transportation for persons who are unable to independently use fixed route buses due to a disability some or all of the time. It is provided by public transportation systems as part of the requirements of the Americans with Disabilities Act of 1990 (ADA). Rides are scheduled in advance and frequently include picking up and dropping off other customers along the way. ParaCruz operates a fleet of lift-equipped small buses and ramp-equipped minivans. On November 1, 2004, Santa Cruz METRO assumed direct operation of the ParaCruz (Santa Cruz Metropolitan Transit District, "METRO Para Cruz ADA Paratransit Service").

SCMTD's total ridership on fixed route service for Fiscal Year 2008-09 was 5,987,518; annual expenses for providing these transit services, including ParaCruz, were approximately $37 million (Santa Cruz County Regional Transportation Commission, June 2010). From 2003 to 2007, there had been a general increase in fare revenues and total operating cost, while ridership and hours of operation declined (Wilbur Smith Associates, December 2008). However, the SCCRTC noted a 7% increase in ridership since Fiscal Year 2004/05 due to rising gasoline prices, traffic congestion, and job market uncertainty (Santa Cruz County Regional Transportation Commission, June 2010).

Increasing congestion on highways and the local transportation network in Santa Cruz County is expected to generate more transit service demand (AMBAG, June 2010). However, the SCCRTC's RTP does not envision expansion of transit services without additional revenues. In order to increase transit service to levels needed to meet projected population growth, greenhouse gas emission reduction goals, and significantly increase the percentage of people using transit, bus service would need to be increased by 25% at an additional annual cost of approximately $11 million (Santa Cruz County Regional Transportation Commission, June 2010). To accommodate this demand, the SCMTD would like to increase service, but due to

ongoing funding shortfalls, SCMTD is struggling to maintain existing service (Ibid.). Due to declining sales tax and other non-fare revenue sources, the SCMTD reduced service in the fall of 2010. It is expected that transit service will continue with minor improvements without major route cuts or rate changes for about five years, however, additional funding will be necessary in the future for expansion of service (White, SCMTD, personal communication, August 2011).

In recent years, Metro has been working on upgrading its transit operations facilities in an effort to reduce operating costs, improve efficiency, and allow for future expansion of the transit system (Santa Cruz County Regional Transportation Commission, June 2010). In 2008, Santa Cruz METRO completed the compressed natural gas-CNG fueling station and conversion of 40 buses.

### Bus Rapid Transit (BRT)

The joint City-UCSC "Master Transportation Study" (MTS) recommends "Bus Rapid Transit" (BRT) for long-term implementation as the technology with the highest potential to increase ridership and shift travel modes to transit. BRT is a rubber tire vehicle system operation on an exclusive transit way or dedicated busway with flexibility to operate on surface streets with mixed flow traffic. According to the MTS, a BRT system has significant potential to affect a regional commute shift away from SOV to transit for trips to and from the UCSC campus, downtown and the Harvey West area. A BRT busway could operate on a dedicated HOV lane along Highway 1 or on a shared bus/freight/bicycle lane using the Union Pacific rail corridor. Application to Soquel Avenue and Water Street was also considered (Fukuji Planning and Design, July 2003).

## RAIL SERVICE

### Freight Service

The former Union Pacific Railroad rail line forms a continuous, single-track, 32-two mile corridor from Davenport to the City of Watsonville. The Santa Cruz County Regional Transportation Commission is in the process of purchasing the right-of-way and is awaiting final approval from the state. This branch rail line extends from Watsonville Junction in Pajaro north to Davenport and passes through much of the county's urban area. For many years, freight deliveries to and from the CEMEX cement plant in Davenport occurred three times per week. As of 2010, CEMEX plant operations ceased due to the economic downturn. The rail line is currently operated by Sierra Northern. Sierra Northern Railway. Sierra runs trains twice per week to serve existing freight customers and stores empty rail cars in the unused northern section of the rail line. Sierra will be responsible for operations, maintenance and start-up costs associated with rail service (Santa Cruz County Transportation Commission, February 2011).

### Recreational Service

The Santa Cruz Big Trees and Pacific Railway Company operates a tourist-oriented passenger service between Felton and the Santa Cruz Beach Boardwalk on its 9-mile track line from Santa Cruz to its current terminus at Roaring Camp. The service is provided daily during mid June through the end of August, and weekends and holidays in May, early June, September through

October, late November, and December. The trains run twice in each direction every day during regular operations, and partially use the Union Pacific Railway tracks that cross Pacific Avenue just north of the intersection of Pacific Avenue and Beach Street. The line is occasionally used for freight (AMBAG, June 2010). Historically the line crossed the Santa Cruz Mountains to Los Gatos, but was abandoned in 1939 past Olympia. The tunnel sections are now used as records storage for major corporations in the San Francisco Bay Area (Ibid.).

### Passenger Service

The Santa Cruz Branch line has been the subject of a number of studies regarding its potential for passenger rail service. A 1996 study analyzed the potential viability of inter-city passenger rail service between Santa Cruz and Watsonville to San Jose. The 1999 Major Transportation Investment Study examined three options for passenger rail on the Santa Cruz Branch line along the Watsonville- Santa Cruz-UCSC corridor. Also in 1999, the Around-the-Bay Rail Study looked at the feasibility of partnering with Monterey County to bring passenger rail from the San Francisco Bay Area to both counties, as well as linking the two counties via a wharf-to-wharf type rail transit service.

On May 6, 2010, the SCCRTC unanimously agreed to acquire the Santa Cruz Branch Rail Line right-of-way, which is being finalized. Future transportation uses could include passenger rail service, transit, bicycle and pedestrian facilities, and freight rail service. This project was one of the selected outcomes for the Watsonville-Santa Cruz-UCSC corridor from the SCCRTC's 1999 Major Transportation Investment Study. The SCCRTC also intends to maintain the existing freight service on the rail line. The *2005 Regional Transportation Plan* (Policy 3.4.5) supports reserving areas adjacent to rail lines for future rail and bus facilities as part of new development adjacent to rail lines. Passenger service to from Santa Cruz to Davenport is currently being considered by the SCCRTC.

## PLANNED IMPROVEMENTS

### State Highways

#### STATE ROUTE 1

Beginning in 1986 the Santa Cruz County Regional Transportation Commission (SCCRTC), working with Caltrans and the Federal Highway Administration, conducted a series of studies to identify an affordable and appropriate response to the growing congestion problem on Highway 1, including feasibility studies for Highway Occupancy Vehicle Lanes (HOV) on Highway 1 and a toll lane feasibility study in 2002. The current Caltrans Route Concept Report for Highway 1 includes the addition of High Occupancy Vehicle (HOV) lanes to Highway 1 (California Department of Transportation, April 2006). This project will add a lane in each direction to reduce congestion, encourage carpooling, expand express bus service, and improve safety. The limits of this project extend from Morrissey Boulevard to San Andreas/Larkin Valley Road. Preliminary traffic performance data shows the anticipated shift in traffic volumes from local arterials to Highway 1 with the HOV Lane Alternative (Santa Cruz Regional Transportation Commission website, http://www.sccrtc.org/hov.html). Caltrans' draft *Corridor System Management Plan* for Routes 1 and 183 also supports HOV lanes on Highway 1 in

conjunction with other transportation demand management strategies (Caltrans, October 2010).Detailed project design and environmental data is in development and is expected to be available in the winter of 2012. Funding is not secured to advance the project beyond the current environmental study. The SCCRTC's *2010 Regional Transportation Plan* assumes adoption of a transportation sales tax measure to provide a significant amount of the funding needed to advance this project into the next development phase – final design, right-of-way, and construction (Santa Cruz Regional Transportation Commission website, http://www.sccrtc.org/hov.html).

In 2006, the Santa Cruz County Regional Transportation Commission initiated work on the preliminary design and environmental review phase of the Highway 1 Soquel to Morrissey Auxiliary Lanes Project spanning the busiest section of Highway 1 in Santa Cruz County (carrying 115,000 vehicles per day in 2006). An auxiliary lane connects an adjacent highway on-ramp with the next highway off-ramp thereby extending the weaving and merging distance between the ramps and improving traffic flow and safety on the highway. An auxiliary lane is not designed for use by through traffic, but to provide greater separation between vehicles entering and exiting the freeway from mainline traffic. The Soquel/Morrissey Auxiliary Lanes project proposes to add 12–foot wide auxiliary lanes northbound and southbound between Soquel Avenue and Morrissey Boulevard, respectively. This project includes reconstruction of the La Fonda Avenue overcrossing; the La Fonda Avenue overcrossing must be replaced to accommodate the auxiliary lanes under the bridge. The new La Fonda Avenue bridge will be wider to provide bike lanes and wider sidewalks for pedestrians. This project is designed to complement the work recently completed as part of the Highway 1/17Merge Lanes Project, by eliminating the proposed lane drop north of the La Fonda Avenue resulting from the Highway 1/Highway 17 Project. Design is nearly complete, and the final environmental documents were approved by Caltrans, although the project is contingent on approval by the California Transportation Commission.. Funding has been secured for the project. Construction could begin in 2012 or 2013.

#### STATE ROUTE 17

According to the Transportation Concept Report for State Route 17 in District 5 (Caltrans District 5, January 2006), the target level of service for State Highway 17 between the Ocean Street and Scotts Valley is LOS E. The Route Concept Report for Highway 17 indicates that the highway segment between Santa Cruz and Scotts Valley accommodates local and regional trips. Recognizing the existing policy of the Santa Cruz County Regional Transportation Commission, widening is not envisioned and this segment of the highway is considered to be a four-lane freeway (Caltrans, January 2006).

Reconstruction of the highway to meet current standards would be both exorbitantly expensive and environmentally destructive. Thus, over the past two decades, the Santa Cruz County Regional Transportation Commission (SCCRTC) has consistently opted to keep Highway 17 a four-lane highway, targeting funds for safety and operational improvements. Median barriers, acceleration-deceleration lanes, motorist call boxes and changeable message signs are improvements that have been installed over the past decade.

In the fall of 2000, Caltrans completed a Project Report that assessed the operational value and cost of constructing a 1.1-mile truck climbing lane on northbound Highway 17 at the

summit. As a result of the study, Caltrans recommended, and the Regional Transportation Commission concurred, not building the project ("No Build"), as the potential benefits of the project were not justified by the high cost and potentially significant environmental impacts. As an alternative, Caltrans continued to evaluate other potential safety and operational improvements on Highway 17. The products of this analysis were two safety improvement projects on Highway 17 at Laurel Curve and Glenwood Curve.

In response to the need for further safety and reliability improvements in this corridor, the *Highway 17 Transportation Improvement Study* was conducted to provide SCCRTC, Santa Clara Valley Transit Authority (VTA), and SCMTD to recommend safety and efficiency improvement projects with the following two main objectives: 1) recommend steps *to optimize* the Highway 17 Express Bus service reliability; and 2) *expand* Highway 17 Express Bus ridership in the corridor in order to reduce vehicle trips, miles traveled, and emissions. Recognizing that the roadway and traffic conditions along Highway 17 affect the operation of the Highway 17 Express Bus service, an additional objective was to recommend safety and operational improvements to add reliability, speed and functionality to the project corridor to benefit both the patrons of the Highway 17 Express Bus service and the motorists traveling along this route. A series of recommendations were made to support and expand the existing transit service on Highway 17, including provision of weekend service.

#### STATE ROUTE 9

The Highway 1/Highway 9 intersection, which is controlled by a signal, currently operates at LOS E during the both the PM and Design Day peak hours, which does not meet Caltrans standards. The City is working with Caltrans to implement lane modifications at this intersection. The improvements require Caltrans approval and an encroachment permit. With implementation of these improvements, the intersection would operate at LOS D during both the existing PM and Design Day peak hours.

The following improvements are included in the Highway 1/Highway 9 intersection planned improvement:

- Widen and add a left-thru turn lane from Highway 9 southbound.
- Improve the northbound River Street approach to modify the existing exclusive left-turn lane to a shared thru/left-turn lane.
- Widen and add a second left-turn lane from Highway 1 southbound onto Highway 9.
- Widen and add a second northbound lane on Highway 9.
- Modify signal.
- Add bike lane and shoulder

Currently, a Project Report, preliminary engineering, associated studies and environmental review are underway. The improvements are already required under existing conditions.

## Planned City Improvements

The City faces an ongoing challenge to meet its capital needs with limited resources. Preparing and adopting a Capital Improvements Program (CIP) is an important part of the City's planning

process to identify and meet those needs. It is a multi-year schedule of projects with their associated costs and proposed funding sources. The CIP represents the best efforts to allocate available resources toward projects that provide the most benefit for the people of Santa Cruz. In addition to the Highway 1 / Highway 9 intersection improvement described above, other major improvements on the current CIP include: intersection improvements at Mission/Bay and Mission/Chestnut (design and environmental review); intersection signalization (Bay/West Cliff); installation of a roundabout at the Pacific/Beach intersection;

The City operates a "Traffic Impact Fee" (TIF) program based on future projected trips generated for each new project. The TIF program, adopted in June 2005, evaluated over 60 intersections and identified numerous projects within the City which were needed to address the effects of cumulative development, and fees established. The fees are used to fund planned improvements at those intersections and roadways included in the program. New development and redevelopment projects are required to pay traffic impact fees, which are calculated at the time of building permit issuance. The TIF includes highway intersections on Mission (Highway 1) and at the Highway 1 / Highway 9 intersection.

The City's TIF program includes both a City-wide TIF fee and a Beach/South of Laurel (B/SOL) TIF. New projects that are located in the B/SOL area are required to pay both fees. The fee program is updated annually in July. The fees are based on project trip generation and are calculated at the time the project applies for a building permit. By ordinance the City has identified the per trip fee, which was determined by dividing the total cost of all projects identified in the City's "Cumulative Development Traffic Study" by the total cumulative additional trips added by new development. The fee assumes the City will fund 25% of the cost of improvements as a result of existing capacity differences. In addition, 15% of the fee is dedicated to alternative transportation. The current City-wide fee is $405 per trip. The current B/SOL fee is $94 per trip.

## Bicycle and Pedestrian Path Improvements

The City's adopted *Bicycle Transportation Plan* (2008) includes the following new paths: Arana Gulch path to connect Broadway with Brommer Street; Branciforte Creek Connection to complete the levee path under the Soquel Bridge; Monterey Bay Sanctuary Scenic Trail Network (as discussed below); and Spring Street Connection to UCSC. The Plan also includes numerous other improvements to existing bike lanes and facilities.

The Monterey Bay Sanctuary Scenic Trail Network (MBSST) is proposed to span the Monterey Bay from Lover's Point in Pacific Grove to Wilder Ranch in Santa Cruz. The SCCRTC is in the process of developing a more detailed plan for the Santa Cruz County portion of the trail. The MBSST efforts will ultimately result in a network of continuous multi-use recreational, interpretive and transportation pathways spanning the Monterey Bay that will also be an important piece of the 1,300 mile statewide California Coastal Trail (Santa Cruz Regional Transportation Commission, January 2008). If the SCCRTC is successful in its rail line acquisition efforts, part of the network may be built within the rail line right-of-way (Ibid.).

The SCCRTC is working on a comprehensive Master Planning process that will include: developing goals and objectives; identifying and assessing possible segments; setting design options; soliciting and incorporating input from interested parties and the community at large;

preparing cost estimates for segments; and conducting environmental analysis of the Plan. In addition to identifying new trails, the MBSST Network is intended to link together (and upgrade where needed) trail segments that already exist and to fill in gaps in the existing trail system (Santa Cruz Regional Transportation Commission, January 2008).

## TRANSPORTATION MANAGEMENT

### Transportation System Management

Transportation Systems Management (TSM) refers to methods to find optimum strategies to relieve, lessen or control traffic congestion with minimum roadway widening. These strategies can reduce vehicle travel time and enhance system accessibility with little impact on other modes (Fukuji Planning and Design, July 2003). Examples of TSM measures include signal synchronization, intersection modifications, access management, i.e., consolidation of driveways, railroad crossing modifications, highway ramp metering, preferential treatment for high occupancy vehicles, and signage and lighting upgrades.

### Transportation Demand Management

Transportation Demand Management (TDM) refers to measures that can be implemented to encourage the use of alternative modes of transportation to single occupancy vehicles. TDM emphasizes the movement of people and goods rather than motor vehicles, and gives priority to public transit, ridesharing and non-motorized travel, particularly under congested conditions (Fukuji Planning and Design, July 2003). TDM is a demand side strategy with the purpose to change human travel behavior through incentives and disincentives in order to reduce the number of peak-hour vehicle trips, shift trips to non-peak times, and increase the percentage of people bicycling, walking, riding transit, carpooling and vanpooling (Ibid.). Examples include carpool and vanpool rideshare matching, employer outreach and assistance, emergency ride home programs, telecommuting, bike loan programs, bicycle parking subsidies, bicycle advocacy, and parking pricing and management strategies.

Existing agencies and programs that support and promote TDM in the city of Santa Cruz include the following as presented in the "Master Transportation Study":

- *Santa Cruz Regional Transportation Commission* (SCCRTC) serves many transportation roles in Santa Cruz County, including housing "Commute Solutions" and providing bicycle planning and funding to the region. Commute Solutions provides carpool and vanpool ride matching to commuters throughout Santa Cruz County, especially long-distance commuters.
- *Transportation Membership Services* is run by Ecology Action and offers programs that encourage member employees to use transportation modes other than driving alone to commute to and from work, including Emergency Ride Home Programs, 0% Interest Bicycle Loan Programs and Discount Metro Bus Passes.
- *Ecology Action* supports "Bike to Work," a 10-year old community-based effort that seeks to increase the number of people riding bikes. Ecology Action also receives funds for the Electric Bike Commuter Incentive Program.

- *Onsite Employer Programs*. Major employers within the City that implement TDM measures include: UCSC, SCMTD, the City of Santa Cruz, the County of Santa Cruz, the Seaside Company, the Santa Cruz Medical Clinic, and others.

### Traffic Calming

Measures to reduce speeding and cutting through neighborhoods has been a focus over the years as these issues have been raised by residents. Measures include installation of traffic claming measures, signage, and improving the arterial street system.

## PARKING

The City of Santa Cruz maintains both on-street and off-street public parking throughout the City, including the Downtown Parking District. Amendments to the State CEQA Guidelines, effective in March 2010, eliminated the environmental checklist question regarding adequacy of parking. Nonetheless, general background on existing conditions is provided below.

### Downtown Parking District

Public parking in the downtown area is managed by the Downtown Parking District, which includes the most concentrated City ownership and operation of parking in the City and is the only parking district in the City. In 2007, there were 4,510 parking spaces available to the public, including 820 on-street spaces, 2,247 off-street spaces, and 1,443 private spaces ("Downtown Parking Study, 2007"). In 2010, there were 4,583 parking spaces available to the public, including 830 on-street spaces, 2,226 off-street parking spaces and 1,527 private parking spaces. In 2010, the parking supply (4,583 spaces) in the Downtown Parking District exceeded demand (4,504 spaces). However, by the year 2012 with new projects in place, the demand (4,731 spaces) is estimated to exceed supply (4,638 spaces) by 93 spaces.

The City-operated spaces include a wide variety of parking types dispersed throughout the District, including meters that have different time periods. The municipal parking garages have an average peak occupancy of approximately 85%, with the Cedar/Church garage almost 100% occupied at peak times (Fukuji Planning and Design, July 2003).

New businesses are exempt from typical parking requirements required elsewhere in the City. Business owners have the option of providing required parking or paying a Deficiency Fee that is used to fund, operate and maintain parking facilities. The District charges an annual deficiency fee.

### Beach / South of Laurel Area

The Beach / South of Laurel area includes the area directly adjacent to the Downtown Parking District and stretching down to the Beach. It provides parking for both its own set of uses, though also experiences overflow demand from the Downtown and the Beach Areas. The Beach Area itself includes the largest supply of privately provided for-charge parking in the City, as well as a mix of publicly provided parking (Fukuji Planning and Design, July 2003).

The Beach / South of Laurel Area includes about 7,800 parking spaces with over 80% of which, about 6,300 space, are in the Beach Area. A total of 4,145 spaces, a little over 50% of the total, are available to the general public, independent of intended activity. A total of 3,562 of these spaces are in the in the Beach Area and 583 spaces are in the South of Laurel district. Unrestricted publicly available Beach Area spaces are dominated by the two Seaside Company lots, with a combined total of 1,771 spaces, and the City owned and operated 430-space Wharf lot. Other spaces include other City operated lots, on-street meters, and free curbside spaces. South of Laurel general public access spaces include small City operated lots, on-street meters, and free curbside parking spaces. The City operates 633 on-street meters in the Beach and South of Laurel areas (Fukuji Planning and Design, July 2003).

#### Residential Parking Permit Programs

Due to seasonal influx of visitors and UCSC students and encroachment into residential neighborhoods, the City implements a residential parking program in the following neighborhoods: beach area, downtown, Lighthouse/Cowell neighborhood, eastside, Seabright, and Westside. Residents in these areas must purchase permits to park on streets without citations. According to information on the City's Public Works Department website, the coastal permit programs are enforced seasonally from May 15th through September 30th, between the hours of 9 AM and 9 PM, everyday. The Westside permit program is enforced from September 15th through June 30th, Monday through Friday, during posted hours (excluding City holidays). Parking in these areas without a permit is subject to a citation and fine. The downtown and eastside area permit requirements are enforced all year.

## 4.4.2 RELEVANT PROJECT ELEMENTS

### PROPOSED GOALS, POLICIES & ACTIONS

The proposed *General Plan 2030* includes goals, policies and actions that address transportation planning, management and traffic. The MOBILITY chapter of the draft *General Plan 2030* corresponds to the required circulation element. Its purpose is to set forth policies and ways to ease the ability of people and vehicles to move around, out of, and into the City in the long term, through 2030. This chapter looks at ways to facilitate transportation alternatives, keep transportation and road systems safe and efficient, and systematically interconnect bicycle and pedestrian ways. The proposals below aim to encourage greater use of alternative transportation modes and reduce automobile travel in concert with other parts of the Plan that foster supportive land uses, building types, and activities. The City Council accepted the following key principle with regard to Mobility:

> *We will provide an accessible, comprehensive, and effective transportation system that integrates automobile use with sustainable and innovative transportation options—including enhanced public transit, bicycle, and pedestrian networks throughout the community.*

The draft General Plan includes four goals and 19 associated policies with 94 accompanying actions that address transportation management and modes of travel. The four goals related to transportation are outlined below. Overall, the accompanying policies and actions Furthermore, proposed General Plan policies seek to maintain an acceptable LOS D or better at signalized intersections with acceptance of a lower LOS at major regional intersections (M3.1.3, M3.1.4) and promote transportation system management strategies (M2.5.2) and other alternative transportation modes.

| | |
|---|---|
| GOAL M1 | Land use patterns, street design, parking, and access solutions that facilitate multiple transportation alternatives. |
| GOAL M2 | A safe, sustainable, efficient, adaptive, and accessible transportation system. |
| GOAL M3 | A safe, efficient, and adaptive road system. |
| GOAL M4 | A citywide interconnected system of safe, inviting, and accessible pedestrian ways and bikeways. |

Other goals, policies and actions promote sustainable land use patterns, such as encouraging mixed-use development along the City's four major transportation corridors that have easy access to pedestrian, bike and transit facilities, and encouraging use of alternative transportation modes.

## PROPOSED IMPROVEMENTS

The draft *General Plan 2030* includes several policies and actions that call for implementation of road, pedestrian, bicycle and transit improvements through the City's Capital Improvement Program and other sources (M2.1.3, M2.3.2, M3.2.2). The draft Plan supports regional funding and implementation of key regional projects "that can significantly benefit Santa Cruz and further the City's mobility policies" (M2.1.4). There are no specific road transportation improvements identified for specific locations, except for improvement of access to/from the Harvey West area, including a possible new approach to Highway 1 (M3.1.13), and that the circulation system of the specific plan for the Swenson parcel shall be from Shaffer Road (LU1.1.4).

Several policies address visitor traffic improvements. .Policy ED1.2.1 specifically encourages transportation improvements and pedestrian activity along Ocean Street to stimulate economic vitality. Policy ED1.8.4 directs the City to improve access to and routes between tourist and visitor designations and lodging facilities as part of the City's economic development policies. The proposed General Plan also calls for updating the Beach and South of Laurel Area Plan to reflect needed improvements along the Visitor/Beach Area travel corridors (M3.3.3) with improvement of access along these corridors through coordinated signs and street naming, protected turn lanes, remote parking/shuttle programs, and other strategies (M3.3.2).

The draft Plan promotes alternative transportation improvements with TSM strategies, road improvements and widening/expansion projects that can achieve an acceptable LOS (M2.32). Action M4.3.2 seeks to develop bike commute routes along the railroad right-of-way, West Cliff Drive, Broadway, King and other streets. The draft General Plan also includes a policy that prohibits approval or construction of an Eastern Access to the University without a citywide

vote (M2.1.5). No other specific road or alternative transportation projects are identified for specific support. The draft *General Plan 2030* also encourages passenger rail transit or other alternative transportation options along the existing rail corridor via the continued support, acquisition, and expansion of railroad rights-of-way (M2.2) and encourages the continuing transport of goods by rail (M2.2.1). Policy LU4.5 supports securing land for development of a transit center along the rail line, and evaluation of a rail transit stop is to be included in the Area Plan analysis for the Golf Club Drive area (LU1.15). Pedestrian and bicycle access to Pogonip and nearby employment areas are also to be included in this future area plan.

### POTENTIAL FUTURE DEVELOPMENT

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan / Local Coastal Program, except for three new mixed use land designations that have been developed and applied to the following major transportation corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. Additionally, land use designation changes are proposed for three specified sites: Swenson, Golf Club Drive area, and an addition to the Dimeo Lane landfill site. The Swenson and Golf Club Drive sites are designated for residential uses. A 5.5-acre parcel immediately south of and adjacent to the City's Landfill and Resource Recovery Center on Dimeo Lane has been acquired by the City, and it is expected that future uses would be ancillary to the landfill and Resource Recovery Center uses. Specific uses have not yet been identified and will be determined in the future, however, the parcel is not planned for expansion of the landfill disposal operations (Arman, personal communication, April 2010).

Additionally, some of the *General Plan 2030* policies and actions also support mixed use districts and/or intensified redevelopment along transit and commercial corridors (Policies LU3.3.1 and LU4.1). In addition, the proposed *General Plan 2030* supports development of a downtown performing arts center or expansion of the Civic Center (Policy HA2.2.5).

## 4.4.3 IMPACTS AND MITIGATION MEASURES

### CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

4a Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit (see discussion of City standards below);

4b Change the level of service of a State Highway roadway segment from acceptable operation (LOS A, B, or C) to deficient operation (LOS D, E or F) based on Caltrans significance criteria[7];

4c Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;

4d Substantially increase hazards due to a design feature (for example, sharp curves or dangerous intersections) or incompatible uses (for example, farm equipment);

4e Result in inadequate emergency access; or

4f Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities or otherwise decrease the performance or safety of such facilities.

The City of Santa Cruz considers "D" or better to be an acceptable intersection level of service for intersections, which is a policy in the City's existing General Plan as well as in the proposed General Plan. A significant impact would result if LOS dropped below a "D" level of service or where a project would contribute traffic increases of more than 3% at intersections currently operating at unacceptable levels (E or F), as further described below. The existing and proposed General Plans also account for accepting a LOS below "D" at major regional intersections where improvements would be prohibitively costly or result in significant, unacceptable environmental impacts. There are no other adopted plans, ordinances or policies that establish "measures of effectiveness" for the performance of the circulation system.

For City intersections that already operate at unacceptable levels of service (E or F), the City considers project impacts to be significant if congestion will measurably worsen at the intersection as a result of the project. "Measurably worse" is considered to be a 3% increase in trips at the affected intersection. The City has used the 3% significance criterion for project trip contribution at existing impacted intersections, in part based on directives in the City's existing General Plan to accept a certain level of congestion during peak hours at major intersections, as well as to reflect variations in daily traffic volumes. The 3% criterion has been used throughout the City and is based upon the likelihood that a project will result in an observable increase in congestion at a given intersection or road segment. This is based in part on information provided by Caltrans in the yearly "Traffic Volumes" reports that identifies the standard deviation expected with regards to reliability of traffic count data. The standard deviation ranges indicate a 12% deviation at 10,000 vehicle trips, meaning that if a traffic count totals 10,000 vehicles per day, then approximately 90% of the time, the actual traffic counts will lie within a range of 8,800 to 11,200 vehicles. Thus, the 3% reflects this variation in daily traffic conditions (California Department of Transportation, June 2006).

[7] Caltrans. December 2002. "Guide for the Preparation of Traffic Impact Studies."

## IMPACT ANALYSIS

Based on the significance criteria identified above, the following impact analyses address potential impacts to the City's circulation system (4a); potential traffic impacts on state highways (4b); potential increase in hazards (4d); and potential conflicts with adopting policies, plans or programs that support alternative transportation (4f). There are no applicable congestion management programs in effect within the City of Santa Cruz (4c), and thus this is not an issue that needs discussion. Emergency access issues (4e) are addressed in the "Fire Protection" and "Police Protection" subsections of the PUBLIC SERVICES (Chapter 4.8) section of this EIR.

### Potential Future Development & Buildout

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased new development. However, the draft General Plan includes policies and a land use map that support additional development. The proposed General Plan would accommodate future development. As described in the PROJECT DESCRIPTION and LAND USE sections of this EIR (Chapters 3.0 and 4.1, respectively), buildout projections were estimated for the draft General Plan to provide an estimate of the amount of development that is expected to occur by the year 2030.[8] The projections indicate the following level of new development by the year 2030:

- 3,350 residential units
- 1,087,983 square feet of commercial development and 311 hotel rooms
- 1,273,913 square of office space
- 776,926 square feet of industrial development.

The proposed *General Plan 2030* supports infill development along transportation corridors to promote alternative land use patterns to help reduce automobile travel. Development under the proposed General Plan would primarily occur on vacant infill sites, on underutilized properties that could redeveloped at higher densities and/or land use intensities, and in the new mixed-use districts along the City's four major street corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. Based on the estimated development occurring under the proposed plan,[9] approximately 55 percent of all new housing, 45 percent of new commercial development and 52 percent of new office development would located along these corridors. Thus, new development would be concentrated in specific areas.

The proposed General Plan also includes other policies and actions that could result in development that supports year-round expanded performances, events, visitors that would result in potential traffic increases. These potential uses include:

[8] The projections are based on the draft Land Use Map, taking into account land use map changes, vacant lands, sites subject to reuse or redevelopment, and underutilized parcels, assuming that not all development will occur at maximum density. On average it is assumed that all new development will occur at 80% of the permitted residential density or floor area ratio. See Appendix B for further discussion.

[9] See Table 3-3 in the PROJECT DESCRIPTION (Chapter 3.0) section of this EIR and Figure 2-3 for estimated distribution of new development per specific areas in the City.

- Supporting a downtown performing arts center or expansion of the Civic Center (HA2.2.5),
- Amending the Zoning Ordinance to allow development of arts and cultural facilities in a wide variety of districts (HA2.2.4),
- Supporting Santa Cruz as a year-round conference destination (Policy ED1.4), and supporting development of a new conference center (ED1.4.1) or developments that accommodate conferences (ED1.5.1),
- Encouraging development of new lodging facilities (ED1.5) and attracting top-end, full-service hotels (ED1.5.2),
- Supporting year-round events (HA3.2.4), and promoting Santa Cruz as a year-round arts destination, and
- Promoting Santa Cruz as a principal retail, cultural, recreational, entertainment and commercial destination in the region (ED1.1).

There are no specific locations or intensity of development anticipated for these types of uses. It is likely that development of such entertainment and/or visitor-serving uses would be within the total square footage of commercial development that has been estimated for the proposed *General Plan 2030* buildout. Adoption of Arts and Entertainment Districts also is supported in the draft plan (HA3.1.1), but most performances do not occur during peak commute hours.

**Impact 4.4-1: Traffic Impacts on Intersections Levels of Service (LOS)** Adoption and implementation of the proposed *General Plan 2030* would accommodate future development that would result in increased vehicle trips and traffic, resulting in changes in intersection levels of service to unacceptable levels or further deterioration of intersections currently operating at unacceptable levels of service. With implementation of proposed *General Plan 2030* policies and actions, including road improvements identified in an updated Traffic Impact Fee program, intersection operations would be improved and traffic levels would be reduced, except at eight intersections. This is considered a *significant impact*.

### PROJECT TRIP GENERATION AND DISTRIBUTION

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased population or new development. However, the draft General Plan includes policies and a land use map that support additional development as summarized above. This potential development would generate an estimated 78,260 new daily trips with approximately 7,180 trips occurring during the PM peak hour. The Traffix model was used for the traffic impact analysis, which estimates the trip generation for all uses and distributes these new trips to the existing road network.

The trip generation is based on the new potential development expected with buildout under the *General Plan 2030*. Results of surveys conducted for the MTS indicate that 58% of all trips by City residents are made for shopping, work or personal purposes. In addition about 75% of

all trips made by residents remain within the City of Santa Cruz. If it is assumed that this distribution will remain relatively constant for all new residents in the City then approximately 44% of all trips made by new residents will be to commercial, office, industrial or personal service facilities within the City (Marquez, March 2010). Appendix C provides a full description of trip generation assumptions. A reduction was also included for trips generated along the new mixed-use corridors in which transportation modes other than vehicles would be used.

The traffic forecast includes assumptions regarding trip reduction due to mixed use and smart growth developments, which in part utilized information identified in the MTS regarding travel patterns, taking into account travel patterns identified in the City's "Master Transportation Study." See Appendix C for further discussion of these underlying assumptions and the details of determining trip generation rates.

### INTERSECTION LEVEL OF SERVICE

Project traffic volumes were calculated by adding peak-hour project trips generated by the estimated General Plan buildout to the existing volumes, which are provided in Appendix F-5. The LOS calculations are included in Technical Appendix F-6, which is available for review at the City of Santa Cruz Planning Department[10] and is also included on the Draft EIR CD and on the online version of the Draft EIR on the City's website at www.cityofsantacruz.com, Planning Department.

Intersection levels of service during the PM peak hour with addition of new development accommodated by the *General Plan 2030* are summarized on Table 4.4-2. A majority of the intersections would drop from LOS B or C to LOS C or D, but would remain within the City's acceptable LOS of "D". However, 21 intersections would operate at unacceptable levels of service. Of these, the following ten intersections would degrade from acceptable to unacceptable levels of service as follows, which include three unsignalized intersections:

- Mission / Laure1 – from LOS B to **F**
- Mission / King-Union – from LOS C to **F**
- Mission / Chestnut – from LOS D to **F**
- Ocean / Broadway – From LOS C to **F**
- N. Branciforte / Water – From LOS D to **E**
- Branciforte / Soquel – From LOS C to **E**
- Seabright / Murray – From LOS D to **E**
- Beach / Pacific – From LOS C to **E**
- River / Fern – From LOS B to **F**
- Swift / Delaware– From LOS C to **F**

Five intersections would drop from an unacceptable "E" to "F" LOS s to include the following, of which only one is unsignalized (Western/High):

- Mission / Bay – From LOS **E** to **F**
- River / Encinal – From LOS **E** to **F**
- Ocean / San Lorenzo-East Cliff – From **E** to **F**

[10] Located at 809 Center Street, Room 107, Santa Cruz, California during business hours: Monday through Thursday, 8 AM to 12 PM and 1 to 5 PM.

- Ocean / Water – From **E** to **F**
- Western / High – From **E** to **F**

Six intersections would continue to operate at unacceptable levels of service E or F as identified below, which are unsignalized, except for the signalized River/Highway 1 intersection. For unsignalized intersections the delays are experienced on the minor approach.

- River / Highway 1 – Remain at **F** with further delays
- Bay / Escalona – Remain at **F** with further delays
- High / Laurent – Remain at **F** with further delays
- Seabright / Water – Remain at **F** with further delays
- Bay / California Ave. – Remain at **F** with further delays
- Bay / California St. – Remain at **F** with further delays

Improvements have been identified for the intersections forecast to operate at unacceptable levels of service as a result of future development accommodated by the *General Plan 2030*. Many of the impacted intersections can be improved to an acceptable LOS with signalization, turning restrictions, and/or other improvements. Table 4.4-3 summarizes these improvements and resulting LOS and delays for the impacted intersections. However, even with improvements, the following eight intersections would remain at an unacceptable LOS:

- Western / High – Would improve from **F** to **E**
- River / Highway 1 – Would remain at **F**
- Bay / Mission – Would remain at **E**
- Laurel / Mission – Would remain at **F**
- Chestnut / Mission – Would remain at **F**
- Ocean / Water – Would improve from **F** to **E**
- Seabright / Water – Would improve from **F** to **E**
- Seabright / Murray – Would remain at **E**

Intersections that are identified in the current TIF Program as requiring improvement in the future are those listed below. The proposed General Plan 2030 supports maintaining and updating the City's Traffic Impact Fee (TIF) program to implement road improvements (M3.1.5, M2.1.3). The TIF Program would be updated to reflect new intersections and/or new or revised improvements identified as a result of the EIR analyses and recommendations. Improvement costs and potentially revised impact fees would be calculated.

- Western/High (Extended two-way left turn lane)
- High/Laurent (Signalization)
- River-Hwy 9/Hwy 9
- Bay/Escalona (turn Restrictions
- Mission/Bay
- Mission/Chestnut
- Ocean/Water
- Bay/California Street
- Branciforte/Soquel
- Ocean/San Lorenzo-E. Cliff Dr
- Seabright/Murray
- Beach/Pacific

**TABLE 4.4-2**
**Intersection PM Peak Hour Levels of Service with *General Plan 2030* Buildout**

| | Intersection | PM Peak LOS | Delay [in seconds] | V/C Ratio |
|---|---|---|---|---|
| **SIGNALIZED INTERSECTIONS** | | | | |
| 1 | Western/Hwy. 1 | B | | |
| 2 | Swift/Mission | D | | |
| 3 | Miramar/Mission | C | | |
| 4 | Almar-Younglove/Mission | C | | |
| **5** | **Bay/Mission** | **F** | **164.1** | **1.347** |
| **6** | **Laurel/Mission** | **F** | **87.9** | **1.201** |
| 7 | Walnut/Mission | D | | |
| **8** | **King-Union/Mission** | **F** | **90.5** | **1.143** |
| **9** | **Chestnut-Hwy. 1/Mission** | **F** | **121.8** | **1.228** |
| 10 | Moore/High | A | | |
| 11 | Bay/High/Coolidge | D | | |
| 12 | Bay/Nobel-Iowa | B | | |
| 13 | Bay/King | C | | |
| 14 | California/Laurel | C | | |
| 15 | Chestnut/Laurel | C | | |
| 16 | Center/Laurel | C | | |
| 17 | Center/Mission | C | | |
| 18 | Pacific/Laurel | D | | |
| 19 | Front/Laurel | D | | |
| 20 | Front/Metro Center | A | | |
| 21 | Front/Cathcart | A | | |
| 22 | Front/Soquel | C | | |
| 23 | Front/Cooper | A | | |
| 24 | Front-Pacific/Mission-Water | C | | |
| 25 | River/Water | D | | |
| 26 | N. Pacific/River | B | | |
| 27 | River/Potrero | B | | |
| **28** | **River/Hwy. 1** | **F** | **209.0** | **1.540** |
| **29** | **River/Encinal** | **F** | **198.7** | **1.715** |
| 30 | San Lorenzo/Laurel-Broadway | B | | |
| 31 | Riverside/San Lorenzo | D | | |
| 32 | Riverside/Third | D | | |
| 33 | Riverside/Beach | A | | |
| **34** | **Ocean/San Lorenzo-East Cliff** | **F** | **113.9** | **1.168** |
| **35** | **Ocean/Broadway** | **F** | **90.8** | **1.153** |
| 36 | Ocean/Soquel | D | | |
| **37** | **Ocean/Water** | **F** | **169.4** | **1.454** |
| 38 | Ocean/Kennan-Washburn | B | | |
| 39 | Ocean-Hwy.17/Ocean-Plymouth | D | | |
| 40 | Market/Water | C | | |

**TABLE 4.4-2**
**Intersection PM Peak Hour Levels of Service with *General Plan 2030* Buildout**

| | Intersection | PM Peak LOS | Delay [in seconds] | V/C Ratio |
|---|---|---|---|---|
| **41** | **N. Branciforte/Water** | **E** | **73.7** | **1.117** |
| **42** | **Branciforte/Soquel** | **E** | **67.6** | **1.073** |
| 43 | S. Branciforte/Broadway | B | | |
| 44 | Seabright/Soquel | D | | |
| 45 | Seabright/Broadway | C | | |
| **46** | **Seabright/Murray** | **E** | **62.7** | **1.013** |
| 47 | Morrissey/Water-Soquel | D | | |
| 48 | Morrissey/Fairmount | B | | |
| 49 | Frederick/Soquel | D | | |
| 50 | Hagemann-Trevethan/Soquel | B | | |
| 51 | Park/Soquel | B | | |
| 52 | Capitola Rd./Soquel Ave. | C | | |
| 53 | La Fonda/Soquel | B | | |
| 54 | Riverside-Dakota/Soquel (new) | A | | |
| 55 | River S./Soquel | B | | |
| 56 | Seventh Ave./Soquel Ave. | C | | |
| 57 | Seventh Ave./Capitola Rd. | C | | |
| 58 | Seventh Ave./Eaton | D | | |
| **UNSIGNALIZED INTERSECTIONS** | | | | |
| **59** | **Bay/California St** | **F** | **OVRFLW** | **2.917** |
| **60** | **Bay/California Ave** | **F** | **150.3** | **1.429** |
| 61 | West Cliff/Bay | C | | |
| **62** | **Beach/Pacific Ave** | **E** | **39.9** | **1.058** |
| 63 | Pacific Avenue/Center | C | | |
| 64 | Storey/King | D | | |
| **65** | **River/Fern** | **F** | **OVRFLW** | **1,251** |
| 66 | King/Laurel | D | | |
| **67** | **Laurent/High** | **F** | **94.1** | **1.190** |
| 68 | Market/Isbel-Goss | C | | |
| 69 | North Branciforte/Goss | C | | |
| 70 | Highway 1/Shaffer Rd | C | | |
| 71 | Cedar/Laurel | D | | |
| **72** | **Bay/Escalona** | **F** | **OVRFLW** | |
| **73** | **Western/High** | **F** | **69.5** | **0.678** |
| 74 | Cliff/Beach | B | | |
| 75 | Riverside/Second-Liebrandt | A | | |
| **76** | **Seabright/Water** | **F** | **OVRFLW** | **2.963** |
| **77** | **Swift and Delaware** | **F** | **241.6** | **2.751** |
| 78 | Seventh Ave./Brommer | D | | |
| 79 | Seventh Ave./E. Cliff | C | | |

**SOURCE:** Hatch Mott MacDonald

**TABLE 4.4-3**
**Intersection PM Peak Hour Levels of Service with Recommended Improvements**

| Intersection | Existing | | Buildout | | Recommended Improvement | With Mitigation | |
|---|---|---|---|---|---|---|---|
| | LOS | Delay | LOS | Delay | | LOS | Delay |
| Western Dr/High St | E | 45.9 | F | 69.5 | TWLTL | **E** | 38.1 |
| High/Laurent | F | 59.6 | F | 94.1 | Signalize | B | 18.2 |
| River-Hwy 9/Hwy 1 | F | 83.9 | F | 209 | Ebnd 2l 3t 1r, wbnd 2l 3t 1r, nbnd 1tl 1t 2r, sbnd 2l 1tl 1t 1r | **F** | 80.8 |
| River/Fern | B | 14.5 | F | Ovrfl | Signalize no l esbnd | B | 15.1 |
| River/Encinal | E | 73.9 | F | 198.7 | Ebnd 1l 1tr 1r, wbnd 1l 1tr, nbnd 1l, 1t, 1r, sbnd 1l,1t, 1tr | D | 37.9 |
| Bay St/Escalona Dr | F | 782.2 | F | Ovrfl | Escalona right turns only | C | 18.3 |
| Bay/Mission | E | 55.8 | F | 164.1 | Ebnd 1l, 2t,1r, wbnd 1l,2t,1r,nbnd 1l,1t,1r, sbnd 2l,1t,1r | **E** | 57.7 |
| Mission/Laurel | C | 24.9 | F | 87.9 | Add Ebnd r | **F** | 85.6 |
| Mission/King | C | 32.7 | F | 90.5 | Ebnd no l, 2t, 1tr, wbnd 1l, 1t, 1tr,nbnd 1ltr, sbnd 2l 1ltr | D | 50.8 |
| Mission/Chestnut | D | 42.9 | F | 121.8 | Ebnd 2l, 2t, 1r, wbnd 1lt,1t, 1r, nbnd 1l, 1t, 1tr, sbnd 1l,2t, 2r | **F** | 112.9 |
| Ocean/Water | E | 73.6 | F | 169.4 | Ebnd 2l, 2t, 1r, wbnd 1l,2t, 1r, nbnd 1l, 2t, 1tr, sbnd 2l, 3t, 1r | **F** | 130.7 |
| Seabright/Water | F | 112.8 | F | Ovrfl | Extend TWLTL & add nbnd r | **E** | 39 |
| Water/Branciforte | D | 36.6 | E | 73.7 | Add ebnd 1, nbound r & sbnd r | D | 53.6 |
| California Ave/Bay | F | 67.6 | F | 150.3 | Allow nbnd t free | D | 26.4 |
| California St/Bay | F | 434 | F | Ovrfl | Allow sbnd t free | B | 12.5 |
| Branciforte/Soquel | C | 23.6 | E | 67.6 | Esbnd 1 l, 1t, 1 tr, wsbnd 1l, 1tr no splt phase | C | 24.5 |
| Ocean St/Broadway | C | 34.3 | F | 90.8 | Prohibit lfts from Ocean | D | 36.5 |
| Pacific/Beach | C | 20.9 | E | 39.9 | Roundabout | C | |
| Ocean St/San Lorenzo-ECliff Dr | E | 64.7 | F | 113.9 | Add sbnd r | D | 53.2 |
| Seabright/Murray | D | 43.7 | E | 62.7 | ADD wsbnd r, nbnd r & sbnd r | **E** | 59.4 |
| Swift/Delaware | C | 23.9 | F | 241.6 | Roundabout/Signal | C | 20.1 |

The mitigation measure column reflects the recommended lane geometry where r = right turn lane, rt = right/through lane, l = left turn lane, lt = left/through lane, t = through lane, and twltl = two-way left turn lane.

**SOURCE:** Ron Marquez

## IMPACT DISCUSSION

The proposed *General Plan 2030* strives to maintain LOS D or better at signalized intersections with acceptance of a lower LOS at major regional intersections if necessary improvements would be too costly or result in significant environmental impacts (Policies M3.1.3, M3.1.4). In conjunction with this directive, Policies M2.1.3, M2.1.4 and ED1.9.2 direct the City to implement pedestrian, bike, mass transit, and road system improvements through the Capital Improvements Program (CIP), and draft plan supports "regional funding and implementation of key regional projects that can significantly benefit Santa Cruz and further the City's mobility policies," although it is not clear what these projects may be. As most of the recommended improvements to impacted intersections are within the City's TIF Program or would be added with proposed updating of the TIF (M3.1.5), the needed improvements are expected to be implemented over time as projects are added to the City's CIP. Intersections along state highways would also come under the jurisdiction of Caltrans. Overall, intersection improvements would be constructed within existing developed rights-of way, and would not be expected to required construction on undeveloped land that would result in potential significant impacts. However, an appropriate level of environmental review would be required at the time a specific intersection improvement is proposed.

As shown on Table 4.4-3, eight intersections would remain at unacceptable levels of service even with implementation of identified improvements. These include four major intersections within the City that carry regional and visitor traffic: River-Highway 9/Highway 1; Mission/Chestnut, Mission/Bay and Ocean/Water. For these intersections, the proposed *General Plan 2030* accepts a lower LOS at major regional intersections (M3.1.4). These intersections would be considered major intersections, and are also included in the existing General Plan as deficient intersections for which a lower LOS would be accepted. However, while, the City may be willing to accept a lower LOS at the intersections along Highway 1- Mission Street, these intersections are within the jurisdiction of Caltrans and would not meet its desired C-D LOS. The recommended intersection improvements would improve delay to slightly less than what occurs under existing conditions even though an acceptable LOS still would not be achieved with the improvements at one of these intersections: River-Highway 9/Highway 1.

The other four intersections that would remain at unacceptable levels of service include: Mission/Laurel (Caltrans intersection), High/Western, Seabright/Water and Seabright/Murray. As shown on Table 4.4-3, delays would be reduced below existing levels with implementation of the recommended improvements at the High/Western and Seabright/Water intersections. The level of service calculation for these two intersections is based on the left turn movement from the minor stop controlled street. Overall both of these intersection operate well, despite the LOS. However, the Mission/Laurel and Seabright/Murray intersection would operate at an unacceptable level of service.

The Draft *General Plan 2030* includes goals, policies and actions that set forth comprehensive measures to reduce vehicle trips, increase vehicle occupancy, encourage use of alternative transportation modes, and promote alternative-sustainable land use patterns, all of which would help reduce vehicle trips, and avoid and minimize adverse impacts related to traffic. A summary of the proposed *General Plan 2030* policies that serve to reduce/mitigate impacts of increased traffic is presented in Table 4.4-4.

Policy M2.3 and its four accompanying actions seek to increase the efficiency of the City's multi-modal transportation system to design for and accommodate multiple transportation modes (M2.3.1), as well as TSM measures and road improvements to achieve an acceptable level of service (M2.3.2). Policies M3.1.1 and M3.1.2 direct the City to seek ways to reduce vehicle trip demand, reduce the number of peak hour vehicle trips, and encourage high occupant vehicle travel. A significant rise in vehicle occupancy from the existing average of 1.2-1.3 persons per vehicle would provide additional road capacity, increase the efficiency of the existing transportation and roadway system and reduce the need for costly improvement to the road system (Santa Cruz County Regional Transportation Commission, June 2010).

**TABLE 4.4-4**
**Proposed General Plan Policies and Actions that Reduce Traffic Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| MAINTAIN LEVEL OF SERVICE STANDARD & IMPLEMENT TRANSPORTATION IMPROVEMENTS | • Maintain LOS D or better at signalized intersections; accept lower LOS at major regional intersections: M3.1.3, M3.1.4<br>• Implement road improvements & alternative transportation to achieve acceptable LOS: M2.3.2<br>• Manage, reduce congestion: M.3.1, M2.4.4 (work with UCSC)<br>• Maintain road system with efficient arterial operations: M3.2.2, M3.3.6, M3.1.12 (coordinated signal timing)<br>• Promote TSM strategies: M2.5.2<br>• Improve access along the Visitor/Beach Area travel corridors: M3.3.2<br>• Maintain/update Traffic Impact Fee and implement road improvements: M3.1.5; M2.1.3<br>  ⅄ Implement pedestrian, bike, transit & road improvement through CIP: M2.1.3, ED1.9.2<br>  ⅄ Support regional funding & implementation of key regional projects that benefit Santa Cruz: M2.1.4<br>  ⅄ Transportation improvements on Ocean: ED1.2.1<br>  ⅄ Visitor access improvements: ED1.8.4 |
| REDUCE AUTO/VEHICLE TRIPS & INCREASE VEHICLE OCCUPANCY | • Reduce auto dependence, vehicle trips and peak hour trip & increase vehicle occupancy: M1.1, M3.1.1, M3.1.2<br>• Encourage employment-related strategies (i.e., flex-time, telecommuting, parking management, ridesharing): M3.1.7, M3.1.8, M2.4.4 |
| ENCOURAGE MULTI-MODAL SYSTEMS | • Design, accommodate & increase efficiency of multiple transportation modes: M2.3, M2.3.1, ED1.9.2 (alternative transportation), NRC4.4.2, M3.1.11 (studies to determine deficiencies)<br>• Include pedestrian, bike, transit facilities in ROW acquisition, street design, bridge & road projects: M1.4.1, M1.4.2, M2.3.3<br>• Develop Depot Park as multi-modal center: LU3.5.2<br>• Multi-modal use of future rights-of-way: M1.4.2 |
| ENCOURAGE ALTERNATIVE TRANSPORTATION MODES | • Encourage use of alternative transportation modes: M.2.1.2<br>• Promote alternative transportation with TSM strategies: M2.3.2, M2.5.2<br>• Connect activity centers with pedestrian & bike paths: M1.1.2<br>• Encourage hotels to provide bike/shuttle programs: M2.3.4<br>• Employment and parking-related strategies: M3.1.7, M3.1.8, M3.1.9<br><br>**(CONTINUED ON NEXT PAGE)** |

**TABLE 4.4-4**
**Proposed General Plan Policies and Actions that Reduce Traffic Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| ➤ Bicycle Use | • Interconnected bike network & maintain/update Bike Plan: M4.2, M4.2.1, M4.2.2, M4.2.3<br>• Implement bicycle improvements: M2.1.3<br>• Bike lanes: M4.3.1, 4.5.4<br>• Bike commute routes: M4.3.2 (rail r-o-w, West Cliff, Broadway)<br>• Support bicycle improvements, amenities & maintenance: M4.4 & actions, M4.2.6, M4.3, M4.5 & actions, PR1.6.4 (at parks); CC8.4 (at educational facilities) |
| ➤ Pedestrian Use | • Connected street and pedestrian network: CD5.1, M1.1.2, M1.1.3, M4.1.5 (development dedication)<br>• Implement pedestrian improvements: M2.1.3, M1.3.1<br>• Implement MTS pedestrian recommendations; update/implement Pedestrian Master Plan: CD5.1.1, M1.2, M4.1.1<br>• Encourage walking: M4.1, M4.1.3 and pedestrian access: CC8.4<br>• Neighborhood parking strategies & development designs to foster pedestrians: CD 5.2.3, M4.1.7 |
| ➤ Transit Use & Expansion | • Encourage transit options & increased transit service, capacity & ridership: M1.1.3, M2.1.1, M2.4, M2.4.2, M2.4.6, M2.4.7, M2.4.8 (commuter travel), M2.4.9<br>• Implement transit improvements: M2.1.3<br>• Consider giving priority to transit on City corridors: M2.4.5<br>• Conveniently located transit stops, centers & transit links: M.1.4, M2.4.11 and as part of new development: M2.4.12, M2.4.12<br>• Encourage maintenance/upgrading of transit infrastructure: M.2.4.10<br>• Encourage Beach shuttle: M2.4.1 |
| ➤ Rail | • Encourage/support passenger rail transit & other modes along rail ROW: M2.2, M2.2.1<br>• Rail Land Use Plan: LU4.2.4<br>• Rail Transit Center: LU4.5, LU4.5.2<br>• Condition development along rail-potential stops: LU4.5.2<br>• Encourage transport of good by rail: M2.2.2 |
| LAND USES / PATTERNS TO REDUCE VEHICLE TRIPS | • Reduce auto use with pedestrian/transit-oriented activity centers & development centers (M1.1)<br>• Expand neighborhood facilities (LU4.3, LU4.3.1)<br>• Encourage land use changes that reduce auto use: LU4.2); locate community facilities within walking distance to residential areas and transit: (CC2.1.4)<br>• Encourage home occupations & telecommuting: LU4.4, LU4.4.1 and live-work units: LU4.1.4, HA4.4 (artists)<br>• Ensure optimum utilization of infill parcels (LU1.1, LU1.1.1) and Consolidation of Underutilized Parcels (LU1.1.2)<br>• Encourage mixed uses: LU3.5 (Lower Pacific), LU3.6 (River) , LU4.1.1, LU4.2.2 (new districts), LU4.2.3, LU4.1.3<br>• Encourage assembly of small parcels along transit: CD3.3, CD3.3.1, CD3.3.2<br><br>**(CONTINUED ON NEXT PAGE)** |

**TABLE 4.4-4**
**Proposed General Plan Policies and Actions that Reduce Traffic Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| | • Encourage higher/maximum densities: LU3.6.1 (Lower Front St), LU3.7, LU3.7.1, LU3.8<br>• Encourage higher densities along transit/commercial corridors: LU4.1, LU4.1.1<br>• Encourage University shopping/services on UC lands: LU4.2.5 |
| REDUCE & DISCOURAGE THROUGH-TRAFFIC IN NEIGHBORHOODS | • Discourage, reduce, and slow through-traffic: M3.3<br>• Enhance neighborhood livability through road& transit design: M3.3.1<br>• New development to be designed to discourage through traffic and encourage bicycle or pedestrian connections: M3.3.5<br>• Reduce traffic in residential neighborhoods by improving arterial and collector streets: M3.3.6<br>• Develop neighborhood traffic control plans where necessary to minimize traffic impacts on local streets: M3.3.7 |

Policy M2.1.2 encourages use of alternative modes of transportation, and numerous policies and actions support expanded and improved bicycle and pedestrian facilities, a well as increased transit use. Several policies support higher land use densities along transit corridors (LU4.1, LU4.2, M1.1) to support land use patterns that reduce reliance on automobiles. Home occupations and telecommuting also are encouraged (LU4.4). The draft General Plan also directs the City to improve access to and routes between tourist and visitor designations and lodging facilities as part of the City's economic development policies ED1.8.4).

These policies would serve to help reduce project vehicular traffic and thus reduce traffic impacts in addition to proposed intersection improvements. Of the eight identified intersections that would remain at unacceptable levels of service with implementation of identified improvements, four are at major intersections where the City has historically accepted a lower level of service at major regional intersections where improvements would be too prohibitively costly or could result in unacceptable significant environmental impacts, and this policy is maintained in the proposed General Plan (M3.1.4), although the intersections within Caltrans' jurisdiction would not meet Caltrans LOS standards. Additionally, the delays at these intersections would be less than without the improvement, and at the Highway 1/Highway 9 intersection, the delay would be less than under existing conditions. The other four intersections that would remain at unacceptable levels of service, although delays would be reduced to levels below existing conditions at the Western/High and Seabright/Water intersections.

Roadway, as well as bicycle and other non-vehicular improvements, would be contingent on future funding. The potential growth estimated to result from implementation of the proposed *General Plan 2030* could generate nearly $32 million in impact fees at current rates that could be used for improvements, of which 15% would be for alternative transportation. However the TIF program, including improvements, costs and impact fees, would be updated pursuant to actions specified in the draft General Plan (M3.1.5). Improvements to intersections along state highways would be contingent on Caltrans approval and state and/or federal funding. Revenues for transportation, including road and other transportation mode improvements, have not kept pace with the multimodal needs of travelers in Santa Cruz County (Santa Cruz County

Regional Transportation Commission, June 2010). Given chronic state budget deficits, as well as reduced local revenues funding road, bicycle, and pedestrian improvements will continue to be a challenge. Additionally, the lack of community consensus on regional highway improvements and local multi-use paths further constrain the feasibility of either roadway or alternative transportation mode improvements being implemented (Santa Cruz County Regional Transportation Commission, June 2010).

Revenue issues and service cuts have reduced the SCMTD's level of service, affecting the ability to increase transit service. It is estimated that 1,500 to 2,000 additional transit passengers may need to be served with projected General Plan buildout. It is expected that service would continue along major the City's major transportation corridors and where high use is concentrated. However, additional funding will be necessary to expand transit service in the future and provide implementation of "Sustainable Community" strategies,[11] and such funding, is at this time uncertain (SCMTD, White, personal communication, August 2011).

**Conclusion**. Future development accommodated by the proposed *General Plan 2030* would generate traffic that would result in unacceptable levels of service at 21 intersections, all of which could be improved to acceptable levels with intersection improvements, except for four local intersections and four intersections on state highways. Therefore, these intersections could not be improved to an acceptable LOS to meet City or Caltrans' standards, and the resulting effects on these eight intersections would be considered a significant impact unavoidable impact as no feasible improvements have been identified. With implementation of the identified improvements and proposed *General Plan 2030* policies and actions to reduce vehicular traffic, increase vehicle occupancy and support/encourage use of alternative transportation measures, the impact could be reduced to a less-than-significant level at the remaining impacted intersections. However, funding availability likely will remain constrained for major facility improvements and expansion of transit service into the foreseeable future. Thus, implementation of recommended improvements and alternative transportation facilities cannot be assured, and thus, the impact to the intersections identified as operating at unacceptable levels of service under the proposed *General Plan 2030* remains significant.

**Mitigation Measures**

With implementation of the proposed *Plan 2030* policies and actions to reduce vehicular traffic, increase vehicle occupancy and support/encourage use of alternative transportation measures, the impact could be reduced to a less-than-significant level at all but four intersections along state highways and the four local intersections. Impacts would remain significant and unavoidable. With uncertainly regarding funding and implementation of transportation projects for the other intersections, the impact remains

[11] Senate Bill 375 (SB 375) provides a means for addressing greenhouse gas (GHG) emissions by aligning regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation, thereby discouraging urban sprawl and reducing vehicle miles traveled, with an emphasis on increasing land use intensity along transit corridors. See the GLOBAL CLIMATE CHANGE (Chapter 4.12) section of this EIR for further discussion.

significant and unavoidable. However, revision of the following *General Plan 2030* action is recommended.

**Recommended Revisions to the *Draft General Plan 2030***

Revise or add policies/actions as indicated below. Deleted text is shown in ~~strikeout~~ typeface, and new text is shown in underlined typeface.

M3.1.4 Accept a lower level of service and higher congestion at major regional intersections if necessary improvements would be ~~too~~ prohibitively costly or result in significant, unacceptable environmental impacts.

**Impact 4.4-2: Traffic Impacts on State Highway Levels of Service (LOS)** Adoption and implementation of the proposed *General Plan 2030* would accommodate future development that would result in increased vehicle trips and traffic on state highways in the regions (Routes 1, 17, and 9), which would further exacerbate existing unacceptable levels of service. This is considered a *significant impact*.

The proposed project would result in increased traffic on state highway segments. It is estimated that the proposed project would generate approximately 78,235 weekday daily trips. Based on the results of the TRAFFIX model, the distribution of project traffic to state highways is estimated as follows:

- Highway 1, southbound: 24.6% of all trips
- Highway 9, north of City Limits: 1.9% of all trips
- Highway 17, northbound: 20.5% of all trips

Based on this distribution, traffic resulting from future development accommodated by the proposed *General Plan 2030* would increase traffic on southbound Highway 1 by approximately 19,250 daily trips, on northbound Highway 17 by approximately 16,000 daily trips, and on northbound Highway 9 by about 1,500 daily trips. This represents an increase of approximately 20% on Highway 1 and 22% on Highway 17, which would be considered a substantial increase.

According to the Transportation Concept Report for state highways, the target level of service for State Highway 1 west of Morrissey Boulevard is LOS D, and the target level of service for State Highway 17 south of Pasatiempo is LOS E (Caltrans, April 2006, January 2006). However, according to the Caltrans Guide for the Preparation of Traffic Impact Studies (Caltrans, 2002), if an existing State Highway facility is operating at less than the target LOS, the guide states that the existing LOS should be maintained. Highway 1 between Morrissey and Branciforte Creek Bridge operates at a E-F LOS (Caltrans, October 2010), and Highway 17 operates at LOS F (Caltrans, January 2006).

The addition of project-related traffic would contribute to significantly worsened conditions. However, some of this traffic would be within projected future volumes estimated by Caltrans. According to Caltrans' studies, Highway 1 traffic near Morrissey-Branciforte Creek Bridge is expected to increase by 50,000 daily trips in 2030-2035 (Caltrans, October 2010). Future year traffic volumes were projected using growth rates from AMBAG's regional travel demand model, version April 2007, applied to 2007 counts (Ibid.). By incorporating trip reduction and smart growth design in the proposed General Plan policies and actions, the forecast of increased traffic on Route 1 as a result of potential development accommodated by the *General Plan 2030* is significantly less than that anticipated in Caltrans Corridor Systems Management Plan.

The Route Concept Report for Highway 1 includes the addition of High Occupancy Vehicle (HOV) lanes to Highway 1. This project will add a lane in each direction to reduce congestion, encourage carpooling, expand express bus service, and improve safety. The limits of this project extend from Morrissey Boulevard to San Andreas Road/Larkin Valley Road. Project environmental review and preliminary design are underway. Caltrans' draft "Corridor System Management Plan's" strategy for Highway 1 includes new express bus services on the planned HOV lanes, support of land use and transportation efforts to reduce traffic, and overall reduction of congestion by encouraging alternative transportation facilities and programs. The County and Caltrans are also working on design and environmental review for reconstruction of the La Fonda Avenue overcrossing as part of the Auxiliary Lane Project.

The Route Concept Report for Highway 17 identifies an increase of about 8,100 daily trips to the year 2023 (Caltrans, January 2006). The report acknowledges that Highway 17 will remain a 4-lane freeway without widening. Using the traffic forecast in the Corridor System Management Plan for Route 1 the increase in volume on Route 17 would range from 30,000 to 40,000 vehicles per day by the year 2035. Again this figure is well above the volume forecast for the general plan.

As discussed above in the Impact 4.4-1 analysis, the Draft *General Plan 2030* includes goals, policies and actions that set forth comprehensive measures to reduce vehicle trips, increase vehicle occupancy, encourage use of alternative transportation modes, and promote alternative-sustainable land use patterns, all of which would help reduce vehicle trips, and avoid and minimize adverse impacts related to traffic. The draft Plan encourages use of alternative modes of transportation, and numerous policies and actions support expanded and improved bicycle and pedestrian facilities, as well as increased transit use. Several policies support higher land use densities along transit corridors to support land use patterns that reduce reliance on automobiles. The draft Plan supports regional funding and implementation of key regional projects "that can significantly benefit Santa Cruz and further the City's mobility policies" (M2.1.4).

Caltrans is responsible for improvements along state routes and has proposed a series of improvements along Highway 1, which would improve transit and carpooling with addition of an HOV lane. While overall levels of service would remain unchanged if the additional lane were not an HOV lane, average speeds would be increased and delays reduced (Caltrans, October 2010). Similarly, Highway 17 is forecast to remain at an unacceptable LOS in the future with no potential improvements having been identified. Both the Highway 1 planned HOV lanes and Soquel/Morrissey auxiliary lanes are supported in the current Regional

Transportation Plan. The SCCRTC assumes that a half-cent, 30-year sales tax measure or similar local funding mechanism will be ultimately be approved (Santa Cruz Regional Transportation Plan, June 2010).

The increase of 1,500 vehicles per day on Route 9 will not result in a significant impact. The existing volumes on Route 9 range from 5,000 AADT to 5,600 ADT north of City limits during peak months. Traffic volumes have increased on this highway approximately 1,000 vehicles per day in the last 30 years. Route 9 is a conventional undivided two-lane highway which is classified as a major collector. No major improvements are planned in the corridor from Santa Cruz to Felton north of the City limits. (Transportation Planning Fact Sheet State Route (SR) 9 in Santa Cruz County, Caltrans).

**Conclusion.** Future development accommodated by the proposed *General Plan 2030* would generate traffic that would contribute to existing and future forecast unacceptable levels of service along Highway 1 and Highway 17. Project traffic represents a significant addition, although the estimated General Plan buildout traffic is less than the future forecasts estimated by Caltrans in its draft "Corridor System Management Plan." With implementation of the proposed *General Plan 2030* policies and actions to reduce vehicular traffic, increase vehicle occupancy and support/encourage use of alternative transportation measures, and with future improvements along Highway 1 that are planned by Caltrans, traffic congestion along Highway 1 will be minimized. However, highway operations would continue to remain at unacceptable levels. Thus, the impact remains significant.

**Mitigation Measures**

None are known beyond those being considered for Highway 1 by Caltrans as discussed above.

**Impact 4.4-3: Traffic Hazards**
Adoption and implementation of the proposed *General Plan 2030* would not result in new roads that could potentially create hazards, and with implementation of proposed *General Plan 2030* policies and actions to ensure road safety, the project would not result in direct or indirect impacts related to increased hazards. Therefore, there is *no impact* related to road safety/hazards.

The proposed *General Plan 2030* does not include new roads or road alignments, and thus, would not create or increase hazards due to a road or intersection design. Action M3.1.13 does support an approach to Highway 1 to from the Harvey west area, but a specific location is not identified. If this option were to be considered in the future, it would require Caltrans' approval, and would be subject to project-level design and environmental review.

Furthermore, Policy M3.2 seeks to ensure road safety for all users. To this end, the plan proposes to maintain the condition of the existing road system (M3.2.1), ensure safe and

efficient arterial operations and designs (M3.2.2, M3.2.11), ensure adequate street widths and designs for emergency vehicles (M3.2.3), and improve traffic safety and flow, including at high collision and congested areas (M3.2.4, M3.2.5). Regular inspection and maintenance of street pavements is supported to help encourage bicycling (M3.2.6).

**Conclusion.** The proposed *General Plan 2030* does not include new roads or road alignments, and thus, would not create or increase hazards due to a road or intersection design. Implementation of the proposed *General Plan 2030* policies and actions would help to maintain road safety and prevent hazardous conditions due to future designs of roadway or intersection improvements. Therefore, there is no impact associated with creating or increasing hazards due a specific roadway design feature.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.4-4: Conflicts with Adopted Plans**
Adoption and implementation of the proposed *General Plan 2030* would not result in conflicts with adopted plans, policies or programs that support alternative transportation, as the proposed goals, policies and actions directly support implementation and use of alternative transportation modes. Therefore, there is *no impact* related to potential conflicts with plans and policies.

Both the SCCRTC's *Regional Transportation Plan* and AMBAG's *Monterey Bay Area Mobility 2035* support and promote transit, bicycling, walking, carpooling and other alternative transportation modes. The proposed *General Plan 2030* directly supports these alternative modes as well. Action M2.1.2 encourages use of alternative modes of transportation, and numerous policies and actions support expanded and improved bicycle and pedestrian facilities, a well as increased transit use and passenger rail transit, as summarized on Table 4.4-4. Policy M2.3 seeks to increase the efficiency of the City's multi-modal transportation system. Several policies support higher land use densities along transit corridors (LU4.1, LU4.2, M1.1) to support land use patterns that reduce reliance on automobiles.

**Conclusion.** The proposed *General Plan 2030* directly supports regional plans and policies that support alternative transportation modes as it includes numerous policies and actions that encourage use of alternative modes of transportation, and support expanded and improved bicycle and pedestrian facilities, a well as increased transit use. Therefore, there is no impact related to potential conflict with adopted plans and policies that support alternative transportation.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

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# TECHNICAL MEMORANDUM

**From:** Elbert Chang, P.E. and Tyler Wacker
Kimley-Horn and Associates
100 West San Fernando Street
San Jose, CA 95113

**To:** Mr. Sibley Simon
Managing Director, Envision Housing
President, New Way Homes
740 Front Street, Ste. 345B
Santa Cruz, CA 95060

**Date:** January 7, 2020

**Re:** **Proposed Permanent Supportive Housing & Services (180PSH) - Trip Generation and Parking Demand Evaluation**

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This technical memorandum documents the trip generation analysis and parking demand evaluation conducted for the proposed Permanent Supportive Housing & Services (180PSH) (the "Project") located at 119 Coral Street in the City of Santa Cruz, California.

## Summary of Findings

The existing land use at 119 Coral Street is 7 group houses that are operated as transitional housing for 40 adults, 1,500 SF of office for Housing Matters, and a 12 bed recuperative care center (RCC). The transitional housing and office uses will be discontinued with the Project.

The proposed development will construct a five-story building within the current zoning code and utilize the bonus density law (AB-1763). The first floor uses will include, a common space for supportive housing residents and project staff, utilities and services space, Homeless Persons Health Project (HPHP) clinic, and the existing recuperative care center (RCC). The remaining floors will provide approximately 121 studio apartments. The units will be designed and operated for the subset of the population experiencing chronic homelessness that are hardest to house and/or need the most supportive services to succeed in housing. The target tenants do not own cars, and if needed, the project can institute a DMV check and preference for no-car ownership.

The Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10$^{th}$ Edition,* was applied to estimate the number of trips to and from the proposed development. Trips from the existing land uses at the Project site that are to be removed under Project conditions were credited to the net new trips to be

produced by the site under Project conditions. The Project is estimated to reduce daily, AM peak hour, and PM peak hour trip generation when compared to existing conditions. The project is anticipated to generate 29 fewer daily, 1 fewer AM peak hour (1 IN, 0 OUT), and 2 fewer PM peak hour (0 IN, 2 OUT) trips than existing conditions.

Based on an analysis of the existing development parking occupancy, ITE parking generation data, city requirements, and similar sites analysis, the proposed parking demand for the Project is 22 stalls. The Project proposes to supply 30 stalls on site resulting in an excess of 8 stalls.

The Projects proposes no minimum parking requirement for the permanent supportive housing portion of the Project. Per AB-1763 (October 9, 2019), "if a development consists solely of…a supportive housing development as defined in Section 50675.14 of the Health and Safety Code then…a city, county, or city and county shall not impose any minimum vehicular parking requirement." The 121 units of the project are supportive housing as defined in the Health and Safety Code, therefore it is proposed that no minimum parking requirement be required for this portion of the project. Per city code, a minimum of 16 stalls is required for the other Project land uses. The project proposes 30 total parking stalls on site exceeding the minimum required parking by 14 stalls.

## Project Description

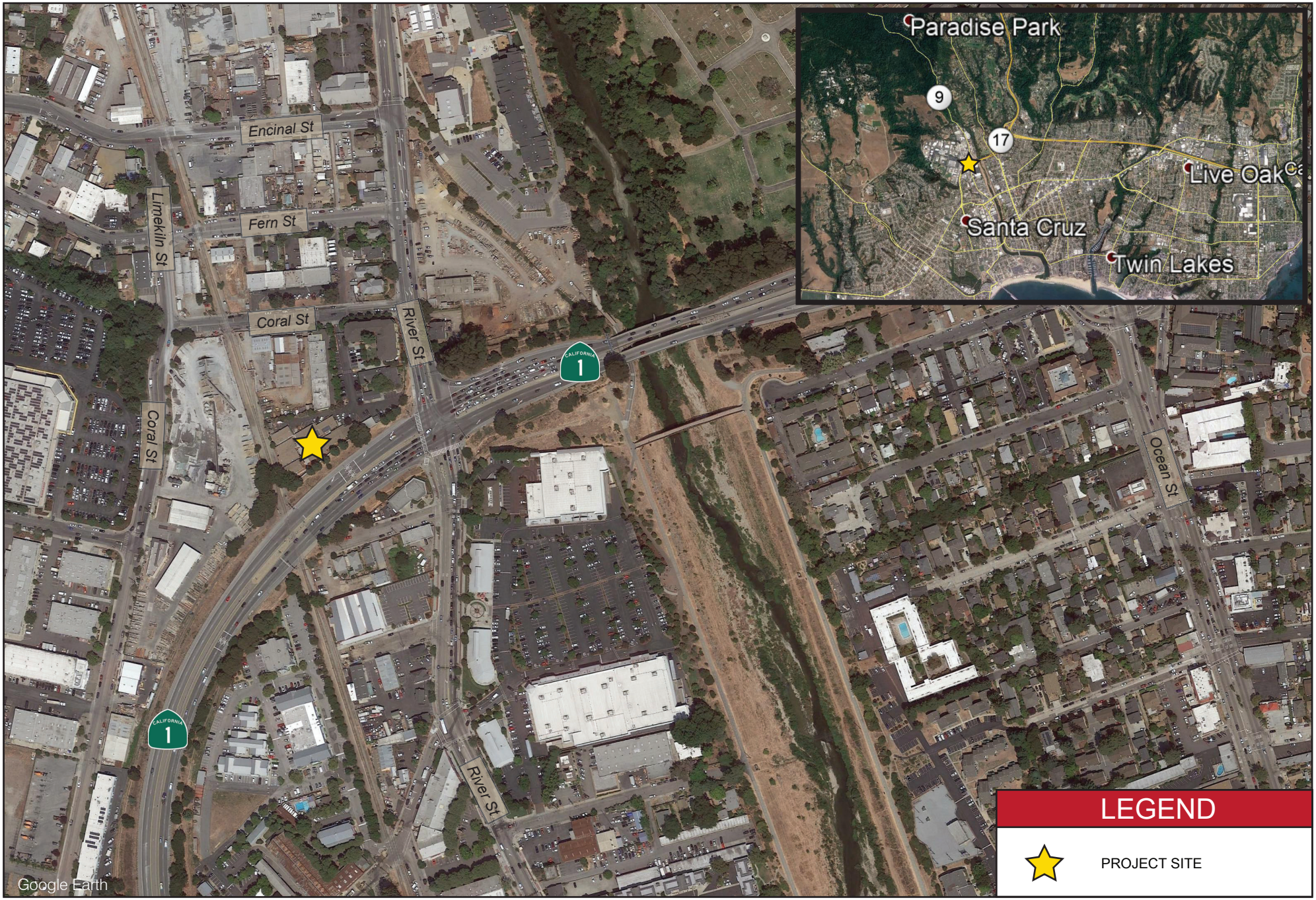
The existing land use at 119 Coral Street is 7 group houses that are operated as transitional housing for 40 adults (Page Smith Community House), 1,500 SF of office for Housing Matters, and a 12 bed recuperative care center (RCC). The transitional housing and office uses will be discontinued with the Project.

The proposed development will construct a five-story building within the current zoning code and utilize the bonus density law (AB-1763). The first floor uses will include a common space for supportive housing residents and project staff, utilities and services space, Homeless Persons Health Project (HPHP) clinic, and the existing recuperative care center (RCC). The remaining floors will provide approximately 121 studio apartments. The units will be designed and operated for the subset of the population experiencing chronic homelessness that are hardest to house and/or need the most supportive services to succeed in housing. The target tenants do not own cars, and if needed, the project can institute a DMV check and preference for no-car ownership.

The Project site's existing and proposed land uses are summarized in **Table 1**. The Project site location is shown in **Figure 1** and the proposed Project site plan is included in **Figure 2**.

**Table 1 – Summary of Existing and Proposed Land Uses**

| Existing Conditions | | Proposed Conditions | | Notes |
|---|---|---|---|---|
| **Description** | **Size** | **Description** | **Size** | |
| Transitional Housing | 7 units (40 adults) | | | **NOT PROVIDED IN PROPOSED CONDITIONS** |
| Housing Matters Offices | 1,500 square feet | | | **NOT PROVIDED IN PROPOSED CONDITIONS** |
| Recuperative Care Center | 3,500 square feet (12 Beds) | Recuperative Care Center | 2,627 square feet (12 beds) | **SERVICE AND SPACE WILL CONTINUE TO BE PROVIDED** |
| | | Residences (Studios) | 121 units | **NEW SERVICE AND SPACE PROVIDED** |
| | | Resident Entry, Common Area, Staff Area, HVAC Room | 5,221 square feet | **NEW SERVICE AND SPACE PROVIDED** |
| | | HPHP Clinic | 2,594 square feet | **NEW SERVICE AND SPACE PROVIDED** |

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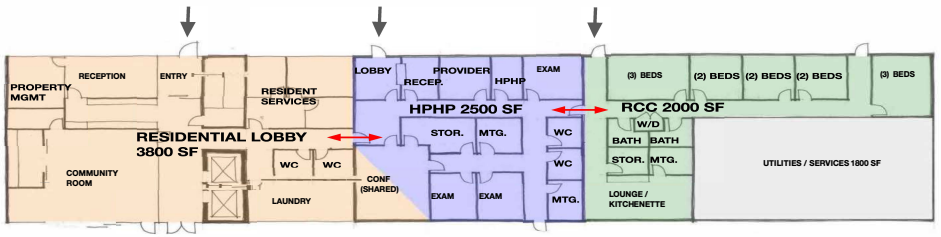
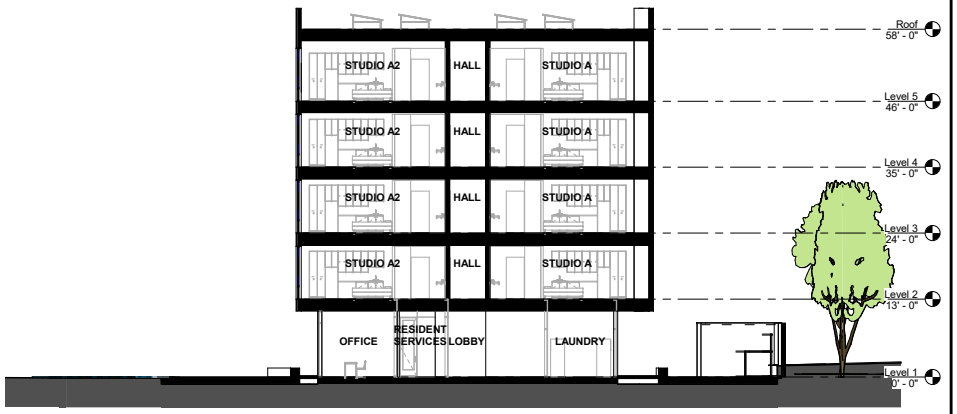
Proposed Permanent Supportive Housing & Services (180PSH)

Figure 1

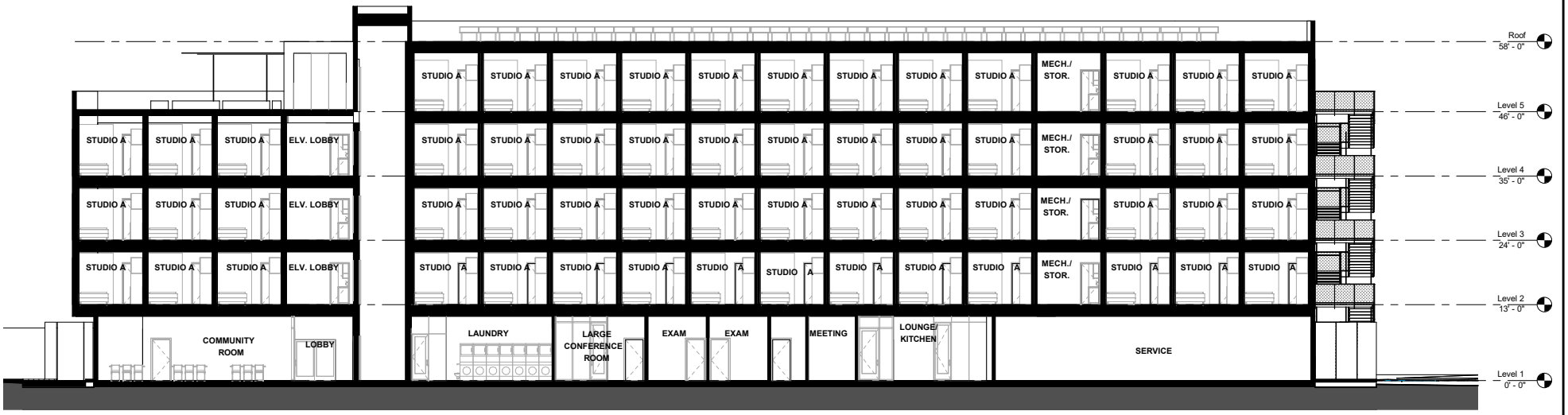
**Project Site Location**




GROUND FLOOR PLAN




SECTION NORTH/SOUTH




SECTION EAST/WEST

David Baker Architects | NEW WAY HOMES Investing in Housing Affordability | **180 SANTA CRUZ PSH** | SECTIONS

Renderings dated 12-18-2019 from David Baker Archects & New Way Homes

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Proposed Permanent Supportive housing & Services (180PSH)

Figure 2

**Project Site Plan**

## Trip Generation Analysis

The Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition,* was utilized to estimate the trip generation for the existing land use and the proposed Project. Trips from the existing land uses at the Project site that are to be removed under Project conditions were credited to the net new trips to be produced by the site under Project conditions.

***Existing Conditions Trip Credit***

The existing Page Smith Community House and the Housing Matters offices and staff break room are proposed to be removed as a part of the Project. The Page Smith Community House provides transitional housing to people in crisis and can house up to 40 adults (some who may own a vehicle). Institute of Transportation Engineers (ITE) Land Use Code (LUC) 254 (Assisted Living) was used to represent this existing land use for estimating trip generation. According to ITE, an assisted living facility, "is a residential setting that provides routine general protective oversight necessary for independent living. Staff may be available 24 hours a day, but skilled medical care is not required." This description fit most closely with the existing Page Smith Community House. The Housing Matters offices and staff break room trip generation was estimated using ITE LUC 710 (Office). ITE LUC 610 (Hospital) was used to represent the recuperative care center (RCC) that is an existing land use planned to remain under Project conditions.

Applying the ITE weekday daily, AM peak hour, and PM peak hour trip generation rates, the existing land use is estimated to generate 387 daily trips, 31 AM peak hour trips (23 IN, 8 OUT), and 33 PM peak hour trips (9 IN, 24 OUT). These trips were applied as trip credits towards the net new Project trip generation calculation.

***Gross New Project Trip Generation***

The Project proposed land uses include the existing RCC, medical office space for the HPHP Clinic, and approximately 121 dwelling units of permanent supportive housing. The target tenants of the permanent supportive housing element of the Project do not own a personal vehicle therefore are not anticipated to generate any vehicle trips. New trips generated by the Project are anticipated to come from the first floor uses. ITE LUC 610 (Hospital) was used to represent the recuperative care center (RCC) that is an existing land use planned to remain under Project conditions. ITE LUC 720 (Medical Office Building) was used to estimate trip generation of the medical office HPHP Clinic planned onsite.

Applying the ITE weekday daily, AM peak hour, and PM peak hour trip generation rates, the proposed Project is anticipated to generate 358 daily trips, 30 AM peak hour trips (22 IN, 8 OUT), and 31 PM peak hour trips (9 IN, 22 OUT).

***Net New Project Trips***

Applying the existing land use trip credits to the gross new project trips, the Project is anticipated to reduce daily, AM peak hour, and PM peak hour trip generation. The project is anticipated to generate 29 fewer daily, 1 fewer AM peak hour (1 IN, 0 OUT), and 2 fewer PM peak hour (0 IN, 2 OUT) trips than existing conditions.

Trip generation calculations for the existing and proposed Project land use are shown in in **Table 2**.

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## Table 2: Proposed Existing and Project Weekday Trip Generation

| Land Uses | ITE Land Use Code (LUC) | Project Size | | AM Peak Hour | | | | | | PM Peak Hour | | | | | | Daily | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | # | Units | Rate | Percent In | Percent Out | Trips In | Trips Out | Total | Rate | Percent In | Percent Out | Trips In | Trips Out | Total | Rate | Trips |
| *Existing Land Use* | | | | | | | | | | | | | | | | | |
| Transitional Housing[1] | 254 | 40 | Beds | 0.19 | 78% | 22% | -6 | -2 | -8 | 0.26 | 30% | 70% | -3 | -7 | -10 | 2.60 | -104 |
| HM Offices & Staff Break Room[1] | 710 | 1.5 | 1,000 SF | 1.16 | 86% | 14% | -1 | 0 | -1 | 1.15 | 16% | 84% | 0 | -1 | -1 | 9.74 | -15 |
| Recuperative Care Center[2 3] | 610 | 12 | Beds | 1.84 | 72% | 28% | -16 | -6 | -22 | 1.89 | 28% | 72% | -6 | -16 | -22 | 22.32 | -268 |
| | | | | | | ***Total Trip Credit:*** | ***-23*** | ***-8*** | ***-31*** | **--** | **--** | **--** | ***-9*** | ***-24*** | ***-33*** | **--** | ***-387*** |
| *Proposed Project Land Uses* | | | | | | | | | | | | | | | | | |
| Recuperative Care Center[2 3] | 610 | 12 | Beds | 1.84 | 72% | 28% | 16 | 6 | 22 | 1.89 | 28% | 72% | 6 | 16 | 22 | 22.32 | 268 |
| Medical Office Building (HPHP Clinic) | 720 | 2.594 | 1,000 SF | 2.78 | 78% | 22% | 6 | 2 | 8 | 3.46 | 28% | 72% | 3 | 6 | 9 | 34.80 | 90 |
| Permanent Supportive Housing[4] | -- | 121 | Units | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | | | | | | ***Gross Project Trips:*** | ***22*** | ***8*** | ***30*** | **--** | **--** | **--** | ***9*** | ***22*** | ***31*** | **--** | ***358*** |
| | | | | | | *Net New Project Trips* | *-1* | *0* | *-1* | | | | *0* | *-2* | *-2* | | *-29* |

Notes:
1. Existing Land use to be removed during proposed project construction
2. Existing Land Use to remain as part of the project development
3. Land use 610 assumed for Recuperative Care Center
4. Permanent Supportive Housing assumed to generate no new trips based on background research and other studies.
Trip Generation based on Institute of Transportation Engineers Trip Generation Manual 10th Edition

## Parking Evaluation

A parking evaluation was conducted to determine if the Project's proposed parking supply would be sufficient to meet the anticipated demand. The parking demand for the proposed project was determined after considering the following:

- Existing Parking Occupancy
- Parking generation data from ITE land uses
- Parking requirements based on the City of Santa Cruz Municipal Code
- Operational data for the Project and data from other PSH projects

The Project proposes to provide 30 vehicular parking spaces allocated as follows:

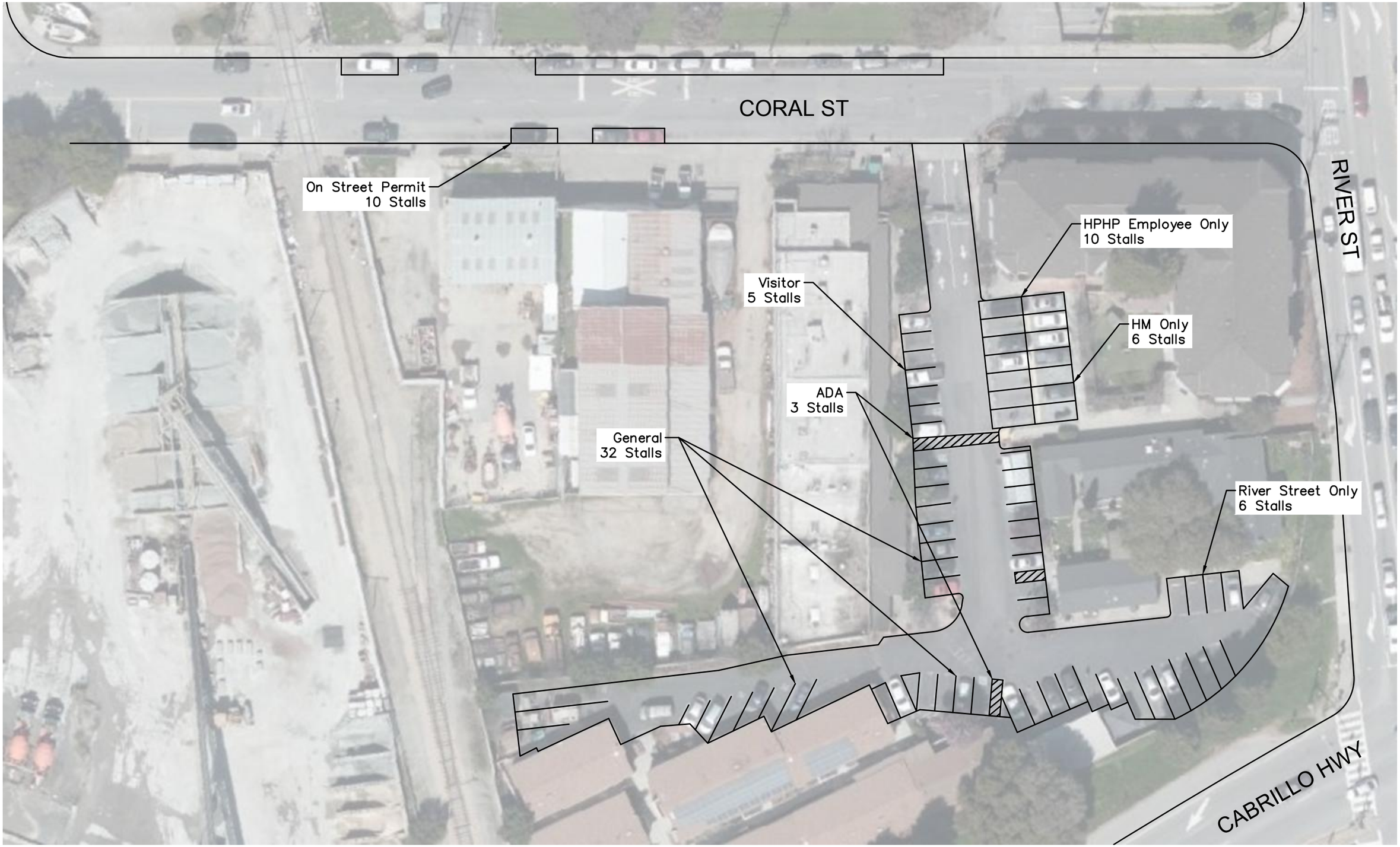
- 2 Americans with Disabilities Act (ADA) spaces
- 16 standard spaces
- 12 tandem spaces

***Existing Parking Supply and Occupancy***

Existing parking supply and occupancy for the 119 Coral Street and 115 Coral Street parcels shared surface parking lot was collected on Wednesday November 20, 2019 between 8:00 AM and 12:00 PM. Occupancy data was collected every 15 minutes at the site. The parking occupancy for the shared surface lot is summarized in **Table 3** and **Figure 3** shows the total supply for the lot.

**Table 3: Observed Parking Occupancy in Project Shared Parking Lot**

| Stall Type | | On Street Permit | Visitor | ADA | HPHP Employee Only | River Street Only | HM Only | General | Total Occupied | Total % Occupied |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total Stalls** | | **10** | **5** | **3** | **10** | **6** | **8** | **32** | **74** | |
| Occupancy by Time of Day | 8:00 AM | 0 | 3 | 0 | 2 | 2 | 5 | 30 | 42 | 57% |
| | 8:15 AM | 0 | 1 | 0 | 5 | 2 | 6 | 28 | 42 | 57% |
| | 8:30 AM | 0 | 1 | 0 | 7 | 2 | 5 | 25 | 40 | 54% |
| | 8:45 AM | 0 | 0 | 0 | 7 | 1 | 5 | 28 | 41 | 55% |
| | 9:00 AM | 0 | 0 | 0 | 7 | 1 | 5 | 27 | 40 | 54% |
| | 9:15 AM | 0 | 0 | 0 | 7 | 1 | 5 | 31 | 44 | 59% |
| | 9:30 AM | 0 | 0 | 0 | 7 | 1 | 5 | 31 | 44 | 59% |
| | 9:45 AM | 0 | 1 | 0 | 7 | 1 | 5 | 33 | 47 | 64% |
| | 10:00 AM | 0 | 2 | 0 | 7 | 1 | 5 | 33 | 48 | 65% |
| | 10:15 AM | 0 | 2 | 0 | 7 | 1 | 6 | 33 | 49 | 66% |
| | 10:30 AM | 1 | 2 | 0 | 7 | 1 | 6 | 33 | 50 | 68% |
| | 10:45 AM | 5 | 2 | 0 | 7 | 1 | 6 | 32 | 53 | 72% |
| | 11:00 AM | 6 | 1 | 0 | 6 | 1 | 6 | 31 | 51 | 69% |
| | 11:15 AM | 7 | 2 | 0 | 6 | 1 | 6 | 31 | 53 | 72% |
| | 11:30 AM | 5 | 2 | 0 | 6 | 0 | 7 | 31 | 51 | 69% |
| | 11:45 AM | 10 | 1 | 0 | 6 | 1 | 6 | 32 | 56 | 76% |
| | 12:00 PM | 4 | 2 | 0 | 6 | 3 | 6 | 30 | 51 | 69% |




Proposed Permanent Supportive Housing & Services (180PSH)
Figure 3 Existing Parking Supply

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As shown in **Table 3** the general parking stalls average occupancy was 31, meaning there was an average of only 1 unoccupied general stall during the observed hours at the project site. In conversations on site during staff meetings, 11 employees reported parking consistently off-site due to the limited parking. Based on the data collected, the parking lot currently operates at capacity with an excess demand of 11 employees who park off-site in existing conditions.

### *ITE Parking Generation*

The Institute of Transportation Engineer's (ITE) *Parking Generation, 5th Edition,* is a national reference which provides parking demand estimates based on empirically collected data, as well as methodologies that can be used to estimate shared parking demand for a variety of land uses based on land use types and sizes. The data and methodologies included in the latest edition (5th) of this reference was used to estimate the Project's potential parking demand described in this section.

There is no ITE parking generation land use for a recuperative care center or for permanent supportive housing. Therefore, the ITE land uses of Nursing Home (ITE LUC 620) and Congregate Care Facility (ITE LUC 253) were used to estimate parking generation. ITE LUC 720, Medical Office Building, was used to represent the HPHP Clinic.

**Table 4** shows that the peak parking generation for the proposed project is 45 vehicles. However, the parking generation of 33 spaces for the permanent supportive housing is expected to be much lower as residents of the PSH will not own vehicles. ITE reports that for ITE LUC 253 Congregate Care Facility vehicle ownership is typically low but not zero.

**Table 4: ITE Parking Generation for Proposed Project**

| Description | ITE Land Use | Rate | # | Units | Parking Generation |
|---|---|---|---|---|---|
| HPHP Clinic | Medical Office Building (720) | 3.23 per 1,000 SF | 2,594 | SF | 8 |
| Recuperative Care Center | Nursing Home (620) | 0.36 per bed | 12 | Beds | 4 |
| Permanent Supportive Housing | Congregate Care Facility (253) | Equation (0.56X-35.03) | 121 | DU | 33 |
| | | | | *ITE Parking Generation* | *45* |

Notes:

Source: ITE Parking Generation Manual 5th Edition

### *City of Santa Cruz Municipal Code Parking Requirements*

The City of Santa Cruz Municipal Code (24.12.240) specifies parking requirements for each land use component of the proposed Project. **Table 5** summarizes the City parking supply requirements and compares the requirements to the parking supply that will be provided by the Project.

**Table 5: City of Santa Cruz Municipal Code Parking Requirements**

| Proposed Project Conditions | | City Requirement | | Proposed Parking Supply |
|---|---|---|---|---|
| **Description** | **Size** | **Rate[1]** | **Spaces** | |
| Permanent Supportive Housing[2] | 121 units | 1 for each 5 guests, plus 1 for the manager, plus 1 for each employee on the shift with the maximum number of personnel | 24+1+2 = 27 | |
| Recuperative Care Center[3] | 2,627 square feet (12 beds) | 1 for each 5 guests, plus 1 for each employee on the shift with the maximum number of personnel | 3 | |
| HPHP Clinic[4] | 2,594 square feet | 1 for each 200 square feet floor area | 13 | |
| | | **Total Spaces** | **43** | **30** |

Notes:
1. Source: City of Santa Cruz Municipal Code (24.12.240) accessed November 4, 2019 at https://www.codepublishing.com/CA/SantaCruz/#!/SantaCruz24/SantaCruz2412.html#24.12.240
2. "Community care and residential facilities" land use from City Code assumed.
3. "Medical (or convalescent) hospital" land use from City Code assumed.
4. "Medical and dental clinics and offices" land use from City Code assumed.

Based on **Table 5**, the Project is required to provide 43 vehicle parking spaces. The City Code also requires that structures providing between 26-50 total parking stalls include 2 EVSE parking spaces within their total parking supply. The Project proposes to provide a total of 30 parking spaces. Therefore, the Project would provide a deficit of 13 parking spaces compared to City requirements.

The Projects proposes no minimum parking requirement for the permanent supportive housing portion of the Project. Per AB-1763 (October 9, 2019), "if a development consists solely of…a supportive housing development as defined in Section 50675.14 of the Health and Safety Code then…a city, county, or city and county shall not impose any minimum vehicular parking requirement." The 121 units of the project are supportive housing as defined in the Health and Safety Code, therefore it is proposed that no minimum parking requirement be required for this portion of the project. Per city code, a minimum of 16 stalls is required for the other Project land uses. The project proposes 30 total parking stalls on site exceeding the minimum required parking by 14 stalls.

The premise of no minimum parking requirement for developments that consist solely of supportive housing is consistent with the data collected from other supportive housing projects discussed in the next section.

***Similar PSH Projects and Proposed PSH Parking Demand***

Similar PSH Projects were surveyed to identify the total parking demand and supply of similar land uses. The results of the survey, shown in **Table 6**, indicate an average parking demand of 0 stalls per dwelling unit from the residents of the PSH projects. The parking demand from staff/guests/drop-offs averaged at 0.05 spaces per dwelling unit. The max rate per housing unit observed was for a 50-unit PSH project in Seattle with a parking demand of 0.16 spaces per dwelling unit.

Applying the parking demand average rate from the similar sites the estimated parking demand from the permanent supportive housing element is estimated as follows:

121 PSH Units X 0.05 stalls per unit = 6 stalls.

Therefore, it is estimated that the actual demand from staff, visitors, and other services to the PSH land-use is 6 stalls. Operational analysis for the Project anticipates 1 common area employee, up to 3 concurrent PSH staff, and up to 2 concurrent visitors/deliveries on site for a total of 6 stalls.

**Table 6: Parking Demand Rates from Similar PSH Projects**

| Site Description | # of Units | Types of Units | Occupancy / Demand | | | Demand Rate (Stalls / Units) | Supply | |
|---|---|---|---|---|---|---|---|---|
| | | | Residents | Staff | Guests/ Drop-Off | | Parking Supply | Bicycle Supply |
| 434 S. San Pedro Street, Los Angeles, 90013 | 47 | PSH | 0 | 0 | 0 | 0.00 | 0 | -- |
| 333 S. Los Angeles Street, Los Angeles, 90013 | 70 | PSH | 0 | 2 | 1 | 0.04 | 3 | -- |
| "Clement Place": 937 North 96th Street, Seattle, 98103 | 100 | PSH | 0 | 0 | 2 | 0.02 | 3 | 8 |
| "The Estelle": 3501 Rainer Avenue S, Seattle, 98144 | 91 | PSH | 0 | 0 | 0 | 0.00 | 2 | 50 |
| "Interbay Place": 2208 15th Avenue West, Seattle, 98119 | 97 | PSH | 0 | 5 | 2 | 0.07 | 12 | 30 |
| "Aurora House": 10507 Aurora Avenue North, Seattle, 98133 | 87 | PSH | 0 | 4 | 2 | 0.07 | 8 | 16 |
| "Cottage Grove Commons": 5444 Delridge Way SW, Seattle, 98106 | 66 | PSH | 0 | 5 | 2 | 0.11 | 12 | 12 |
| "Canaday House": 424 Minor Avenue North, Seattle, 98109 | 83 | PSH | 0 | 0 | 0 | 0.00 | 0 | 12 |
| "Rainer House": 5270 Rainer Avenue S, Seattle, 98118 | 50 | PSH | 0 | 5 | 3 | 0.16 | 10 | 5 |
| "Evans House": 415 Tenth Avenue, Seattle, 98122 | 75 | PSH | 0 | 4 | 3 | 0.09 | 8 | 6 |
| "1811 Eastlake": 1811 EastLake Avenue, Seattle, 98101 | 75 | PSH | 0 | 5 | 2 | 0.09 | 5 | 6 |
| "Morrison Hotel": 509 Third Avenue, Seattle, 98104 | 150 | PSH | 0 | 0 | 3 | 0.02 | 4 | 8 |
| "Lyon Building": 607 Third Avenue, Seattle, 98104 | 64 | PSH | 0 | 0 | 0 | 0.00 | 0 | 0 |
| "Kerner-Scott House": 510 Minor Avenue North, Seattle, 98109 | 40 | PSH | 0 | 2 | 2 | 0.10 | 4 | 6 |
| "Union Hotel": 204 3rd Avenue S, Seattle, 98104 | 52 | PSH | 0 | 0 | 0 | 0.00 | 0 | 0 |
| **Average** | **76** | **PSH** | **0** | **2** | **1** | **0.05** | **5** | **12** |

***Proposed Project Parking Demand***

Based on analysis of existing parking occupancy, ITE parking generation data, city requirements, and similar sites analysis the proposed parking demand for the 180 PSH Project is 22 stalls as shown in **Table 7**. For the HPHP Clinic and RCC land uses minimum City Code requirements for parking were applied. For PSH land uses, similar sites data was used to calculate parking demand. The Project proposes to supply 30 stalls on site resulting in an excess of 8 stalls. Two stalls of the total supply should be EVSE parking stalls.

## Table 7: Proposed Project Parking Supply and Demand

| Land Use | Rate | # | Units | Notes | Parking Generation | Parking Supply |
|---|---|---|---|---|---|---|
| Medical Office Building[1] | 1 space per 200 SF | 2,594 | SF | HPHP Clinic | 13 | |
| Recuperative Care Center[1] | 1 space per 5 beds plus staff | 12 | Beds | 12 Beds + 1 Employee | 3 | |
| Common Area[2] | 1 per staff | 1 | Staff | 1 Employee | 1 | |
| Permanent Supportive Housing Residents[2] | 0 per resident | 121 | DU | No parking generated | 0 | |
| Permanent Supportive Housing Staff[2] | 1 per staff | 3 | Staff | 3 Employees | 3 | |
| Permanent Supportive Housing Visitors[2] | 1 per visitor | 2 | Visitors | 2 Visitors | 2 | |
| | | | | ***Total*** | ***22*** | ***30*** |

Notes:

*1. Source: City Code Requirements*

*2. Source: Similar Sites Survey Data*

# *ARBORIST REPORT-*

## Tree Inventory & Preliminary Construction Impacts for:

**180 Santa Cruz, Permanent Supportive Housing,**
**119 Coral Street**
**APN: 008-171-31**
Santa Cruz, CA 95060
**May 8, 2020**

**Prepared for:**

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Appendix H - Assumptions & Limiting Conditions

# SUMMARY

This report provides the following information:

1. A summary of the health and structural condition of 21 trees.
2. A preliminary evaluation of anticipated construction impacts to the trees.
3. Recommendations for retention or removal of assessed trees based on their condition and anticipated construction impacts.

- The *Tree Assessment Chart*, Appendix A is the condensed reference guide to inform all tree management decisions for the trees evaluated.
- A multi-story facility consisting of 120 supportive SRO units, is proposed for the property at 119 Coral Street, Santa Cruz.
- The existing facility will be demolished and replaced with a new building.
- Twenty-one trees, ten “protected” and eleven “not protected” within or near the project limits were inventoried.
- The ten “protected” trees inventoried were in good or fair condition.
- Two “protected” trees are located near proposed drainage improvements. Impacts from drainage improvements will be high, trees will suffer extensive root loss and they should be removed. The trees can be retained if the drain lines and catch basins are relocated, reducing impacts from high to moderate.
- Eight “protected” trees will receive low or moderate construction impacts and can be retained.
- Retained “protected” trees will require mitigation methods to reduce construction impacts including tree protection fencing, and additional protection specifications to be included with the final civil and architectural plan sets.
- No “protected” trees are recommended for removal if drainage system can be relocated. If the drain line system *cannot* be relocated, two removed trees will require mitigation in the form of tree replacement plantings. The tree replacement ratio will be from one to three trees replanted for each tree removed.
- A Tree Protection Plan sheet (s), containing tree protection specifications will be included with the final plan submittal.

## Background

Plans will be submitted to the City of Santa Cruz Planning Department, for demolition of an existing housing facility and construction of new supportive SRO units at 119 Coral Street, Santa Cruz. New Way Homes requested my services, to assess the condition of twenty-one trees within the project limits, and the construction impacts that may affect them. Further, to provide a report with my findings and recommendations to meet City of Santa Cruz planning requirements.

## Assignment

Provide an arborist report that includes an assessment of the trees within the project area. The assessment is to include the species, size (trunk diameter, height and canopy diameter spread), condition (health and structure), and suitability for preservation ratings. Further, to review the preliminary development plans and assess the potential construction impacts.

To complete this assignment, the following services were performed:

- **Tree Resource Evaluation:** Inventory, evaluate and assign suitability for preservation ratings for subject trees.
- **Plan Review: Reviewed provided plans including**: Preliminary Site Plan and Civil Engineering plan set by C2G Consulting Engineers, dated 2/7/2020.
- **Preliminary Construction Impact Assessment:** Combine tree resource data with anticipated construction impacts, to provide recommendations for removal or retention of trees.
- **Mapping:** Tree canopies were plotted onto: Topographic Map, Portion of 119 Coral Street, Santa Cruz, by Alpha Land Surveys, INC, dated 9/19/2019, and a Tree Location Plan sheet (Sheet T1), was created.

## Limits of the Assignment

The information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection on 5/4/2020.
The inspection is limited to visual examination of accessible items without climbing, dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees in questions may not arise in the future.

## Purpose and use of the report

The report is intended to identify all the trees within the plan area that could be affected by a project. The report is to be used by the developer, their agents, and the City of Santa Cruz as a reference for existing tree conditions and to help satisfy the City of Santa Cruz planning requirements.

## Resources

All information within this report is based on site plans as of the date of this report.
Resources are as follows:

- Grading/Drainage, Sheet 3.1, Utilities, Sheet 4.1 & Site Improvements, Sheet C2.1 by C2G Consulting Engineers, dated 2/7/2020.
- Site Visit, Tree Inventory & Condition Evaluation at, 119 Coral Street, on 5/4/2020.
- City of Santa Cruz Municipal Code – Chapter 9.56 *Preservation of Heritage Trees* (applicable sections).

# OBSERVATIONS

Several existing housing units and support facilities comprise the project site. Most of the protected trees are located immediately south of the project, with one protected tree within the project boundaries in the southwest corner.(Image #1).

**Image #1 – Project site. Only one protected tree is within the project boundaries, tree T12, walnut, (circled blue). The remainder of the protected trees (nine), are outside the project boundaries, (circled green).**

I inventoried 21 trees. Of the 21 trees, ten are classified as “heritage” (protected), trees based their trunk diameters (14” or >), according to City of Santa Cruz tree ordinance criteria. Only one of the protected trees is within the project boundaries. The tree, T12, walnut *(Julgans spp.*) is in the southwest corner of the property, within 5 feet of a perimeter block wall (Image #2)

**Image #2 - Tree T12, walnut. Note trunk lean to south and upper limb structure growing in opposite to lean, which balances overall structure.**

The walnut has a 10-degree lean that corrects to vertical in the upper canopy.

The trunk splits into two (co-dominant) trunks at 6 feet above grade (Image #3). The trunk union appears sound despite some included bark * present, and the tree is in good condition overall.

**Image #3 - Tree T12, walnut, (circled). Note two trunks (arrows).**

***Included Bark Attachments (crotches):** Bark that becomes imbedded in a crotch (union) between branch and trunk or between codominant stems. Lacks axillary wood and causes a weak attachment.

The remaining protected trees are outside of the perimeter block wall and are off the property. Nine of the ten trees grow along the Caltrans right-of-way. This group includes seven coast redwood (*Sequoia sempervirens*) and one coast live oak (*Quercus agrifolia*). The seven maturing redwoods are well spaced, and all are in good condition (Images # 4 & 5).

**Image #4 - Trees T20 – T14, coast redwood. Trees are planted in a row, 7 to 8 feet from block wall of subject property and adjacent to highway one.**

**Image #5 –Trees T18 & T19, coast redwood. View from subject property.**

The canopies of the redwoods slightly overhang the property.

Two coast live oaks are growing at either end of the coast redwood row. Tree T13, is located at the east end of the row (Image #6).

**Image #6 –Tree T13, coast live oak.**

The mature oak is in good condition. The tree has multiple trunks and is wide spreading.

The wide spreading canopy overhangs the block wall and the existing buildings (Image #7).

**Image #7 – Tree T13, coast live oak. The mature oak has multiple stems and a wide spreading canopy growing over the existing buildings, as seen in this image.**

Tree T21 a mature coast live oak in fair condition, grows west of the redwood row adjacent to the railroad frontage (Images #8 & 9).

**Image #8 – Tree T21, coast live oak. Tree is in fair condition with some canopy thinning and minor foliar dieback.**

The oak is growing two feet from the block wall and its canopy overhangs into the subject property and over the existing building.

**Image #9 – Tree T21, coast live oak (circled).**

The remaining trees inventoried are not protected and most are located along a block wall along the north edge of the project limits (Image #10).

**Image #10 – Trees T2-T6. Trees are in a 3' wide planter along wall.**

The trees are in good or fair condition with reduced canopy widths due to maintenance pruning to maintain roadway clearance.

# DISCUSSION

## Species List

**TOTAL SUBJECT TREES: 21 Trees**

**Protected: 10**

| | | |
|---|---|---|
| 7 | Coast Redwood | (*Sequoia sempervirens*) |
| 2 | Coast Live Oak | (*Quercus agrifolia)* |
| 1 | Walnut | (*Julgans spp.*) |

**Not Protected: 11**

3 different species. See Tree Assessment Chart, Appendix A for complete list.

## Tree Evaluation and Recording Methods

Site evaluations were made on 5/4/2020 *The inventory included all trees 4" in diameter or greater within the project limits, and ten trees immediately adjacent to the property.* The health and structural **condition** of each tree was assessed and recorded. Based on the trees health and structural condition, each trees **suitability for preservation** was rated and recorded. The recorded data is included in the *Tree Assessment Chart, Appendix A,* of this report. Detailed criteria for each assessment rating category are included in Appendix B – *Criteria for Tree Assessment Chart.*

Numbered trees on the *Tree Assessment Chart*, Appendix A., correlate with the plotted trees on the attached *Tree Location Map*, Appendix C.

## Condition Rating – Protected Trees

A trees condition is determined by an assessing both the **health** and **structure**, then combining the two factors to reach a *condition rating*. Tree condition is rated as poor, fair or good. The quantity of trees assigned for each category (good, fair or poor), is indicated below:

**Tree Condition Rating**

- Good - 7
- Fair - 3
- Poor - 0

## Suitability for Preservation- Protected Trees

A trees suitability for preservation is determined based on its health, structure, age, species characteristics and longevity using a scale of good, fair or poor. The quantity of trees assigned to each category (good, fair or poor), is listed below.

**Suitability Rating**

- Good - 7
- Fair – 3
- Poor - 0

## Tree Protection Zone

The tree protection zone (TPZ), is a defined area (radius from trunk), within which certain activities are prohibited or restricted to minimize potential injury to designated trees during construction.

The size of the optimal TPZ can be determined by a formula based on 1) trunk diameter 2) species tolerance to construction impacts, and 3) tree age (Matheny, N. and Clark, J 1998). In some instances, tree drip line is used as the TPZ. Development constraints can also influence the final size of the tree protection zone.

Fencing is installed to delineate the (TPZ), and to protect tree roots, trunk, and scaffold branches from construction equipment. *The fenced protection area may be smaller than the optimal or designated TPZ area in some circumstances.* Tree protection may also involve the armoring of the tree trunk and/or scaffold limbs with barriers to prevent mechanical damage from construction equipment. *See Tree Protection Guidelines & Restrictions* – Appendix E.

Once the TPZ is delineated and fenced (prior to any site work, equipment and materials move in), construction activities are only to be permitted within the TPZ if allowed for and specified by the project arborist.

Where tree protection fencing cannot be used, or as an additional protection from heavy equipment, tree wrap may be used. Wooden slats at least one inch thick are to be bound securely, edge to edge, around the trunk. A single layer or more of orange plastic construction fencing is to be wrapped and secured around the outside of the wooden slats. Major scaffold limbs may require protection as determined by the City arborist or Project arborist. Straw wattle may also be used as a trunk wrap and secured with orange plastic fencing.

Data has been entered in the *Tree Assessment Chart – Appendix A,* which indicates the optimal Tree Protection Zone for each tree.

Additional general tree protection guidelines are included in *Tree Protection Guidelines & Restrictions* – Appendix G.

## Critical Root Zone

Critical Root Zone (CRZ) is the area of soil around the trunk of a tree where roots are located that provide critical stability, uptake of water and nutrients required for a tree's survival. The CRZ is the minimum distance from the trunk that trenching that requires root cutting should occur and can be calculated as three to the five times the trunk Diameter at Breast Height (DBH). For example, if a tree is one foot in trunk diameter than the CRZ is three to five feet from the trunk location. We will often average this as four times the trunk diameter or 1ft. DBH = 4ft. CRZ (Smiley, E.T., Fraedrich, B. and Hendrickson, N. 2007).

## Root Disturbance Distance

No one can estimate and predict with absolute certainty what distance from a tree, a soil disturbance such as excavation for construction should be, to ensure it will not significantly affect tree stability or health. Or to what degree, (low, moderate or high), a tree might be impacted. There are simply too many variables involved that we cannot see or anticipate. However, three times the D.B.H. (diameter at breast height), is a widely accepted minimum used in the industry for root disturbance, *on one side of the trunk*, and is supported by several research studies including (Smiley, Fraedich & Hendrickson 2002, Bartlett Tree Research Laboratories). This distance is often used during the design and planning phases of a project in order to estimate root loss due to construction activities. This distance is a guideline only and should be increased for trees with significant leans, decay or other structural problems.

The ISA, International Society of Arboriculture- Root Management (2017) publication recommends, “cutting roots at a distance greater than six times the trunk diameter (DBH) minimizes the likelihood of affecting both health and stability. This recommendation is given further direction by the companion publication, A.N.S.I. (*American National Standard*) A300 (Part 8)- 2013 Root Management, when roots are cut in a *non-selective* manner, i.e. in a straight line on one side of a tree. It says, if the cutting is “within six times the trunk diameter (DBH), mitigation shall be recommended”. Further, A.N.S.I. recommends the “minimum distance from the trunk for root cutting should be adjusted according to trunk diameter, species tolerance to root loss, tree age, health and site condition”.

In general, root cutting that occurs at a distance less than six times the diameter of a tree should be undertaken by hand digging and hand (or Sawzall), root pruning. These methods help mitigate root loss impacts.

## Construction Impacts to Subject Trees

The ten protected trees include trees T12, walnut, trees T14-T20, coast redwood and T13 and T21 , coast live oak. Tree T12, walnut, is the only protected tree located on the property. The other protected trees (redwoods and oaks), are separated from the project by a 10 foot tall block wall. Information from site engineers indicate that the wall is likely supported by piers, without a continuous foundation. The depth of any continuous concrete is likely less than one foot. Therefore, it is possible for roots to grow under the wall and into the project area of disturbance.

Based on the preliminary site plan, impacts to the protected trees will be mostly low or moderate. However, two trees, T12 walnut and T21 coast live oak will be highly impacted by the new drainage system. Root loss amounts will be high enough to cause significant decline and potentially destabilize the trees.

## Construction Impacts to Subject Trees, continued:

The 8" ADS drain line is located less than one foot (within the critical root zone), from tree T12, a 28-inch diameter walnut, and the larger anchoring roots on one side of the tree would be cut during excavation for the line. This would cause severe canopy decline and the stability of the tree would be significantly compromised. If this tree is to be retained, the drain line and catch basin will require relocation so that it is a minimum of 12' to the west of the tree. This will reduce anticipated impacts from high to moderate.

A 2'X2' V64 drain inlet is located 5' from tree T21, a 31-inch diameter coast live oak. The drain inlet and a portion of the drain line is located within the critical root zone, and many significant roots could be cut. This would cause canopy decline and the stability of the tree could compromised. If this tree is to be retained, the drain inlet will require relocation so that it is a minimum of 10' to the east of the tree. This will reduce anticipated impacts from high to moderate. If retained, the tree will also need minor canopy clearance pruning from the new building.

The remaining protected trees, including seven coast redwood and one coast live oak, will receive low to moderate impacts. The installation of new elements including the concrete walkway and bike storage enclosure will require the addition of fill and so root removal is not anticipated unless footings are specified for the bike enclosure pad. The amount of root loss for trees T17 and T18, coast redwood, adjacent to the bike enclosure, will depend on the type of foundation design used for the enclosure pad. Also, compaction of the subgrade could result in some root loss for trees adjacent to both the bike pad and the walkway. Tree protection specifications will be included in the tree protection plan sheet, once final drawings are completed.

Eight "not protected" trees will suffer high impacts and require removal. These trees are either within the new building footprint or will suffer high root loss due to construction activities very close to their trunks. Three "not protected" trees will receive low or moderate impacts and can be retained. The retained trees will require protection specifications to be included in the tree protection plan.

**Tree protection specifications will be determined once the final plan sets are completed and will be included in the tree protection plan. A tree protection plan sheet (s) shall be included with the final plan set submittal.**

## Impact Level – Protected Trees

Impact level rates the degree a tree may be impacted by construction activity and is primarily determined by how close the construction procedures occur to the tree. Construction impacts are rated as low, moderate, high. The quantity of trees assigned for each category (low, moderate, high), is indicated below:

**Impact Rating (Protected trees)**

- Low - 4
- Moderate – 4
- High - 2

## Mitigation Measures for Retained Trees

The trees retained on this project will require some or all the following methods to protect them from the impacts described above and to minimize root loss during the construction phases.

- Tree Protection Fencing
- Hand trenching.
- Supervised root pruning.

Tree protection specifications will be included on a separate **Tree Protection Plan Sheet**, *Sheet T1* and other T sheets as necessary, once final plan sets are completed. **These plan sheets with tree protection specifications shall become an element of the final plan set.**

## Trees Recommended for Removal Due to Impacts

8 “Not protected” trees 3 different species.

(See Tree Assessment Chart, Appendix A for complete list of “Not protected” trees)

## Replacement Trees

As mitigation for trees removed, replacement trees will be required for 2 protected trees, T12, walnut and T21, coast live oak, unless changes to the drainage system can be accomplished. Replacement requirements may vary for the category of tree replaced. In general, one 15-gallon replacement tree is required for each “protected” tree removed. Replacement trees should be planted away from structures and where they have enough room to develop. Do not install trees where overhead wire exist. The trees must receive supplemental irrigation equal to their establishment requirements for the first two years.

If the recommended adjustments are made to the drainage system adjacent to trees T12 and T21, the anticipated impacts to these trees will be reduced from high to moderate and they can be retained. **If they are retained, no protected trees are recommended for removal and there will be no tree replacement requirement.**

- Applicants may elect to pay an in-lieu fee to the tree trust fund of $150 for off- site mitigation. (Contribution to the Tree Trust Fund are used to purchase street trees, trees for projects, etc.)

# CONCLUSION

- The *Tree Assessment Chart*, Appendix A is the condensed reference guide to inform all tree management decisions for the trees evaluated.
- A multi-story facility consisting of 120 supportive SRO units, is proposed for the property at 119 Coral Street, Santa Cruz.
- The existing facility will be demolished and replaced with a new building.
- Twenty-one trees, ten “protected” and eleven “not protected” within or near the project limits were inventoried.
- The ten “protected” trees inventoried were in good or fair condition.
- Two “protected” trees, T12 walnut and T21 coast live oak, are located near proposed drainage improvements. Impacts from drainage improvements will be high, trees will suffer extensive root loss and they should be removed. The trees can be retained if the drain lines and catch basins are relocated, reducing impacts from high to moderate.
- Eight “protected” trees, trees T14-T20 coast redwood and T13, coast live oak, will receive low or moderate construction impacts and can be retained.
- Retained “protected” trees will require mitigation methods to reduce construction impacts including tree protection fencing, and additional protection specifications to be included with the final civil and architectural plan sets.
- No “protected” trees are recommended for removal if drainage system can be relocated. If the drain line system *cannot* be relocated, two removed trees will require mitigation in the form of tree replacement plantings. The tree replacement ratio will be from one to three trees replanted for each tree removed.
- A Tree Protection Plan sheet (s), containing tree protection specifications will be included with the final plan submittal.

# RECOMMENDATIONS

1. Obtain all necessary permits prior to removing or significantly altering any trees on site.
2. Remove all trees significantly impacted by the project or as recommended in Tree Assessment Chart, Appendix A.
3. Relocate the drainage system adjacent to tree T12, walnut, so it is a minimum of 12 feet west of the tree.
4. Relocate the drainage system adjacent to tree T21, coast live oak, so it is a minimum of 10 feet east of the tree.
5. Applicant to adhere to all tree protection specifications included with final plan sets.

Respectfully submitted,

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## 180 Santa Cruz, Santa Cruz, CA

### Tree Assessment Chart - Appendix A

**Suitability for Preservation Ratings:**

**Good:** Trees in good health and structural condition with potential for longevity on the site

**Fair:** Trees in fair health and/or with structural defects that may be reduced with treatment procedures

**Poor:** Trees in poor health and/or with poor structure that cannot be effectively abated with treatment

**Retention or Removal Code:**

**RT:** Retain Tree
**RI:** Remove Due to Construction Impacts

**I.M.** Impacts Can Be Mitigated With Pre-Construction Treatments
**R.C.** Remove Due to Condition

**Protected Tree City of Santa Cruz** Any tree 14 inches or greater in diameter measured at 4.5 feet above grade. Street trees regardless of size.

| Tree # | Species | Trunk Diameter @ 54 inches a.g. | Protected Tree | Crown Height & Spread | Health Rating | Structural Rating | Suitability for Preservation (Based Upon Condition) | Tree Protection Zone (in feet) | Construction Impacts (Rating & Description) | Retention or Removal Code | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **T1** | crape myrtle (*Lagerstroemia indica* ) | 5" | No | 15'X10' | Good | Good | Good | 6' | High (**Root loss** - excavation, compaction) | R.I. | In 3' wide planter 1' from block wall. |
| **T2** | crape myrtle | 5" | No | 15'X10' | Good | Good | Good | 6' | High (**Root loss** - excavation, compaction) | R.I. | In 3' wide planter 1' from block wall. |
| **T3** | Marina madrone (*Arbutus* 'Marina') | 12" | No | 25'X15' | Good | Good | Good | 10' | High (**Root loss** - excavation, compaction) | R.I. | In 3' wide planter 1' from block wall. |
| **T4** | Marina madrone | 10" | No | 20'X15' | Good | Fair | Fair | 10' | High (**Root loss** - excavation, compaction) | R.I. | In 3' wide planter 1' from block wall. |

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5/8/2020

## 180 Santa Cruz, Santa Cruz, CA

### Tree Assessment Chart - Appendix A

| Tree # | Species | Trunk Diameter @ 54 inches a.g. | Protected Tree | X10' | Health Rating | Structural Rating | Suitability for Preservation (Based Upon Condition) | Tree Protection Zone (in feet) | Construction Impacts (Rating & Description) | Retention or Removal Code | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **T5** | crape myrtle | 6" | No | 15'X10' | Good | Good | Good | 6' | High (**Root loss** - excavation, compaction) | R.T. | In 3' wide planter 1' from block wall. |
| **T6** | crape myrtle | 6" | No | 15'X10' | Good | Fair | Fair | 6' | High (**Root loss** - excavation, compaction) | R.I. | In 3' wide planter 1' from block wall. |
| **T7** | Marina madrone | 11" | No | 20'X15' | Good | Fair | Fair | 12' | High (**Root loss** - excavation, compaction) | R.I. | In 3' wide planter 1' from block wall. |
| **T8** | crape myrtle | 7" | No | 20'X10' | Good | Good | Good | 8' | Moderate (**Root loss** - excavation, compaction) | R.T. | In 3'X3' sidewalk cutout. |
| **T9** | crape myrtle | 8" | No | 20'X10' | Good | Good | Good | 8' | Moderate (**Root loss** - excavation, compaction) | R.T. | In 3'X3' sidewalk cutout. |
| **T10** | purple- leaf plum (*Prunus cerasifera* ) | 9" | No | 20'X10' | Good | Good | Good | 10' | Low to none | R.T. | In 3'X3' sidewalk cutout. |
| **T11** | purple- leaf plum | 13" | No | 20'X15' | Good | Good | Good | 10' | High - Within footprint of new building | R.I. | In 3'X3' asphalt cutout. |

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5/8/2020

## 180 Santa Cruz, Santa Cruz, CA

### Tree Assessment Chart - Appendix A

| Tree # | Species | Trunk Diameter @ 4.5' | Protected Tree | Crown Height & Spread | Health Rating | Structural Rating | Suitability for Preservation (Based Upon Condition) | Tree Protection Zone (in feet) | Construction Impacts (Rating & Description) | Retention or Removal Code | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **T12** | walnut (*Julgans spp* .) | 28" | Yes | 50'X40' | Good | Fair | Fair | 21' | High (**Root loss** - excavation, compaction) | R.T. | Co-dominant trunks with included bark at 6' above grade. 10 degree corrected lean to south. 5' from existing block wall. New 8" drain line within 1' of trunk. Recommend relocating proposed 8" drain line and 10" catch basin (SDAD), a minimum of 12' west of trunk. New concrete walkway 10' from trunk. |
| **T13** | coast live oak (*Quercus agrifolia* ) | 36",22" | Yes | 40'X50' | Good | Fair | Fair | 27' | Low (**Root loss** - excavation) | R.T. | Co-dominant trunks at grade. 7.5' from existing block wall. 17' from new concrete walkway. Will require minor canopy clearance pruning to allow space for new building construction. |
| **T14** | coast redwood (*Sequoia sempervirens* ) | 22" | Yes | 50'X15' | Good | Good | Good | 16' | Moderate (**Root loss** - compaction) | R.T. | 7.5' from existing block wall. 8.5' from new concrete walkway. |
| **T15** | coast redwood | 24" | Yes | 50'X15' | Good | Good | Good | 18' | Low (**Root loss** - compaction) | R.T. | 7' from existing block wall. 13' from new concrete walkway. |
| **T16** | coast redwood | 20" | Yes | 50'X10' | Good | Good | Good | 15' | Low (**Root loss** - compaction) | R.T. | 8' from existing block wall. 14' from new concrete walkway. |

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5/8/2020

**180 Santa Cruz, Santa Cruz, CA**

Tree Assessment Chart - Appendix A

| Tree # | Species | Trunk Diameter @ 4.5' | Protected Tree | Crown Height & Spread | Health Rating | Structural Rating | Suitability for Preservation (Based Upon Condition) | Tree Protection Zone (in feet) | Construction Impacts (Rating & Description) | Retention or Removal Code | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **T17** | coast redwood | 22" | Yes | 45'X10' | Good | Good | Good | 16' | Low to Moderate (**Root loss** - excavation, compaction) | R.T. | 8' from existing block wall. 9' from bike storage enclosure. Requires minor clearance pruning for installation of new bike storage enclosure. |
| **T18** | coast redwood | 24" | Yes | 45'X10' | Good | Good | Good | 18' | Low to Moderate (**Root loss** - excavation, compaction) | R.T. | 8' from existing block wall. 9' from new bike storage enclosure. Requires minor clearance pruning for installation of new bike storage enclosure. |
| **T19** | coast redwood | 23" | Yes | 50'X15' | Good | Good | Good | 18' | Low (**Root loss** - excavation) | R.T. | 7' from existing block wall. 18' from new 10" catch basin. |
| **T20** | coast redwood | 28" | Yes | 50'X15' | Good | Good | Good | 21' | Low (**Root loss** - excavation) | R.T. | 8' from existing block wall. 11' from new 10" catch basin. |
| **T21** | coast live oak | 31" | Yes | 50'X50' | Fair | Fair | Fair | 23' | High (**Root loss** - excavation) | R.T. | Co-dominant trunks at 7' above grade. 2' from existing block wall. New 2'X2' catch basin (SDDI), within 5' of trunk. Recommended relocating catch basin a minimum of 5' east. Will require minor canopy clearance pruning to allow space for new building construction. |

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5/8/2020

## APPENDIX B – CRITERIA FOR TREE ASSESSMENT CHART

Following is an explanation of the data used in the tree evaluations. The data is incorporated in the *Tree Assessment Chart, Appendix A.*

Trunk Diameter and Number of Trunks:

Trunk diameter as measured at 4.5 feet above grade. The number of trunks refers to a single or multiple trunked tree. Multiple trunks are measured at 4.5 feet above grade.

Health Ratings:

Good: A healthy, vigorous tree, reasonably free of signs and symptoms of disease

Fair: Moderate vigor, moderate twig and small branch dieback, crown may be thinning and leaf color may be poor

Poor: Tree in severe decline, dieback of scaffold branches and/or trunk, most of foliage from epicormics

Structure Ratings:

Good: No significant structural defects. Growth habit and form typical of the species

Fair: Moderate structural defects that might be mitigated with regular care

Poor: Extensive structural defects that cannot be abated.

Suitability for Preservation Ratings:

Rating factors:

Tree Health: Healthy vigorous trees are more tolerant of construction impacts such as root loss, grading and soil compaction, then are less vigorous specimens.

Structural integrity: Preserved trees should be structurally sound and absent of defects or have defects that can be effectively reduced, especially near structures or high use areas.

Tree Age: Over mature trees have a reduced ability to tolerate construction impacts, generate new tissue and adjust to an altered environment. Young to maturing specimens are better able to respond to change.

Species response: There is a wide variation in the tolerance of individual tree species to construction impacts.

Rating Scale:

Good: Trees in good health and structural condition with potential for longevity on the site

Fair: Trees in fair health and/or with structural defects that may be reduced with treatment procedures.

Poor: Trees in poor health and/or with poor structure that cannot be effectively abated with treatment. Trees can be expected to decline or fail regardless of construction impacts or management . The species or individual may possess characteristics that are incompatible or undesirable in landscape settings or unsuited for the intended use of the site.

Construction Impacts:

Rating Scale:

High: Development elements proposed that are located within the Tree Protection Zone that would severely impact the health and /or stability of the tree. The tree impacts cannot be mitigated without design changes. The tree may be located within the building footprint.

Moderate: Development elements proposed that are located within the Tree Protection Zone that will impact the health and/or stability of the tree and can be mitigated with tree protection treatments.

Low: Development elements proposed that are located within or near the Tree Protection Zone that will have a minor impact on the health of the tree and can be mitigated with tree protection treatments.

None: Development elements will have no impact on the health and stability of the Tree.

**Tree Protection Zone (TPZ):**

Defined area within which certain activities are prohibited or restricted to prevent or minimize potential injury to designated trees, particularly during construction or development.

# Tree Location Map
## 119 Coral Street, Santa Cruz

K.F
5/7/2020
APN: 008-171-31

Sheet T1
of 1 sheet

T1 CRAPE MYRTLE DBH 5"
T2 CRAPE MYRTLE DBH 5"
T3 MARINA MADRONE DBH 12"
T4 MARINA MADRONE DBH 10"
T5 CRAPE MYRTLE DBH 6"
T6 CRAPE MYRTLE DBH 6"
T7 MARINA MADRONE DBH 11"
T8 CRAPE MYRTLE DBH 7"
T9 CRAPE MYRTLE DBH 8"
T10 PURPLE-LEAF PLUM DBH 9"
T11 PURPLE-LEAF PLUM DBH 13"
T12 WALNUT DBH 28"
T13 COAST LIVE OAK DBH 36",22"
T14 COAST REWQOOD DBH 22"
T15 COAST REDWOOD DBH 24"
T16 COAST REDWOOD DBH 20"
T17 COAST REDWOOD DBH 22"
T18 COAST REDWOOD DBH 24"
T19 COAST REDWOOD DBH 23"
T20 COAST REDWOOD DBH 28"
T21 COAST LIVE OAK DBH 31"

SHED
SD MH RIM: 27.59'
SS MH RIM: 29.55'
SS MH RIM: 29.17'
DI RIM: 27.03'
DI RIM: 27.13'
DI RIM: 27.00'
DI RIM: 28.55'
DI RIM: 28.66'
ELEC/FS/WTR/CO
THRESH: 31.35'
THRESH: 30.55'
THRESH: 30.57'
THRESH: 31.49'
AC CURB
ASPHALT PARKING LOT
CONCRETE
CONCRETE WALK
WOOD RAMP
WOOD DECK
RAMP
TRUNC DOMES
CONC WALK
CONCRETE BLOCK WALL
MEMORIAL BENCH
SPRINKLER VALVE
IRR PDSTL
ICV (x3)
TV
ELEC
WTR
GAS
FH
LID
LIGHT
PA

## Legend

- Tree Location
- Tree Protection Fencing
- Tree Canopy Extents
- Hand Trenching & Root Pruning
- Remove Tree

GRAPHIC SCALE
10 0 5 10 20 40
( IN FEET )
1 inch = 10 ft.

Base map provided by : Alpha Land Surveys, INC., Scotts Valley, CA

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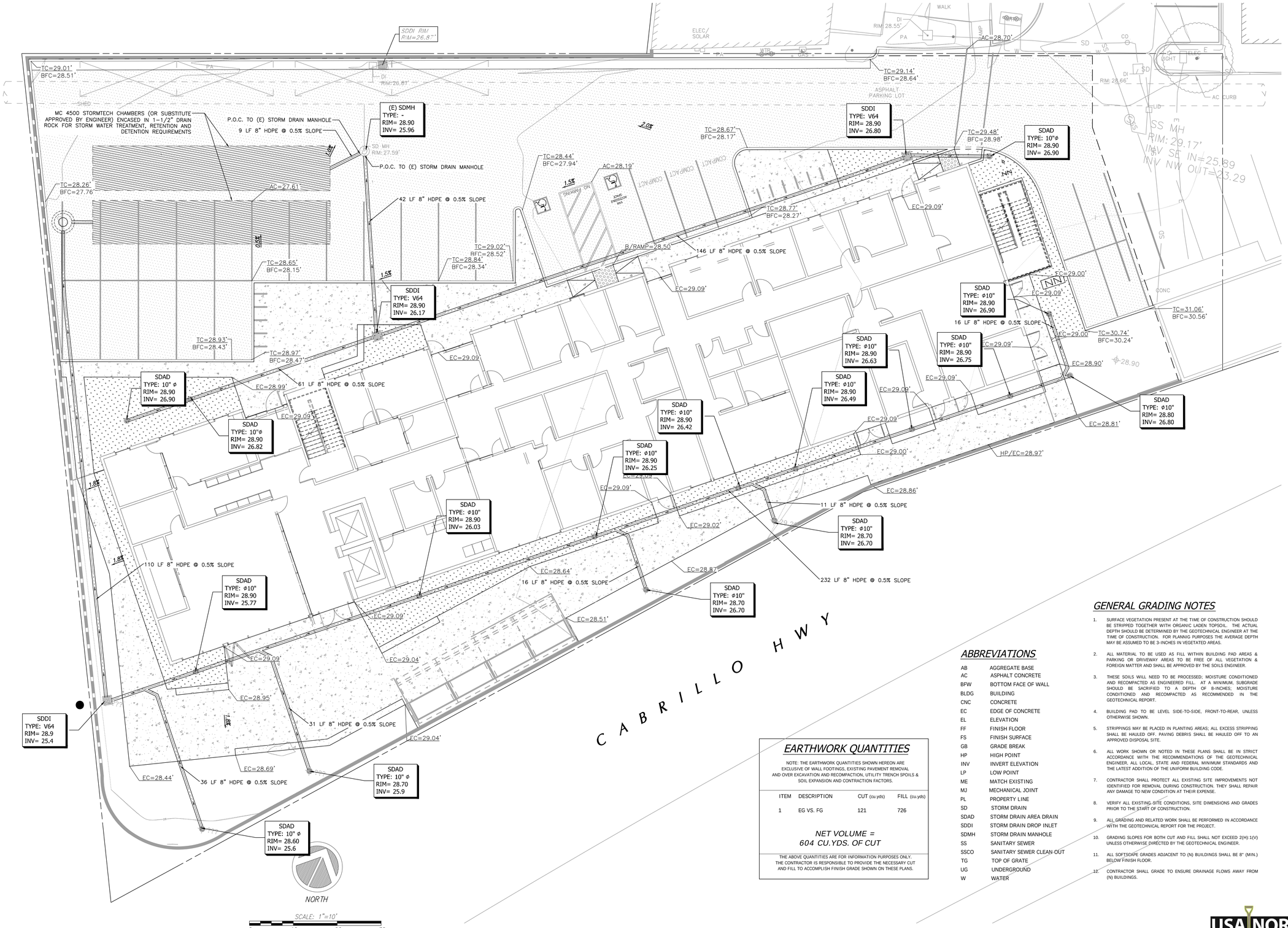


## EARTHWORK QUANTITIES

NOTE: THE EARTHWORK QUANTITIES SHOWN HEREON ARE EXCLUSIVE OF WALL FOOTINGS, EXISTING PAVEMENT REMOVAL AND OVER EXCAVATION AND RECOMPACTION, UTILITY TRENCH SPOILS & SOIL EXPANSION AND CONTRACTION FACTORS.

| ITEM | DESCRIPTION | CUT (cu.yds) | FILL (cu.yds) |
|---|---|---|---|
| 1 | EG VS. FG | 121 | 726 |

*NET VOLUME =*
*604 CU.YDS. OF CUT*

THE ABOVE QUANTITIES ARE FOR INFORMATION PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE THE NECESSARY CUT AND FILL TO ACCOMPLISH FINISH GRADE SHOWN ON THESE PLANS.

## ABBREVIATIONS

| | |
|---|---|
| AB | AGGREGATE BASE |
| AC | ASPHALT CONCRETE |
| BFW | BOTTOM FACE OF WALL |
| BLDG | BUILDING |
| CNC | CONCRETE |
| EC | EDGE OF CONCRETE |
| EL | ELEVATION |
| FF | FINISH FLOOR |
| FS | FINISH SURFACE |
| GB | GRADE BREAK |
| HP | HIGH POINT |
| INV | INVERT ELEVATION |
| LP | LOW POINT |
| ME | MATCH EXISTING |
| MJ | MECHANICAL JOINT |
| PL | PROPERTY LINE |
| SD | STORM DRAIN |
| SDAD | STORM DRAIN AREA DRAIN |
| SDDI | STORM DRAIN DROP INLET |
| SDMH | STORM DRAIN MANHOLE |
| SS | SANITARY SEWER |
| SSCO | SANITARY SEWER CLEAN OUT |
| TG | TOP OF GRATE |
| UG | UNDERGROUND |
| W | WATER |

## GENERAL GRADING NOTES

1. SURFACE VEGETATION PRESENT AT THE TIME OF CONSTRUCTION SHOULD BE STRIPPED TOGETHER WITH ORGANIC LADEN TOPSOIL. THE ACTUAL DEPTH SHOULD BE DETERMINED BY THE GEOTECHNICAL ENGINEER AT THE TIME OF CONSTRUCTION. FOR PLANNIG PURPOSES THE AVERAGE DEPTH MAY BE ASSUMED TO BE 3-INCHES IN VEGETATED AREAS.
2. ALL MATERIAL TO BE USED AS FILL WITHIN BUILDING PAD AREAS & PARKING OR DRIVEWAY AREAS TO BE FREE OF ALL VEGETATION & FOREIGN MATTER AND SHALL BE APPROVED BY THE SOILS ENGINEER.
3. THESE SOILS WILL NEED TO BE PROCESSED; MOISTURE CONDITIONED AND RECOMPACTED AS ENGINEERED FILL. AT A MINIMUM, SUBGRADE SHOULD BE SACRIFIED TO A DEPTH OF 8-INCHES; MOISTURE CONDITIONED AND RECOMPACTED AS RECOMMENDED IN THE GEOTECHNICAL REPORT.
4. BUILDING PAD TO BE LEVEL SIDE-TO-SIDE, FRONT-TO-REAR, UNLESS OTHERWISE SHOWN.
5. STRIPPINGS MAY BE PLACED IN PLANTING AREAS; ALL EXCESS STRIPPING SHALL BE HAULED OFF. PAVING DEBRIS SHALL BE HAULED OFF TO AN APPROVED DISPOSAL SITE.
6. ALL WORK SHOWN OR NOTED IN THESE PLANS SHALL BE IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER, ALL LOCAL, STATE AND FEDERAL MINIMUM STANDARDS AND THE LATEST ADDITION OF THE UNIFORM BUILDING CODE.
7. CONTRACTOR SHALL PROTECT ALL EXISTING SITE IMPROVEMENTS NOT IDENTIFIED FOR REMOVAL DURING CONSTRUCTION. THEY SHALL REPAIR ANY DAMAGE TO NEW CONDITION AT THEIR EXPENSE.
8. VERIFY ALL EXISTING SITE CONDITIONS, SITE DIMENSIONS AND GRADES PRIOR TO THE START OF CONSTRUCTION.
9. ALL GRADING AND RELATED WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT FOR THE PROJECT.
10. GRADING SLOPES FOR BOTH CUT AND FILL SHALL NOT EXCEED 2(H):1(V) UNLESS OTHERWISE DIRECTED BY THE GEOTECHNICAL ENGINEER.
11. ALL SOFTSCAPE GRADES ADJACENT TO (N) BUILDINGS SHALL BE 8" (MIN.) BELOW FINISH FLOOR.
12. CONTRACTOR SHALL GRADE TO ENSURE DRAINAGE FLOWS AWAY FROM (N) BUILDINGS.

USA NORTH 811
Call 811 Before You Dig

| REVISIONS | BY |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |

# GRADING AND DRAINAGE PLAN

REGISTERED PROFESSIONAL ENGINEER
TODD R. CREAGER
No. C 64561
Exp. 6/30/21
CIVIL
STATE OF CALIFORNIA

C2G /CIVIL CONSULTANTS GROUP, INC.
Engineers/Planners
4444 Scotts Valley Drive / Suite 6
Scotts Valley, CA 95066
T (831) 438-4420 F (831) 438-4420

180 SANTA CRUZ
PERMANENT SUPPORTIVE HOUSING
115 CORAL STREET
SANTA CRUZ, CALIFORNIA

| | |
|---|---|
| Date: | 02.07.20 |
| Scale: | 1" = 10' |
| Drawn: | TC/JB |
| Job: | 498-00 |
| Sheet: | C3.1 |
| Of | 8 Sheets |

Drawing: R:\498-00 - Permanent Housing\Design\CAD\Sheets\498-00 - C3.1 - GRADING AND DRAINAGE.dwg Layout: C3.1 - GRADING AND DRAINAGE Last Saved: Thu Feb 06, 2020 - 5:10pm Last Plotted: Fri Feb 07, 2020 - 7:11am By: jamie

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# Glossary of Terms

**Basal rot:** decay of the lower trunk, trunk flare, or buttress roots.

**Canker:** Localized diseased area on stems, roots and branches. Often sunken and discolored.

**Critical Root Zone (CRZ):** Area of soil around a tree where a minimum number of roots considered critical to the structural stability or health of the tree are located. CRZ determination is sometimes based on the drip line or a multiple of the DBH, but because root growth can be asymmetric due to site conditions, on-site investigation may be required.

**Codominant branches/stems:** Forked branches (or trunks), nearly the same size in diameter, arising from a common junction and lacking a normal branch union, may have included bark.

**Crown:** Upper part of a tree, measured from the lowest branch, including all branches and foliage.

**Defect:** An imperfection, weakness, or lack of something necessary. In trees defects are injuries, growth patterns, decay, or other conditions that reduce the tree's structural strength.

**Diameter at breast height (DBH):** Measurement of trunk diameter at 4.5 feet above grade.

**Frass:** Fecal material and/or wood shavings produced by insects.

**Included Bark Attachments (crotches):** Bark that becomes imbedded in a crotch (union) between branch and trunk or between codominant stems. Lacks axillary wood and causes a weak attachment.

**Live Crown Ratio (LCR):** Ratio of the height of the crown containing live foliage to overall height of the tree.

**Scaffold branches:** Permanent or structural branches that form the scaffold architecture or structure of a tree.

**Suppressed:** Trees that have been overtopped and occupy an understory position within a group or grove of trees. Suppressed trees often have poor structure.

**Tree Protection Zones (TPZ):** Defined area within which certain activities are prohibited of restricted to prevent or minimize potential injury to designated trees, especially during construction or development.

**Trunk flare:** Transition zone from trunk to roots where the trunk expands into the buttress or structural roots.

This Glossary of Terms was adapted from the *Glossary of Arboricultural Terms* (ISA, 2015)

## Appendix G - TREE PROTECTION GUIDELINES AND RESTRICTIONS

### Protecting Trees During Construction:

1) Before the start of site work, equipment or materials move in, clearing, excavation, construction, or other work on the site, every tree to be retained shall be securely fenced- off as delineated in approved plans. Such fences shall remain continuously in place for the duration of the work undertaken in connection with the development.

2) If the proposed development, including any site work, will encroach upon the tree protection zone, special measures shall be utilized, as approved by the project arborist, to allow the roots to obtain necessary oxygen, water, and nutrients.

3) Underground trenching shall avoid the major support and absorbing tree roots of protected trees. If avoidance is impractical, hand excavation undertaken under the supervision of the project arborist may be required. Trenches shall be consolidated to service as many units as possible. Boring/tunneling under roots should be considered as an alternative to trenching.

4) Concrete or asphalt paving shall not be placed over the root zones of protected trees, unless otherwise permitted by the project arborist.

5) Artificial irrigation shall not occur within the root zone of native oaks, unless deemed appropriate on a temporary basis by the project arborist to improve tree vigor or mitigate root loss.

6) Compaction of the soil within the tree protection zone shall be avoided.

7) Any excavation, cutting, or filling of the existing ground surface within the tree protection zone shall be minimized and subject to such conditions as the project arborist may impose. Retaining walls shall likewise be designed, sited, and constructed to minimize their impact on protected trees.

8) Burning or use of equipment with an open flame near or within the tree protection zone shall be avoided. All brush, earth, and other debris shall be removed in a manner that prevents injury to the tree.

9) Oil, gas, chemicals, paints, cement, stucco or other substances that may be harmful to trees shall not be stored or dumped within the tree protection zone of any protected tree, or at any other location on the site from which such substances might enter the tree protection zone of a protected tree.

10) Construction materials shall not be stored within the tree protection zone of a protected tree.

## Project Arborist Duties and Inspection Schedule:

The project arborist is the person(s) responsible for carrying out technical tree inspections, assessment of tree health, structure and risk, arborist report preparation, consultation with designers and municipal planners, specifying tree protection measures, monitoring, progress reports and final inspection.
A qualified project arborist (or firm) should be designated and assigned to facilitate and insure tree preservation practices. He/she/they should perform the following inspections:

Inspection of site: Prior to equipment and materials move in, site work, demolition, landscape construction and tree removal: The project arborist will meet with the general contractor, architect / engineer, and owner or their representative to review tree preservation measures, designate tree removals, delineate the location of tree protection fencing, specify equipment access routes and materials storage areas, review the existing condition of trees and provide any necessary recommendations.

Inspection of site: During excavation or any activities that could affect trees: Inspect site during any activity within the Tree Protection Zones of preserved trees and any recommendations implemented. Assess any changes in the health of trees since last inspection.

Final Inspection of Site: Inspection of site following completion of construction. Inspect for tree health and make any necessary recommendations.

Kurt Fouts shall be the Project Arborist for this project. All scheduled inspections shall include a brief Tree Monitoring report, documenting activities and provided to the City Arborist.

## Tree Protection Fencing

Tree Protection fencing shall be installed prior to the arrival of construction equipment or materials. Fence shall be comprised of six -foot chain link fence mounted on eight - foot tall, 1 and 7/8-inch diameter galvanized posts, driven 24 inches into the ground and spaced on a minimum of 10-foot centers. Once established, the fence must remain undisturbed and be maintained throughout the construction process until final inspection.

A final inspection by the City Arborist at the end of the project will be required prior to removing any tree protection fencing.

## Tree Protection Signs

All sections of fencing should be clearly marked with signs stating that all areas within the fencing are Tree Protection Zones and that disturbance is prohibited.

## Monitoring

Any trenching, construction or demolition that is expected to damage or encounter tree roots should be monitored by the project arborist or a qualified ISA Certified Arborist and should be documented.

The site should be evaluated by the project arborist or a qualified ISA Certified Arborist after construction is complete, and any necessary remedial work that needs to be performed should be noted.

## Root Pruning

Root pruning shall be supervised by the project arborist. When roots over two inches in diameter are encountered they should be pruned by hand with loppers, handsaw, reciprocating saw, or chain saw rather than left crushed or torn. Roots should be cut beyond sinker roots or outside root branch junctions and be supervised by the project arborist. When completed, exposed roots should be kept moist with burlap or backfilled within one hour.

## Tree Work Standards and Qualifications

All tree work, removal, pruning, planting, shall be performed using industry standards of workmanship as established in the Best Management Practices of the International Society of Arboriculture (ISA) and the American National Standards Institute series, *Safety Requirements in Arboriculture Operations* ANSI Z133-2017,

Contractor licensing and insurance coverage shall be verified.

During tree removal and clearance, sections of the Tree Protection Fencing may need to be temporarily dismantled to complete removal and pruning specifications. After each section is completed, the fencing is to be re-installed.

Trees to be removed shall be cut into smaller manageable pieces consistent with safe arboricultural practices, and carefully removed so as not to damage any surrounding trees or structures. The trees shall be cut down as close to grade as possible. Tree removal is to be performed by a qualified contractor with valid City Business/ State Licenses and General Liability and Workman's Compensation insurance.

## Development Site Tree Health Care Measures

*RECOMMENDED TO PROVIDE OPTIMUM GROWING CONDITIONS, PHYSIOLOGICAL INVIGORATION AND STAMINA, FOR PROTECTION AND RECOVERY FROM CONSTRUCTION IMPACT.*

Establish and maintain TPZ fencing, trunk and scaffold limb barriers for protection from mechanical damage, and other tree protection requirements as specified in the arborist report.

Project arborist to specify site-specific soil surface coverings (wood chip mulch or other) for prevention of soil compaction and loss of root aeration capacity.

Soil, water and drainage management is to follow the ISA BMP for "Managing Trees During Construction" and the ANSI Standard A300(Part 2)- 2011 Soil Management (a. Modification, b. 'Fertilization, c. Drainage.)

Fertilizer / soil amendment product(s) amounts and method of application to be specified by certified arborist.

# City of Santa Cruz

## 9.56.040 HERITAGE TREE AND HERITAGE SHRUB DESIGNATION.

Any tree, grove of trees, shrub or group of shrubs, growing on public or private property within the city limits of the city of Santa Cruz which meet(s) the following criteria shall have the “heritage” designation:

(a) Any tree which has a trunk with a circumference of forty-four inches (approximately fourteen inches in diameter or more), measured at fifty-four inches above existing grade;

(b) Any tree, grove of trees, shrub or group of shrubs which have historical significance, including but not limited to those which were/are:

(1) Planted as a commemorative;

(2) Planted during a particularly significant historical era; or

(3) Marking the spot of an historical event.

(c) Any tree, grove of trees, shrub or group of shrubs which have horticultural significance, including but not limited to those which are:

(1) Unusually beautiful or distinctive;

(2) Old (determined by comparing the age of the tree or shrub in question with other trees or shrubs of its species within the city);

(3) Distinctive specimen in size or structure for its species (determined by comparing the tree or shrub to average trees and shrubs of its species within the city);

(4) A rare or unusual species for the Santa Cruz area (to be determined by the number of similar trees of the same species within the city);

(5) Providing a valuable habitat; or

(6) Identified by the city council as having significant arboricultural value to the citizens of the city.

## ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided by the appraiser/consultant is assumed to be correct. No responsibility is assumed for matters legal in character nor is any opinion rendered as the quality of any title.
2. The appraiser/consultant can neither guarantee nor be responsible for accuracy of information provided by others.
3. The appraiser/consultant shall not be required to give testimony or to attend court by reason of this appraisal unless subsequent written arrangements are made, including payment of an additional fee for services.
4. Loss or removal of any part of this report invalidates the entire appraisal/evaluation.
5. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person(s) to whom it is addressed without written consent of this appraiser/consultant.
6. This report and the values expressed herein represent the opinion of the appraiser/consultant, and the appraiser/consultant's fee is in no way contingent upon the reporting of a specified value nor upon any finding to be reported.
7. Sketches. Diagrams. Graphs. Photos. Etc., in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering reports or surveys.
8. This report has been made in conformity with acceptable appraisal/evaluation/diagnostic reporting techniques and procedures, as recommended by the International Society of Arboriculture.
9. When applying any pesticide, fungicide, or herbicide, always follow label instructions.
10. No tree described in this report was climbed, unless otherwise stated. We cannot take responsibility for any defects which could only have been discovered by climbing. A full root collar inspection, consisting of excavating around the tree to uncover the root collar and major buttress roots, was not performed, unless otherwise stated. We cannot take responsibility for any root defects which could only have been discovered by such an inspection.

## CONSULTING ARBORIST DISCLOSURE STATEMENT

Arborists are tree specialists who use their education. Knowledge, training, and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce risk of living near trees, Clients may choose to accept or disregard the recommendations of the arborist, or to seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like medicine, cannot be guaranteed.

Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees.

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MEMBER
INTERNATIONAL SOCIETY OF ARBORICULTURE
ISA
™

# City of Santa Cruz

# 2030 General Plan

ADOPTED JUNE 2012

# ACKNOWLEDGEMENTS


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Katherine Beiers
Ryan Coonerty
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Prepared by the

City of Santa Cruz Planning and Community Development Department

Juliana Rebagliati, Director

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Rod Quartararo, Vice Chair
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Mari Tustin
Scott Daly
Diane Louie
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Charlie Keutmann
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Deanna Purnell
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Mari Tustin
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Michael Di Donato
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Historic Preservation Commission
Parks and Recreation Commission
Public Works Commission
Transportation and Public Works Commission
Water Commission

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Ruth Bernstein, The Evans/McDonough Company, Inc
Jane Bolling, Jane Bolling Design
Redbat Photography

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CHAPTER 1

# INTRODUCTION

Santa Cruz is home to the University of California, Santa Cruz (UCSC). The first UCSC Long Range Development Plan was completed in 1963, construction of the campus began in 1964, and it opened in 1965 with one college. By 2007–08, the 2,000-acre campus had 10 colleges and an enrollment of more than 15,000 students. Undergraduates pursue 63 majors in humanities, physical & biological sciences, social sciences, and arts. Graduate students work toward graduate certificates and degrees in 34 academic fields.[1]

The city's post-World War II growth and development was most notably affected by the establishment of UCSC. Development of the university led to exponential population growth, with new housing rapidly filling in the gaps between existing Westside neighborhoods and the new campus. The city's population increased 29 percent during the 1970s and stood at an estimated 58,125 by January 1, 2008.

*General Plan 2030* is a comprehensive revision of Santa Cruz's 1990–2005 General Plan, first adopted in October 1992. *General Plan 2030*:

- Expresses the desires of the Santa Cruz community about the city's future physical, social, economic, cultural, and environmental character.
- Builds on the efforts and visions of the past to define a realistic vision of what the city can be in 20–25 years.
- Establishes what the community wants to reinforce or change, and provides guidelines for change while preserving environmental resources, generating economic stability, and maintaining public services and facilities at adequate levels.
- Serves as a comprehensive and everyday guide for making decisions about the nature and location of economic and urban development and transportation improvements.
- Protects natural resources and the public health and safety.

  Ensures consistency of City actions, while providing the flexibility to respond to changing needs and times.
- Serves as the City's "constitution" for conservation, land use, and community development, providing the legal foundation for all zoning and subdivision ordinances, decisions, and projects—all of which must be consistent with the general plan.

This introductory chapter is presented in 13 sections:

1. The Planning Area
2. Related plans
   a. Local Coastal Program
   b. Area Plans
   c. Housing Element
   d. UCSC LRDP
3. The role of this chapter

[1] www.ucsc.edu/about/campus_overview.asp

4. What is a general plan?
5. Legal requirements
6. Environmental assessment
7. Maps and diagrams
8. Santa Cruz General Plan history
9. The General Plan Process
    a. Master Transportation Study (MTS)
    b. Cruz to the Future Festivals
    c. General Plan Advisory Committee (GPAC)
    d. Public involvement
    e. General Plan communitywide survey
    f. Community design workshop
    g. Website
10. Vision and Principles
11. Organization of the Plan
    a. Goals, policies, and actions
    b. Format
    c. Comparison with State-mandated elements
12. Role of the planning commission
13. Amending the Plan
    a. Annual reports
    b. Amendment cycles
    c. Periodic updates

## The planning area

Santa Cruz is located on the north shore of Monterey Bay and is encircled almost entirely by the Santa Cruz Mountains and public open space areas.

The city's vigorous and lively downtown lies directly south of the junction of north-south State Highway 17 and State Highway 1. Highway 17 leads north to San José and the cities of Silicon Valley, and the San Francisco Bay Area beyond.

Important planning boundaries for Santa Cruz are the city limits, the Sphere of Influence (SOI), and the Planning Area.

The city limits encompass a total land area of 12.7 square miles and include all areas under Santa Cruz's jurisdiction and control.

The Local Agency Formation Commission (LAFCO), in conjunction with the City, determined the Sphere of Influence. The SOI includes lands outside the city that can ultimately be serviced by the City and are thus within a probable future city limit. Lands in the Sphere of Influence and not within the city total .06 square miles.

State law requires the general plan to consider any territory outside the city boundaries which, in the City's judgment, bears relation to its planning. These "lands of interest" total 12.5 square miles.

Overall, then, the city's Planning Area totals 25 square miles and includes the city, all of the SOI, and the lands of interest. The City is expected by law to create land use plans for all property within its chosen planning area; however, no regulatory authority is conferred by the boundary.

The *General Plan 2030* boundary is parcel-based and specific, and is drawn to protect open spaces at the city's edge. It differs from the 1990–2005 Planning Area boundary only in minor ways.

## Related plans

The General Plan's timeline extends to 2030 to coordinate with the U.S. Census, the UCSC Long Range Development Plan (LRDP), and other regional plans and data sources. *General Plan 2030* supersedes the 1990–2005 Santa Cruz General Plan and its several amendments, the 1974 Historic Preservation Plan, and several other planning documents.

### LOCAL COASTAL PROGRAM

The Local Coastal Program (LCP) comprises a land use plan, implementing ordinances, and maps applicable to the coastal zone portions of the city to preserve unique coastal resources pursuant to the requirements of the California Coastal Act. The City—which last prepared and adopted its LCP as a part of the general plan—is updating the LCP as a separate document, while coordinating it closely with and referencing it to and in *General Plan 2030*.

### OTHER PLANS

Fifteen different plans cover parts of the Planning Area in greater detail than can be accommodated by a general plan: The California Department of Parks and Recreation and the University of California have developed five plans for lands they administer, and the City has adopted plans for 16 areas that fall under its direct jurisdiction. While the Plans are not part of the General Plan itself, they are the tools the City has adopted to implement General Plan policies concerning the Plan's respective subject matter. Each Plan can be amended separately, and a concurrent amendment of the General Plan will be required only if a Plan amendment revises a General Plan goal, policy, action, or relevant text. The Plans are, alphabetically:

- Arana Gulch Master Plan, 2006
- Beach and South of Laurel Comprehensive Area Plan, 1998
- City-wide Creeks and Wetlands Management Plan, 2006
- Downtown Alley Walk Concept Plan, 1994
- Downtown Recovery Plan, 1991
- Eastside Business Area Improvement Plan, 1996
- Jessie Street Marsh Management Plan, 1999
- Mission Street Urban Design Plan, 2002
- Moore Creek Corridor Access and Management Plan, 1987
- Moore Creek Interim Management Plan, 2002
- Neary Lagoon Management Plan, 1992
- Pogonip Master Plan, 1998
- San Lorenzo Urban River Plan, 2003
- Santa Cruz Harbor Development Plan, 1992
- Seabright Area Plan, 1981
- Western Drive Master Plan, 1979

The five State administered plans are, alphabetically:

- Lighthouse Field State Beach General Plan, 1984
- Natural Bridges State Beach Plan, 1988
- Twin Lakes State Beach General Plan, 1988
- UCSC Long-Range Development Plan, 2006
- UCSC Marine Science Campus Coastal Long-Range Development Plan, 2004

### HOUSING ELEMENT

The City's Housing Element was updated in 2010 (adopted in 2012) and is available on the City's website. Major directives in the 2007–2014 Housing Element are:

- Encourage a mix of commercial and residential uses along transit corridors and in the central core.
- Support the proposed higher density along major transit corridors and in the downtown core.
- Encourage the development of housing affordable to people with special housing needs such as seniors, people with disabilities, single parent families, college students, and people who are homeless.
- Promote affordable housing through ordinances and current inclusionary programs that don't require significant public subsidy.
- Continue the City's density bonus program, in tandem with the affordable housing ordinance, to allow developers to build additional housing units which help subsidize the inclusion of affordable units in the project.

## The role of this chapter

This chapter outlines the organization of *General Plan 2030*. It describes:

- What a general plan is,
- Its role,
- Its legal foundation,
- The city's relationship to the region,
- The Planning Area covered,
- The process followed in creating the plan,
- The community's vision for the future,
- The Plan's fundamental underlying principles, and
- The Plan's format.

## What is a general plan?

A general plan is a *comprehensive, long-range*, and *internally consistent* statement of a city's development and preservation policies. It sums up the City's philosophy of growth and preservation, highlights what is important to the community, and prescribes where different kinds of development should go. It is a city's primary tool for directing and managing growth and conservation.

- A general plan is *comprehensive*—it addresses all geographic areas within the City's planning area and all issues relating to the physical development of the city.
- The plan is *long-range*—it looks 20 or more years into the future and focuses on the broad trends that will shape tomorrow's city.
- The plan is *internally consistent*—each goal, policy, and action is checked against and integrated with every other goal, policy, and action in the plan.

## Legal requirements

State law requires that cities prepare general plans, and regularly review and update them. The city council adopts (and can later amend) the general plan by resolution. Once a general plan is adopted or amended, the zoning, subdivision, and other land-regulating ordinances must be amended to be consistent with the plan.

State law requires that a general plan contain seven elements: land use, circulation, housing, conservation, open space, safety, and noise. Optional subjects added to a general plan (for example, community design and economic development in this Plan) have the same status as mandated elements.

The general plan is to be considered and used as a whole. Case law and accepted land use practice stress the equality of the elements in a general plan. Since all general plan elements carry equal weight, it follows that no single section, chapter, or subject can be stressed while ignoring others. All of the sections should be read together.

While the plan must be internally consistent, an exception—passed into law in 2004—allows the housing element to specify a different development density than set by the general plan.

## Environmental assessment

Case law and the California Environmental Quality Act (CEQA) require that an Environmental Impact Report (EIR) be prepared to assess potential environmental consequences on adoption and implementation of a general plan. The particular form of assessment used for *General Plan 2030* is a Program EIR.

The City established the scope of the EIR early in the general plan update process. Issues addressed in the EIR are:

1. Land use
2. Population, employment, and housing
3. Visual quality
4. Traffic and circulation
5. Cultural resources
6. Biological resources
7. Agricultural resources
8. Mineral resources
9. Community services
10. Infrastructure
11. Geology, soils, and seismic hazards
12. Hydrology and flooding
13. Hazardous materials
14. Noise
15. Air quality

## Maps and diagrams

The Land Use Map is located at the end of Chapter 4. It is a required and integral part of the general plan. The map graphically expresses the plan's development and conservation policies by showing the desired arrangement and location of land uses. The map is consistent with the general plan text, goals, policies, and actions.[2]

[2] State planning law does not require a general plan land use map to be specific as to how it designates individual parcels. In fact, Government Code §65302 refers to "diagrams" and not to "maps." The State Attorney General in 67 Ops. Cal. Atty. Gen 75 (1984) stated that a "map" refers to preciseness whereas "diagram" represents approximation. In practice, some cities prepare land use diagrams; others prepare land use maps. Either way, the Land Use "map" or "diagram" must allow anyone who uses the Plan to reach the same conclusion about the designated use of any property covered by the Plan.

General plans must also contain a circulation element, showing the "general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element." Santa Cruz's Circulation Map shows current and proposed arterials, collectors, and local streets; rail lines; bus routes; bikeways; and trails.

Together, the Land Use and Circulation maps illustrate the primary ways the City plans to direct and manage growth through 2030. The general plan contains many other maps and diagrams to illustrate issues, policies, and actions, and these should be consulted.

## Santa Cruz General Plan history

Santa Cruz was incorporated in 1866 as a town under the laws of the State of California and received its first charter as a city in 1876. In 1907, the citizens voted for a new charter designating a mayor as chief executive and a city council consisting of seven members. Subsequent charters gave a mayor and four commissioners both executive and administrative powers. In 1948, the City adopted a new charter which established a council-manager form of government, with a mayor and six council members setting policy, and a city manager serving as the chief administrator of those policies. That charter, with amendments, remains in use. Beginning in 1937, the State of California required all cities and counties to prepare and adopt Master Plans. In 1955, the State required the plans (renamed "general plans") to contain land use and circulation "elements."

In concert with the selection of Santa Cruz as the location for a new University of California campus, two general plans were prepared for the area in and around Santa Cruz: *The General Plan for Future Development*, adopted by the city council in April 1963, and the *General Plan for the University Environs*, adopted jointly by the City and the County Board of Supervisors in October 1963. The two plans were in general agreement over land use, circulation, and community facilities proposals. The only discernible difference was that the City's plan showed two thoroughfare connections into the campus' east peripheral road; the Environs plan showed one.

The primary goals of both plans were integration of the campus and environs with each other and the existing city of Santa Cruz; provision within a convenient time-distance of the campus core of a wide range of housing types and costs, shopping, community facilities, and locations for research and development activity; and a circulation system designed to discourage automobile use.

A quarter of a century later, the City's 1990–2005 General Plan consolidated and superseded the City's 1980 General Plan, 1973 Open Space and Conservation Element, 1976 Seismic Safety and Safety Element, 1987 Housing Element, 1983 Parks and Recreation Recovery Plan, 1974 Historic Preservation Plan, 1976 Noise Element, 1985 Local Coastal Program, and several other planning documents. When progress on the Plan was interrupted by the Loma Prieta Earthquake in 1989, the 1990 Plan refocused City attention and resources on earthquake recovery and rebuilding the Downtown as a regional retail and employment center.

The housing element—updated, adopted, and State-certified in 2010—is part of the City's General Plan, but is found in a separate document and is not reprinted here. With the exception of the housing element, the 1990–2005 General Plan has remained relatively unchanged since 1998—although it has been amended in lesser ways from time to time.

## The general plan process

The City provided a number of significant and continuing opportunities for the community to participate in creating *General Plan 2030*.

### MASTER TRANSPORTATION STUDY (MTS)

In April 2000, the City of Santa Cruz and UCSC initiated a partnership to jointly fund a community-based approach to transportation planning. The resulting Master Transportation Study (MTS) focused on creating a sustainable transportation future for 2020. Among other things, it called for integrating pedestrian, bicycle, transit and street transportation plans and programs as a foundation for updating the City's 1990–2005 General Plan. The MTS can be found on the City's website.

The City Council initiated the process by appointing a 17-member steering committee to oversee policy and implementation recommendations to the Transportation Commission and City Council. Representing the diversity of the Santa Cruz community, steering committee members were selected from the University, the City's planning, transportation, and

downtown commissions, the Santa Cruz Metropolitan Transit District, neighborhoods, and community interest groups. The MTS—approved by the City Council in June 2003—influenced a significant number of general plan goals and policies relating to mobility and land use.

### CRUZ TO THE FUTURE FESTIVALS

In April 2005, the City sponsored two "Cruz to the Future" festivals to reach out to the Santa Cruz community about the General Plan update and the issues it would address. Cruz to the Future provided background information, built relationships between citizens and City staff, and solicited resident and business owner views about the city and ideas for future development and preservation. The festivals—held in different parts of the city—were designed to encourage participation from a broad range of citizens, including those who might not typically attend public meetings or workshops. Topic areas included employment and the economy, housing, education (including UCSC growth), transportation, City infrastructure and services (including water supply and city budget), environmental resources and hazards, and demographic trends.

### GENERAL PLAN ADVISORY COMMITTEE (GPAC)

To guide the process and prepare and recommend the outlines and essentials of a plan to the planning commission for review and elaboration, the city council formed a 17-member General Plan Advisory Committee (GPAC) made up of:

- All seven planning commissioners.
- One representative from each of the following City commissions: Arts, Historic Preservation, Parks and Recreation, Public Works, Transportation, and Water. Each commission was responsible for appointing its representative and an alternate.
- Three at-large members of the public.
- An ex-officio non-voting representative of the University of California at Santa Cruz.

The 17 GPAC members and alternates met an average of twice a month for two years, from May 2005 through May 2007. In addition, four standing subcommittees (Interest Group Outreach, Vision/Guiding Principles, Policy Process Development, and Media/Public Outreach) met several times and presented their work efforts and recommendations to the full GPAC for action. The GPAC completed its task in May 2007 and forwarded its work and recommendations to the planning commission for the commission's consideration.

The GPAC members brought to the committee their insights based on their experience as residents and commissioners. All GPAC meetings were open to the public, and each agenda provided generous time for public comment. Information prepared by staff or consultants for each meeting was posted in advance on the City website. Meetings were formatted to allow in-depth committee and public discussion of issues identified through various sources, including the May 2006 communitywide survey (see below). The committee:

- Represented a broad segment of diverse interests.
- Functioned as a conduit and liaison to the City's several commissions.
- Held a series of informational meetings to identify the issues and opportunities facing the community.
- Evaluated the relevance of the goals and policies in the 1990–2005 General Plan.
- Drafted a vision for the future of Santa Cruz and a set of key principles to underlie the Plan.
- Reviewed and commented on background reports produced by staff and consultants. (The background reports described conditions existing in 2005, trends, and community issues to be addressed.)
- Hosted a community design workshop in September 2006.
- Formulated a set of goals and policies for the new Plan.

### PUBLIC INVOLVEMENT

The GPAC began its work in May 2005 by holding a series of informational public meetings. Through its "Interest group outreach subcommittee," the GPAC invited and sought the opinions of a number of experts—many of whom live, work, and operate businesses in Santa Cruz—who then appeared before the committee on key subjects and major issues relating to the general plan.

In that manner, the GPAC took public and expert comment through 2005. In December, the committee began drafting a Vision and Principles to guide preparation of the Plan. In March 2006, GPAC began address-

ing which of the 1990–2005 General Plan goals and policies should be retained or modified. The GPAC concluded its work in May 2007, transmitting a comprehensive set of proposed goals and policies to the Planning Commission.

During its two-year effort, the GPAC widely advertised its meetings to the public and to community and business organizations. All planning commission and city council meetings on the general plan were similarly advertised and open to the public. Specific efforts to promote community participation are described below.

### GENERAL PLAN COMMUNITYWIDE SURVEY

The GPAC organized and sponsored a communitywide survey. In May 2006, a consulting firm conducted a random digit dial telephone survey to gauge residents' feelings about community planning issues. Trained professional interviewers contacted 600 residents, ages 18 and over, living in the Santa Cruz Planning Area. The margin of error for the survey was 4.0 percentage points. Based on questions asked at the end of the survey for statistical purposes, the resulting demographics of the sample closely matched U.S. Census data for the city after the survey data was weighted slightly by age.

The goals of the survey were to provide information on citizen attitudes on a broad range of issues covered by the General Plan, to assure that the information the GPAC had been receiving from the public was an accurate reflection of broad community opinion, and to identify any new issues needing study in the general plan.

- In general, survey respondents valued their unique quality of life and were optimistic about their city. Transportation, housing, and growth loomed as issues for the future.
- The majority of Santa Cruz residents appeared to be open to changes in neighborhoods that would bring more housing and business, but an overarching concern was maintaining a feel and look unique to the area.
- Residents wanted more low cost housing, but opinions were divided on the types of housing needed.
- Santa Cruz residents wanted it all: less traffic, more parking, more transit, and better bike access. While decreasing reliance on the automobile was a goal, few believed the City should plan for that to happen.
- Residents placed a high value on protecting local business, although many wanted more local jobs and diverse goods and services. Supporting tourism was also important to many.
- The majority of residents wanted the City to plan for the inevitable growth of the University. Many had strong opinions about specific housing and transportation issues. Most were fine with students living in the neighborhoods.
- Respondents cared about the environment and supported City policies that reflected their values. Many were open to providing park amenities in the greenbelt, but it was not a strong concern for most.

### COMMUNITY DESIGN WORKSHOP

To reach a broad segment of the community, the GPAC hosted a community design workshop on a Saturday morning in September 2006. Outreach for the workshop was extensive:

- The City mailed postcards to over 1,000 people, including those on a general plan signup list and a list of downtown businesses.
- Flyers were left at the library and other public locations.
- The City placed quarter- and half-page display ads in the Santa Cruz Sentinel, in English and Spanish.
- City staff contacted area newspapers to encourage them to write about the Plan, its progress, and upcoming meetings.

The workshop, which was hosted by GPAC, gave community members an opportunity to decide how they would like Santa Cruz's natural character and built form to change over the next 20 years. One hundred people participated in the workshop, which took place at the Gault Elementary School on Seabright Avenue.

The workshop had the following key objectives:

- Describe Santa Cruz's existing community character.
- Create desired outcomes to reinforce and enhance the city's character.
- Decide what improvements are best for different parts of the city.

At the start of the workshop, participants were asked, "What are the physical attributes of Santa Cruz that brought you here, or keep you here?" Their responses were written on large pads of paper at the front of the room. Participants then saw a slide presentation that described the city's existing community character and gave workshop participants a shared

understanding of the city and of several technical concepts related to community character. Consultants facilitated a large-group exercise in which workshop participants were asked to describe the changes and improvements they wanted to see in Santa Cruz in the future. After a short break, participants gathered in small groups to discuss the community character of specific areas in Santa Cruz, and reported their conclusions to the full assembly. The participants' comments were recorded and incorporated in the Community Design Background Report and were referred to extensively in drafting the Community Design section of *General Plan 2030*.

### WEBSITE

A general plan website was created within the City's website to provide detailed information throughout the update process. The website included meeting schedules, agendas, staff reports, background reports, and drafts of the plan at various stages.

## Vision and principles

A Vision for the future quality of life in the community and a set of principles to guide the development of the General Plan were drafted by the GPAC and accepted by the City Council on February 28, 2006:

### VISION

Surrounded by greenbelt and the Pacific Ocean, Santa Cruz is a compact, vibrant city that preserves the diversity and quality of its natural and built environments, creates a satisfying quality of life for its diverse population and workers, and attracts visitors from around the world.

### GUIDING PRINCIPLES

To achieve our vision, we will follow these principles in drafting our general plan:

- **Natural resources.** We will highlight and protect our unique setting, our natural and established open space, and the sustainable use of our precious natural resources.
- **Neighborhood integrity and housing.** We will maintain the identity and vitality of our neighborhoods, actively pursuing affordable housing for a diversity of households and promoting compatible livability and high quality design in new buildings, major additions, and redevelopment.
- **The University.** We will seek a mutually beneficial relationship with UC Santa Cruz, one where the City supports the University within the context of City responsibilities, community priorities, and the constraints of City infrastructure and resources; and one in which the University reciprocally supports the City by comprehensively addressing all of its needs to the greatest extent possible on the campus itself, and by fully mitigating whatever off-campus community impacts occur.
- **Mobility.** We will provide an accessible, comprehensive, and effective transportation system that integrates automobile use with sustainable and innovative transportation options—including enhanced public transit, bicycle, and pedestrian networks throughout the community.
- **Prosperity for all.** We will ensure a sustainable economy for the community, actively encouraging the development of employment opportunities for residents of all levels and ages, and actively protecting from elimination our current and potential sources of sustainable employment.
- **A dependable municipal tax base.** We will encourage diverse technology, visitor serving, industrial, home business and commercial business enterprises, and strategic redevelopment.
- **A balanced community.** We will maintain the community's longstanding commitment to shared social and environmental responsibility, fostering a balance between employment, housing affordable to persons of all income levels, transportation, and natural resources.
- **Education.** We will reflect our commitment to education through our schools, educational systems and programs, library system and facilities, life-long learning community programs, and our active communication/information network.
- **Arts and culture.** We will recognize and support our vital arts community, our unique historic areas and landmarks, our cultural heritage and resources, and our recreational facilities and community programs.
- **Community facilities and services.** We will offer excellent social services and will improve and maintain our infrastructure, community safety, and emergency preparedness.
- **An involved citizenry.** We will welcome citizen participation in government, encourage respectful cooperation and mutual regard among residents, workers, students, and visitors, and fully accept shared responsibility for community well-being.

## Organization of the Plan

*General Plan 2030* is purposely brief. It is meant to be a useful, easy-to-read, everyday guide to the planning, development and preservation of the city, answering who will do what and why, and where, when, and how.

### GOALS, POLICIES, AND ACTIONS

The Plan is built around a series of goals, policies, and actions. "Goals" are end-state—the long-range answers to what the community wants to accomplish to resolve a particular issue or problem. Each of the Plan's goals relates to fulfilling the City's Vision and at least one of the Guiding Principles.

"Policies" and "actions" are medium-range or short-range. Together they guide day-to-day decision-making so there is continuing progress toward attaining the goals. Many of the actions in this Plan were promulgated in the 1990 Plan, and most of the actions continue programs already in effect in Santa Cruz.

Goal, policy, and action are defined below.

**Goal:** A general, overall, and ultimate purpose, aim, or end, toward which the City will direct effort during the timeframe of the general plan.

**Policy:** A specific statement of principle or guidance that implies clear commitment; the direction the City elects to follow in order to meet its goals.

**Action:** A program, activity, or strategy carried out in response to adopted policy to achieve a specific goal.

In short, goals determine what should be done, and where. Policies and actions together establish who will do the work and how and when. The text augments the goals, policies, and actions where necessary. Cross references are used to preclude redundancies.

Policies and actions are grouped and numbered under the goal they implement. Because any particular action may implement more than one policy, there are places where:

- No actions are listed under a policy;

- Two or more related policies are listed in sequence, followed by one or more actions;
- Multiple policies implemented by a single action are cross-referenced.

### FORMAT

*General Plan 2030* has 11 chapters, a glossary, and a technical appendix. The chapters are:

1. Introduction (this chapter)
2. Historic Preservation, Arts, and Culture
3. Community Design
4. Land Use
5. Mobility
6. Economic Development
7. Civic and Community Facilities
8. Hazards, Safety, and Noise
9. Parks, Recreation, and Open Space
10. Natural Resources and Conservation
11. Implementation

Chapter 2, Historic Preservation, Arts, and Culture. This chapter covers archaeological and prehistoric archaeological sites and resources. Arts and culture polices in this chapter address cultural tourism, support for the arts and the artist community of Santa Cruz.

Chapter 3, Community Design reviews the various features and history of the city's development. It also looks at community values, neighborhood conservation, establishing a sense of place and walkability of the city.

Chapter 4, Land Use. A requirement of the Plan, this chapter addresses distribution, location and extent of the uses of land for housing, business, industry, open space, natural resources, recreation and the enjoyment of scenic beauty. It also covers standards of population density and building intensity for the land us designations.

Chapter 5, Mobility, is the required "circulation element." Its purpose is to ease the ability of people and vehicles to move around, out of, and into the city in the long term, through 2030.

Chapter 6, Economic Development, covers the regional economy, the City's tax base, the role of the University in the local economy, the local workforce, the city's business districts, and a sustainable economy.

Chapter 7, Civic and Community Facilities, covers the typical public works subjects (water, wastewater, stormwater, solid waste) plus citizen involvement, community safety, education, health and human services, childcare, and technical innovation.

Chapter 8, Hazards, Safety, and Noise, includes the required noise and safety elements, and policies for the emergency systems needed to deal with a range of natural and manmade hazards that have the potential to affect Santa Cruz residents and workers.

Chapter 9, Parks Recreation, and Open Space, also covers trails and includes the required open space element.

Chapter 10, Natural Resources and Conservation, includes the required conservation element and covers energy use and climate change.

Chapter 11, Implementation gives direction to assigned City department on implementation of actions, as well as time frame.

A glossary of terms follows the chapters to assist the user in understanding the plan and its intent. Where the definition of a term is critical to understanding the text or interpreting its thrust, the term may also be defined in the body of the Plan.

A separate technical appendix, bound separately from the adopted plan, contains background material used in preparing *General Plan 2030*. The appendix is not essential to the day-to-day use and implementation of the Plan and, like the glossary, is not adopted as City policy. The appendix includes various background reports, the communitywide opinion survey, the environmental impact report, and the like. The information is public, and anyone wishing to review it may do so at the community development department in city hall or at the public library.

## Role of the planning commission

Under California law, each city and county must have a planning agency. In Santa Cruz, as in most cities in California, the city council has assigned the functions of the planning agency to the planning commission. The State charges the planning commission with, among other functions, preparing, periodically reviewing, and revising the general plan; implementing the general plan through actions such as the specific plans and zoning and subdivision ordinances; and annually reviewing the capital improvement programs and local public works projects of the city or of other local agencies for their consistency with the City's general plan.

In addition, California law requires the planning commission to report on the following, by April 1 of each year, to the city council, the State office of planning and research, and to the California department of housing and community development (HCD):

- The status of the plan and progress in implementing it.
- The City's progress in meeting its share of regional housing needs pursuant to California Government Code §65584.
- Local efforts to remove governmental constraints to the maintenance, improvement, and development of housing pursuant to §65583(c)(3).
- The degree to which the plan complies with the general plan guidelines developed and adopted pursuant to §65040.2.
- The date of the last revision to the general plan.

## Public review period and adoption

The following drafts and adoptions procedures were a part of the General Plan process:

- **Draft General Plan.** The Public Review Draft General Plan and Environmental Impact Report was published in September of 2011. The EIR was prepared pursuant to the California Environmental

Quality Act (CEQA) to disclose the potential environmental consequences of the implementation of this plan. Public comment on these documents were received at Planning Commission and City Council Meetings in March and April of 2012.

- **Final General Plan and EIR Adoption.** The public had an opportunity to comment on the Final General Plan and EIR during public hearings held in the spring of 2012. The Planning Commission made a final recommendation to the City Council on May 24, 2012. The City Council adopted the Final General Plan and EIR on July 26, 2012.

## Amending the plan

Once adopted, the general plan does not remain static. State law allows up to four general plan amendments *per mandatory element* per year. Most amendments propose a change in the land use designation of a particular property (and thus propose a change to the land use element).

Santa Cruz has determined to augment the statutory amendment process in the following ways:

### ANNUAL REPORTS

It is important to keep the general plan relevant and useful for land use and budgetary decision-making. Therefore, annually and prior to initiation of operating and capital budget discussions, the City will prepare a progress report on the general plan. The progress report could build on or be the same as required under Government Code §65400(b). The report is to include the following:

- Specific general plan achievements (e.g., housing, jobs, emissions, etc.) as measured to the date of the report, and as might be projected to develop over time.
- Map updates using the City's geographic information system (GIS).
- Updates of actions—what has been completed, what is underway, and recommendations for the next calendar or fiscal year—in sufficient detail so that the city council might use the information to set priorities in approving the City's operating and capital budgets.

### AMENDMENT CYCLES

The City desires that general plan amendments be considered in their totality and systemic aspects, not simply as a means to obtain a desired rezoning. Accordingly, the City will accept general plan amendments for review and action no more than twice each year. Every general plan amendment—whether originated by the City or by a private or institutional interest; whether a map change or a revision or addition to a goal, policy, action, or text—will be scheduled to be heard in one of the two cycles, and not as a stand-alone amendment. A supermajority vote of the city council will be required either to prepare or consider an "off-cycle" general plan amendment.

### PERIODIC UPDATES

As time passes after a number of such amendments, the City may find it desirable to revise the general plan comprehensively to reflect changes to—or other changing circumstances or philosophy in—the land use map, goals, policies, actions, or text. State law requires California's Office of Planning Research to publish the names of jurisdictions with general plans older than 10 years, and to notify their city councils. In practice, it generally is recommended that a city comprehensively review its general plan every five years to determine whether it is still in step with community values and physical and economic conditions.

The general plan was expensive to prepare and is a valuable document. The City intends to protect its investment and keep the Plan current, adapting it to changing conditions. Rather than waiting 20 years to do a sweeping and expensive general plan revision, the City will update the Plan every five to seven years, coordinating the update as much as possible with the timing of the State-mandated Housing Element cycle. The recommendation for such an update may be generated by staff, the planning commission, or the city council, based on an identification of significant issues for review, and on changed or changing circumstances. Formation of a general plan advisory committee is not envisioned for the periodic updates.

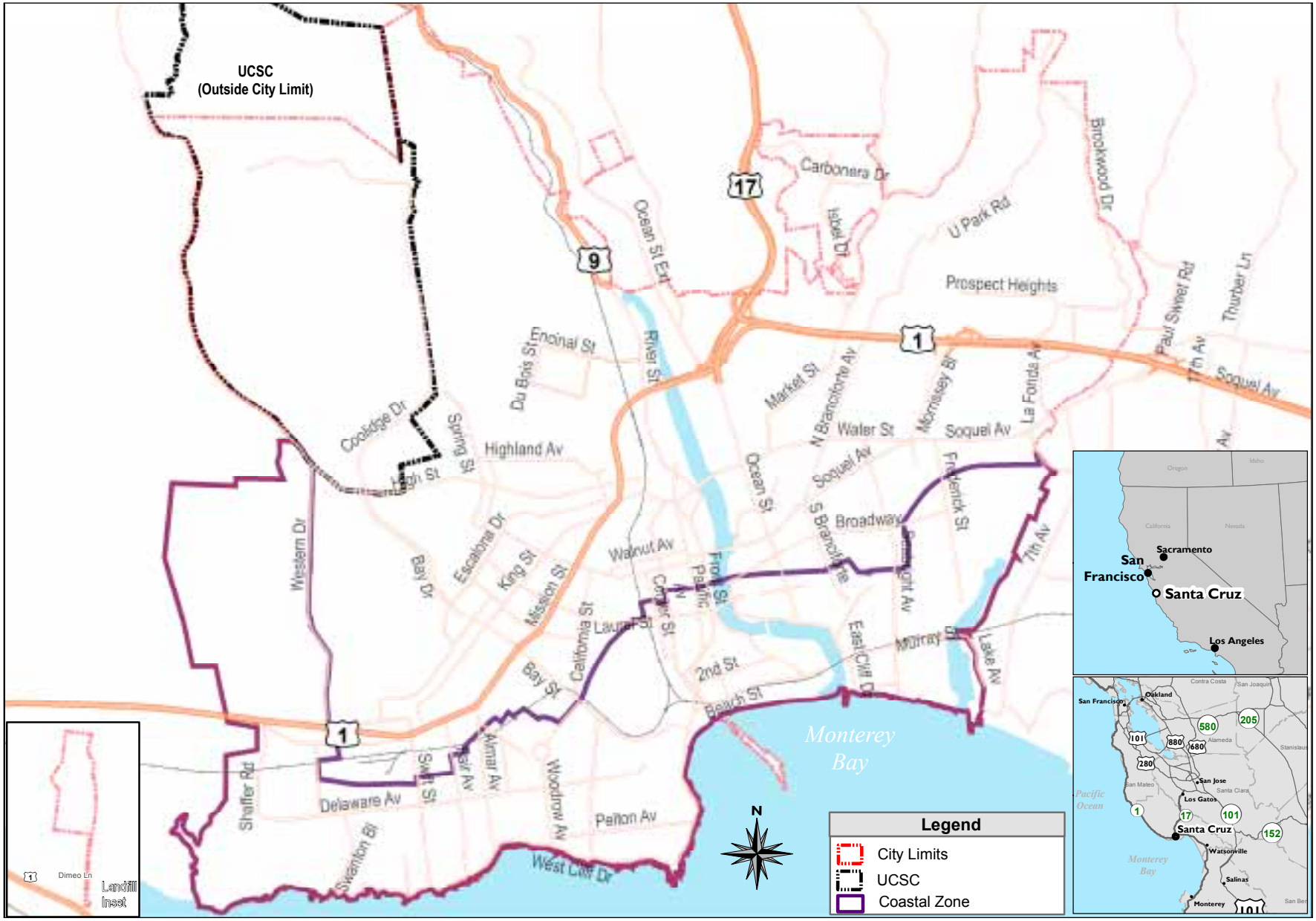
Figure 1, below, shows where the major components of the State-required general plan elements are found in *General Plan 2030*. Topics like local economy and community design, to name only a few, are not required by State law and do not appear in the table.

Figure 1: Relation of General Plan Chapters to State-mandated Elements

| MANDATED ELEMENTS | | GENERAL PLAN CHAPTER |
|---|---|---|
| LAND USE ELEMENT | Population Density and Building Intensity | 4 |
| | Land Use Diagram | 4 |
| | Distribution of Housing, Business, Industry, and Open Space | 4 |
| | Distribution of Recreation Facilities, Educational Facilities, and Public Buildings | 4, 7, 9 |
| | Flood Areas (Map) | 8 |
| | Implementation | 4 |
| CIRCULATION ELEMENT | Description of Existing System | 5 |
| | Map of Existing System | 5 |
| | Description of Proposed System | 5 |
| | Utilities | 7 |
| | Implementation | 11 |
| HOUSING ELEMENT | | Separate volume |
| CONSERVATION ELEMENT | Water, Rivers | 10 |
| | Forests | 10 |
| | Soils | 10 |
| | Mineral Resources | 10 |
| | Flood Control | 7 |

| MANDATED ELEMENTS | | GENERAL PLAN CHAPTER |
|---|---|---|
| OPEN SPACE ELEMENT | Description | 9 |
| | Trails | 9 |
| | Implementation | 9 |
| SAFETY ELEMENT | Seismic Risk | 8 |
| | Slope Instability | 8 |
| | Flooding | 8 |
| | Fire Hazard | 8 |
| | Emergency Response | 8 |
| | Hazardous Materials | 8 |
| | Implementation | 8 |
| NOISE ELEMENT | Noise Sources | 8 |
| | Noise Contours | 8 |
| | Implementation | 8 |

# Regional Location and Municipal Boundaries



CHAPTER 2

# HISTORIC PRESERVATION, ARTS & CULTURE

Historic preservation, arts and culture contribute significantly to the unique character of Santa Cruz. The quality of life for residents is positively impacted by these qualities. Visitors and residents alike enjoy the history, arts and cultural resources in Santa Cruz.

This chapter is divided into the following sections:

- **Historic preservation, arts, and culture background**
- **Goals, Policies, and Actions**

## Historic preservation, arts, and culture background

One of the 11 principles guiding the General Plan addresses the importance of arts, historic preservation, and culture to the city of Santa Cruz. The principle states:

> *We will recognize and support our vital arts community, our unique historic areas and landmarks, our cultural heritage and resources, and our recreational facilities and community programs.*

## Historic preservation

The attractive climate, natural resources, and topography of the Santa Cruz area provided an attractive environment for the prehistoric people who lived here, and for the Mission and pueblo. As a result Santa Cruz has a number of archaeological and prehistoric archaeological sites.

The General Plan contains policies to protect archaeological and paleontological resources from the impacts of development. The City's Planning Department implements those policies and associated Zoning Ordinance requirements. Applicants proposing development located in known or mapped sensitive archaeological and paleontological areas are required to submit a reconnaissance survey of the site to disclose any potential impacts to such resources.

Historic (as opposed to pre-historic) resources are generally structural, such as buildings designated in the Historic Building Survey. However, historic resources stretch beyond structures and also include places of significance in the history of Santa Cruz. While historic resources and buildings are the bedrock of historic preservation, historic businesses and enterprises that have been in Santa Cruz for many years are also important. These are considered "traditional cultural properties" (TCP). TCP is a special type of resource valued by living communities for culturally important reasons, especially if the TCP embodies or helps reinforce community's values, beliefs, and customs. A TCP's legal significance comes from its eligibility under one or more California Register criteria. Programs in this Plan specify procedures for identifying, documenting, and managing TCPs.

Too often, property owners and developers see historic preservation as rife with bureaucratic difficulties and an impediment to development.

As a result, the City has experienced "demolition by neglect" and resistance to listing on the Historic Building Survey. The Plan adopts a proactive approach to historic preservation. It hopes to move the city forward, striking a careful balance between disincentives and incentives.

Local ordinances and zoning incentives can help make the remodeling of historic structures an attractive endeavor that will result in increasing the value of historic properties. Encouragement for the preservation and reuse of historic properties can come from zoning and design review measures that allow reduction of setbacks, recognition of pre-existing nonconforming conditions, and approval of small additions not otherwise possible on non-historic properties.

In 1995, the City of Santa Cruz was designated as a Certified Local Government (CLG) for historic preservation. CLG is a national program designed to encourage the direct participation of a local government in preserving and identifying historic resources within its jurisdiction. As a CLG, the City can apply for federal grants administered through the State Office of Historic Preservation and utilize opportunities for State training and other resources.

## Arts and culture

Art brings beauty and a human quality to the built environment; it expresses the social and cultural history of the city and reflects the community's aspirations. Artwork can give City buildings a stronger public identity and incorporate private buildings into the community landscape.

In Santa Cruz, the Arts provide a sense of place that is authentic, connected, and unique in the region and its culture. The arts are a huge piece of the community's identity and economy as reflected in the vibrant year-round arts scene and annual events such as Shakespeare Santa Cruz and the Cabrillo Music Festival. Economically, the Arts contribute significantly both in terms of attracting visitors and as an employment sector. Through the City's Arts Commission, the City has formed a strategic alliance with the tourism industry, creating live-work spaces for artists and a centralized art marketing structure for cultural tourism.

The City also recognizes the importance of art education. Children educated in the arts have self-esteem, learn self-expression, and tend to stay out of trouble. Educational centers and programs are key to generating innovative initiatives, ideas, services, and products. The policies and actions of this General Plan encourage educational programming in the Arts.

The needs of the Arts community are varied, from support for artistic endeavors, such as performing arts facilities, to the need for spaces for housing and rehearsal. These various needs are reflected in the policies and actions of the General Plan.

## Goals, policies, and actions

### HISTORIC PRESERVATION

**GOAL HA1 Cultural resources protected and preserved**

HA1.1 Preserve (or where not possible, responsibly manage) archaeological and paleontological sites important to the community's heritage.

- HA1.1.1 Maintain and regularly update the City's Zoning Ordinance regulating and protecting archaeological and paleontological sites.
- HA1.1.2 Every five years, update the City's archaeological and paleontological sensitivity maps and site information lists.

HA1.2 Protect (or where not possible, responsibly manage) sensitive archaeological and paleontological resources as early in the land-use planning and development process as possible.

HA1.2.1 Prepare informational materials for property owners regarding the potential for cultural resources and early development planning strategies.

HA1.2.2 Require preparation of archaeological investigations on sites proposed for development within areas identified as "Highly Sensitive" or "Sensitive" on the "Areas of Historical Archaeological Sensitivity" map, except for exempt uses within "Sensitive" areas as described below, prior to approval of development permits. The investigation shall include archival research, site surveys and necessary supplemental testing as may be required, conducted by a qualified archaeologist. The significance of identified resources shall be ascertained in accordance with CEQA definitions, and impacts and mitigation measures outlined if significant impacts are identified, including, but not limited to recovery options and onsite monitoring by an archaeologist during excavation activities. A written report describing the archeological findings of the research or survey shall be provided to the City.

Allow minor projects with little excavation to be exempt from this requirement for preparation of an archaeological assessment within the "High Sensitivity" areas. Minor projects generally involve spot excavation to a depth of 12 inches or less below existing grade, or uses that have virtually no potential of resulting in significant impacts to archaeological deposits. Exempt projects may include: building additions, outdoor decks, or excavation in soil that can be documented as previously disturbed.

HA1.2.3 The City shall notify applicants within paleontologically sensitive areas of the potential for encountering such resources during construction and condition approvals that work will be halted and resources examined in the event of encountering paleontological resources during construction. If the find is significant, the City should require the treatment of the find in accordance with the recommendations of the evaluating paleontologist. Treatment may include, but is not limited to, specimen recovery and curation or thorough documentation.

HA1.3 Seek and consider input of descendent community and historical organizations on the protection of archeological resources.

HA1.3.1 Formalize meetings with descendent communities and historical organizations to gather input on the protection of cultural and historic resources.

HA1.4 Manage the discovery of human remains and the protection of archaeological deposits in accordance with local, State, and federal requirements.

HA1.4.1 Update the City's Zoning Ordinance to reflect current local, State and federal requirements for the discovery of human remains.

HA1.4.2 Support training for relevant City staff on protocol for the discovery of human remains.

HA1.5 Require that archaeological work within the city be performed by a qualified archaeologist.

HA1.5.1 Develop and implement an internal review process for the review of archaeological and historical work.

HA1.5.2 Create clear guidelines for the content of archaeological and historic reports.

HA1.6 Provide opportunities for the interpretation of paleontology and prehistoric and historical archaeology in the city.

HA1.6.1 Develop an intra-departmental program for the interpretive display of City paleontological and prehistoric and historical archaeology resources. Cf. HA1.8.6.

HA1.7 Encourage and facilitate the protection and preservation of traditional cultural properties. Cf. HA1.11.1.

HA1.7.1 Determine traditional cultural property significance in accordance with California Register criteria.

HA1.7.2 Consider the designation of traditional cultural properties for protection through an amendment to the Zoning Ordinance. Cf. HA1.11.1.

HA1.8 Protect, encourage, and develop guidelines for restoring and rehabilitating historic or architecturally-significant buildings, sites, and landmarks. Cf. HA1.11, 1.11.1 and CD2.3.2.

- HA1.8.1 Update the City's Historic Building Survey as directed by the Historic Context Statement (2000).
- HA1.8.2 Maintain, expand and create the City's Historic Districts and use of its Historic Preservation Overlay Zoning District. Cf. HA1.9 and LU3.9.4.
- HA1.8.3 Every 10 years, update the Zoning Ordinance to reflect current trends in historic and cultural preservation.
- HA1.8.4 Provide consultation to property owners on the repair, restoration, and rehabilitation of historic structures.
- HA1.8.5 Give local landmark status to structures, sites or landmarks listed on the National Register and State Landmark and Register Program. Cf. HA1.11, 1.11.1 and CD2.3.2.
- HA1.8.6 Develop an intra-departmental program for the interpretive display of city history. Cf. HA1.6.1.
- HA1.8.7 Maintain the City's Certified Local Government (CLG) status.

HA1.9 Require compatible development within historic districts and on sites outside but immediately adjacent to those districts. Cf. HA1.8.2 and LU3.9.4.

- HA1.9.1 Strongly encourage the preservation of the exterior features of historic buildings through clear Zoning Ordinance regulations.
- HA1.9.2 Utilize the Secretary of Interior's Standards and Rehabilitation Guidelines for development within historic districts.
- HA1.9.3 Encourage the restoration, retention, and incorporation of historic features in public right-of-ways and on publicly owned property.

HA1.10 Promote public awareness and appreciation of the city's historic and architectural resources. Cf. HA4.5.4, ED1.7, ED1.7.3.

- HA1.10.1 Develop and distribute public relations material on the city's historic, cultural and architectural resources. Cf. HA4.5.4, ED1.7, ED1.7.3.

HA1.11 Provide incentives for the listing and rehabilitation of architecturally-significant buildings, sites, and landmarks. Cf. HA1.8 and 1.8.5, and CD2.3.2.

- HA1.11.1 Update the Zoning Ordinance to include incentives for the listing and maintenance of historic buildings, sites, landmarks and cultural properties. Cf. HA1.7, 1.7.2, 1.8, and 1.8.5; and CD2.3.2.
- HA1.11.2 Update the Zoning Ordinance to simplify and streamline the review process for an Historic Alteration Permit.
- HA1.11.3 Encourage and assist property owners with the submittal of applications for the National Register of Historic Places, the State Landmark Program, or other regional, State, or federal listings when appropriate.
- HA1.11.4 Actively seek outside funding sources for the preservation of historic buildings, sites, or landmarks.
- HA1.11.5 Work with property owners to develop City code modifications or other methods for the preservation, repair, and maintenance of historic structures within the city.
- HA1.11.6 Consider historic preservation in the development and enforcement of City regulations.

## ARTS AND CULTURE

### GOAL HA2 Excellent facilities for arts and culture

HA2.1 Effectively and efficiently use City facilities for arts and cultural programs. Cf. HA2.2 and 3.3; ED 1.1.4 and 6.9.2; CC8.3.8; PR1.1.4, 2.1, and 2.2.4.

- HA2.1.1 Actively seek funding for improvements to City facilities that can support arts and cultural programs.
- HA2.1.2 Encourage the use of City facilities by arts and cultural programs.

HA2.2 Encourage and promote a mix of public and private facilities that meet the unique needs of artists, cultural organizations,

patrons, and participants. Cf. HA2.1 and 3.3; ED 1.1.4 and 6.9.2; CC8.3.8; PR1.1.4, 2.1, and 2.2.4.

HA2.2.1 Revise the Zoning Ordinance to encourage the development of mixed public and private facilities that will meet the needs of artists and cultural organizations. Cf. CC8.3.8.

HA2.2.2 Encourage and facilitate performances and events in non-traditional settings. Cf. CC8.3.8.

HA2.2.3 Support the development of the Tannery Arts Center and other public/private partnerships that meet a variety of cultural needs.

HA2.2.4 Amend the Zoning Ordinance to encourage and allow the development of arts and cultural facilities in a wide variety of zoning designations.

HA2.2.5 Study the feasibility and funding sources of a downtown performing arts center, including the reuse or expansion of the Civic Auditorium. Cf. CC2.1.2, ED1.4.1, ED1.7.3.

### GOAL HA3 Vibrant arts and cultural programs

HA3.1 Promote the development of city Art and Entertainment Districts.

HA3.1.1 Work with the City's Arts Commission and Planning Commission to develop and adopt city Arts and Entertainment Districts.

HA3.1.2 Amend the Zoning Ordinance to create incentives for art based uses in the city Arts and Entertainment Districts.

HA3.2 Facilitate and support arts programs, events, and exhibitions throughout the community.

HA3.2.1 Maintain reduced rent for the use of City exhibition, performance, and instructional space for nonprofit organizations.

HA3.2.2 Work with local groups to provide and promote awareness of arts programs, events, and exhibitions throughout the community.

HA3.2.3 Incorporate the arts into special events presented by the City.

HA3.2.4 Encourage and support year-round events through supportive City policies, procedures, and fees.

HA3.3 Support educational programs in arts and culture that meet the needs of community and regional residents. Cf. CC8.3.8, HA2.1, 2.2 and HA3.3; ED1.1.4 and 6.9.2; and PR1.1.4, 2.1, and 2.2.4.

HA3.3.1 Provide arts and cultural programs for both city and regional residents.

HA3.3.2 Encourage artist education and performances for children.

HA3.4 Support a citywide Arts Master Plan.

HA3.4.1 Prepare and adopt a citywide Arts Master Plan.

HA3.4.2 Update the Arts Master Plan every 5 years.

### GOAL HA4 Strong identity as an arts and cultural community

HA4.1 Visually reflect the city's culture, history, and identity, the creativity of its residents, in the built environment. Cf. CD3.5.

HA4.1.1 Encourage public art projects that involve the community in design and implementation.

HA4.1.2 Facilitate the placement of works of art for public display.

HA4.2 Integrate art into City projects in accordance with the City's Public Art Plan.

HA4.2.1 Include public art in capital improvement programs when feasible, and contingent on available funding.

HA4.2.2 Maintain and enhance the Public Arts Program.

HA4.3 Encourage private development to enliven publicly accessible spaces and buildings with art.

HA4.3.1 Integrate art into a variety of publicly accessible settings.

HA4.3.2 Explore alternative funding sources to support publicly viewable art in both private and public developments.

HA4.3.3 Amend the Zoning Ordinance to require publicly viewable art in private development that meets a defined threshold.

HA4.4 Encourage the development of artist studios and artist live-work units.

HA4.5 Promote arts throughout the community and the region. Cf. ED1.1.3, ED1.8, PR2.2.3.

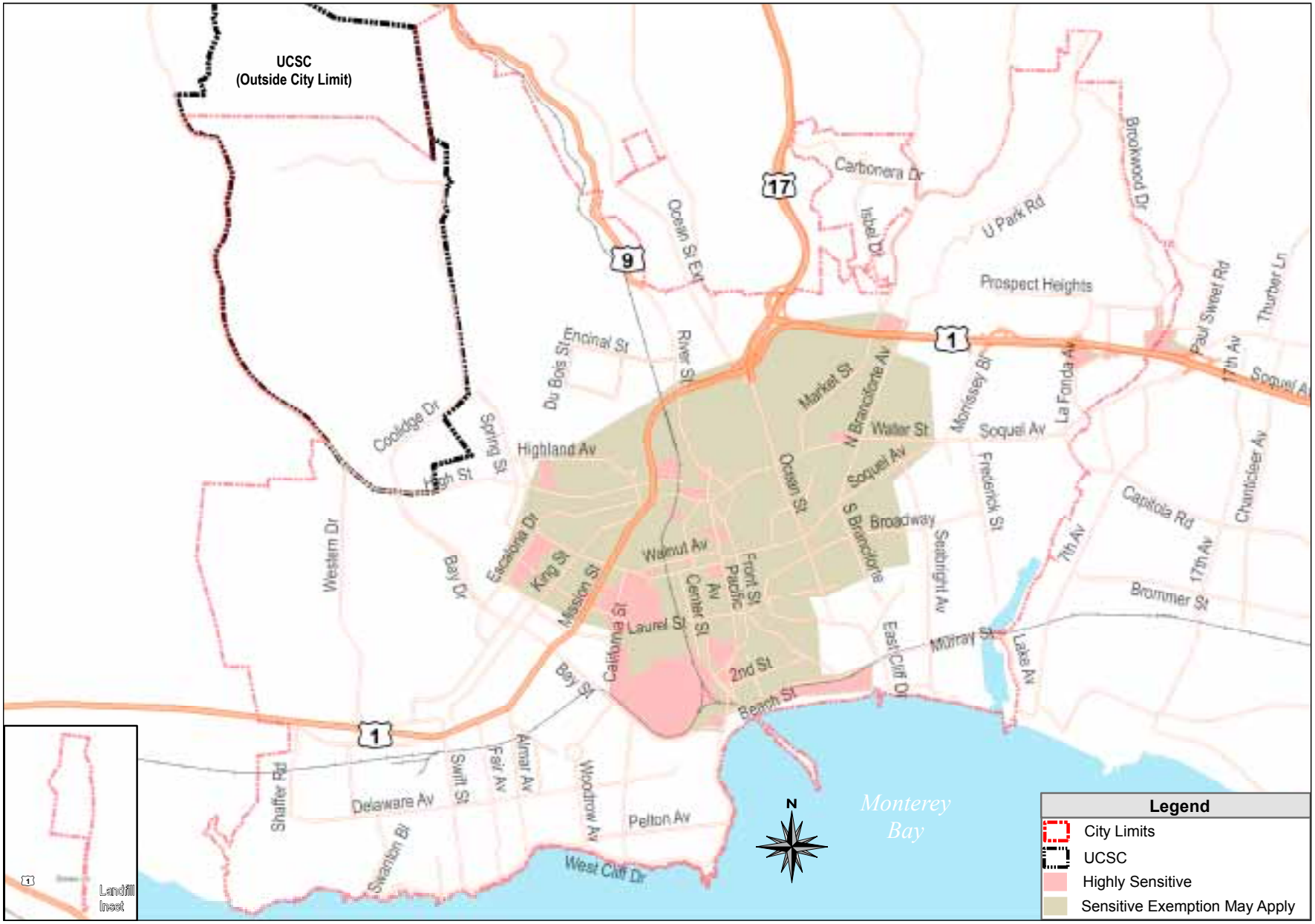
HA4.5.1 Encourage individual and corporate philanthropic support of the Arts and culture.

HA4.5.2 Work with the hospitality industry to promote Santa Cruz as a year-round arts destination. Cf. ED1.1.3, ED1.8, PR2.2.3.

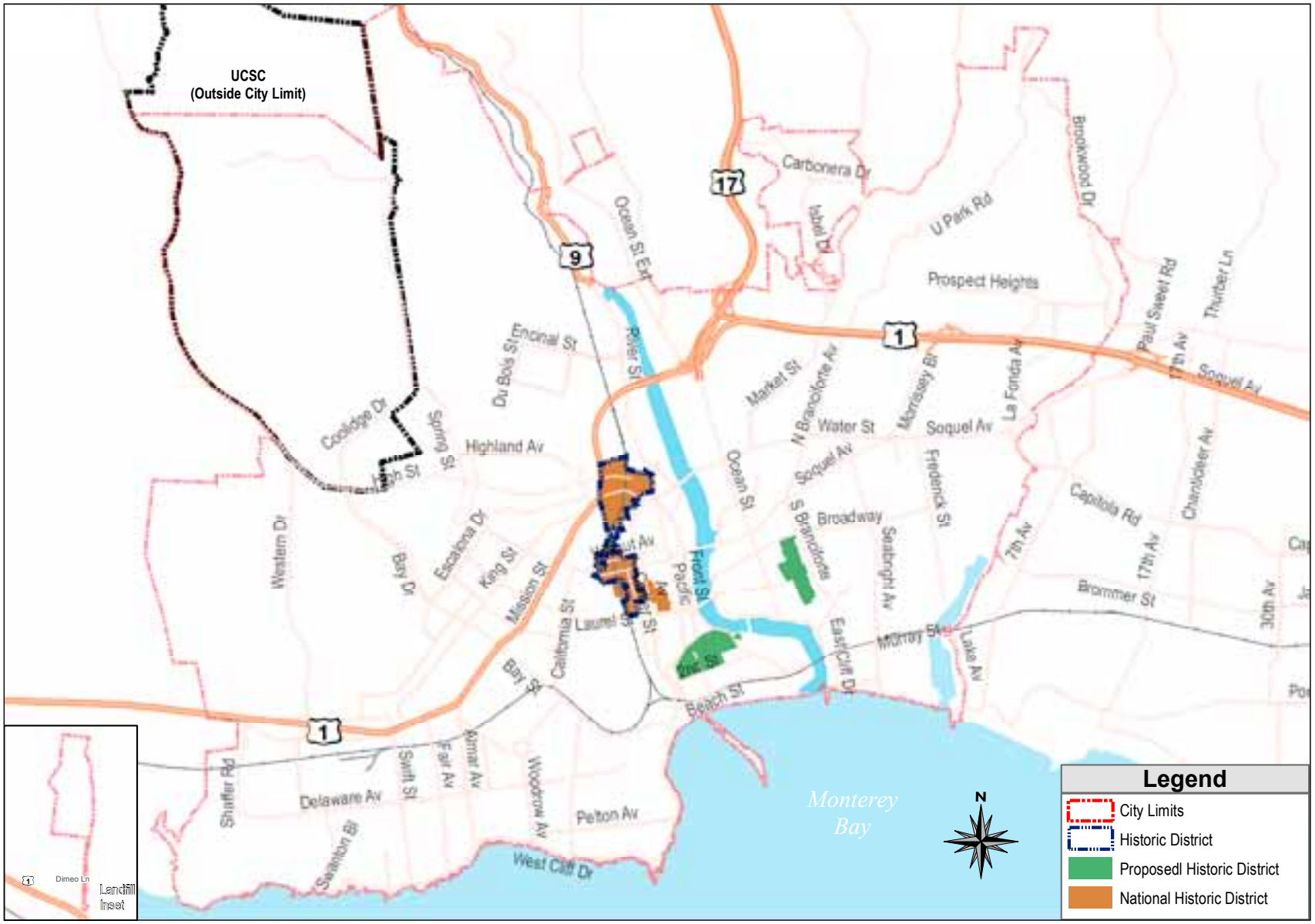
HA4.5.3 Participate in the development of a county-wide arts and culture website and other outreach programs. Cf. CC8.3.8 and PR2.2.4.

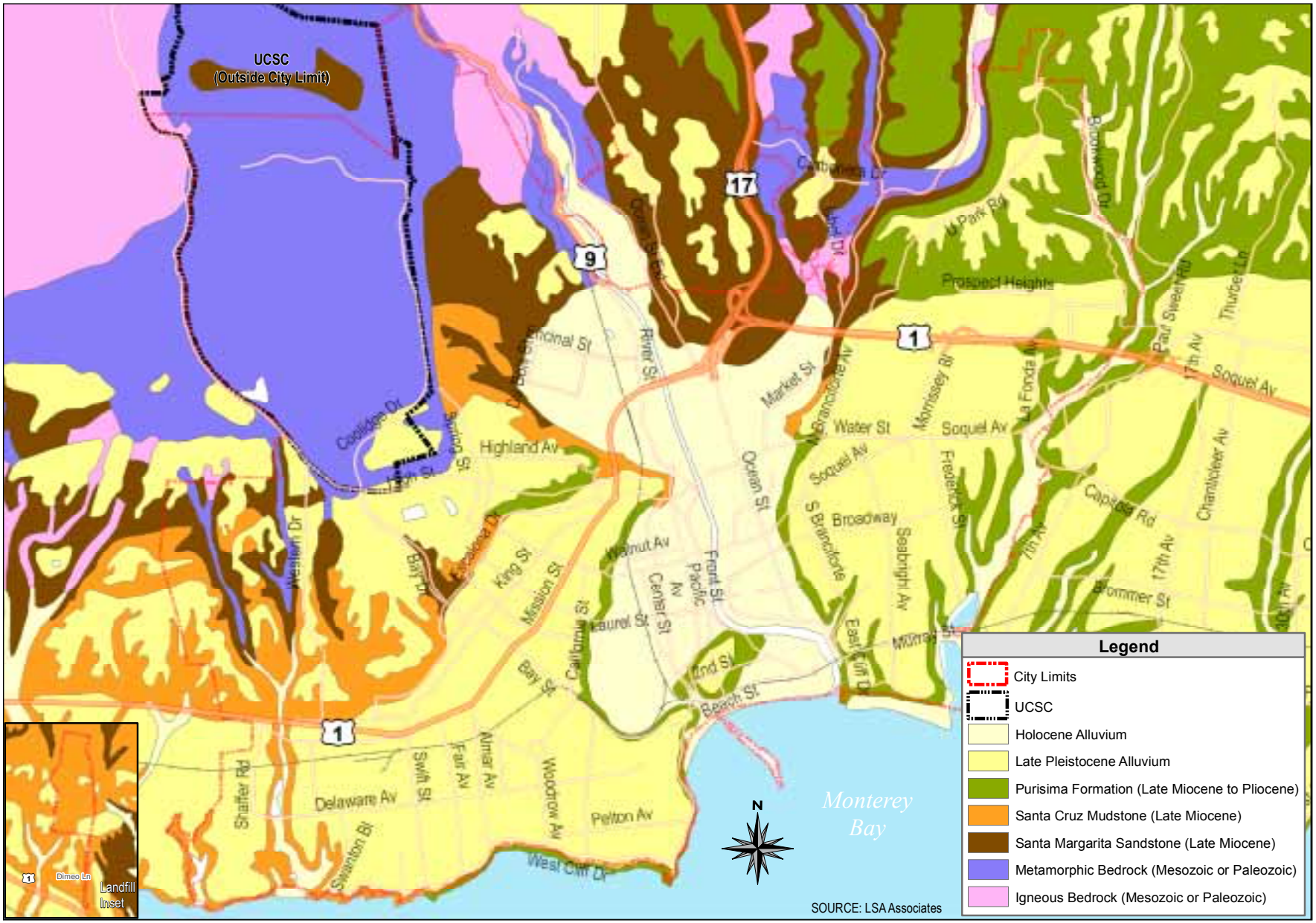
HA4.5.4 Recognize, document, and publicize the economic value of Santa Cruz's art and cultural resources. Cf. HA1.10, 1.10.1, ED1.7, 1.7.3.

# Areas of Historical Archaeological Sensitivity

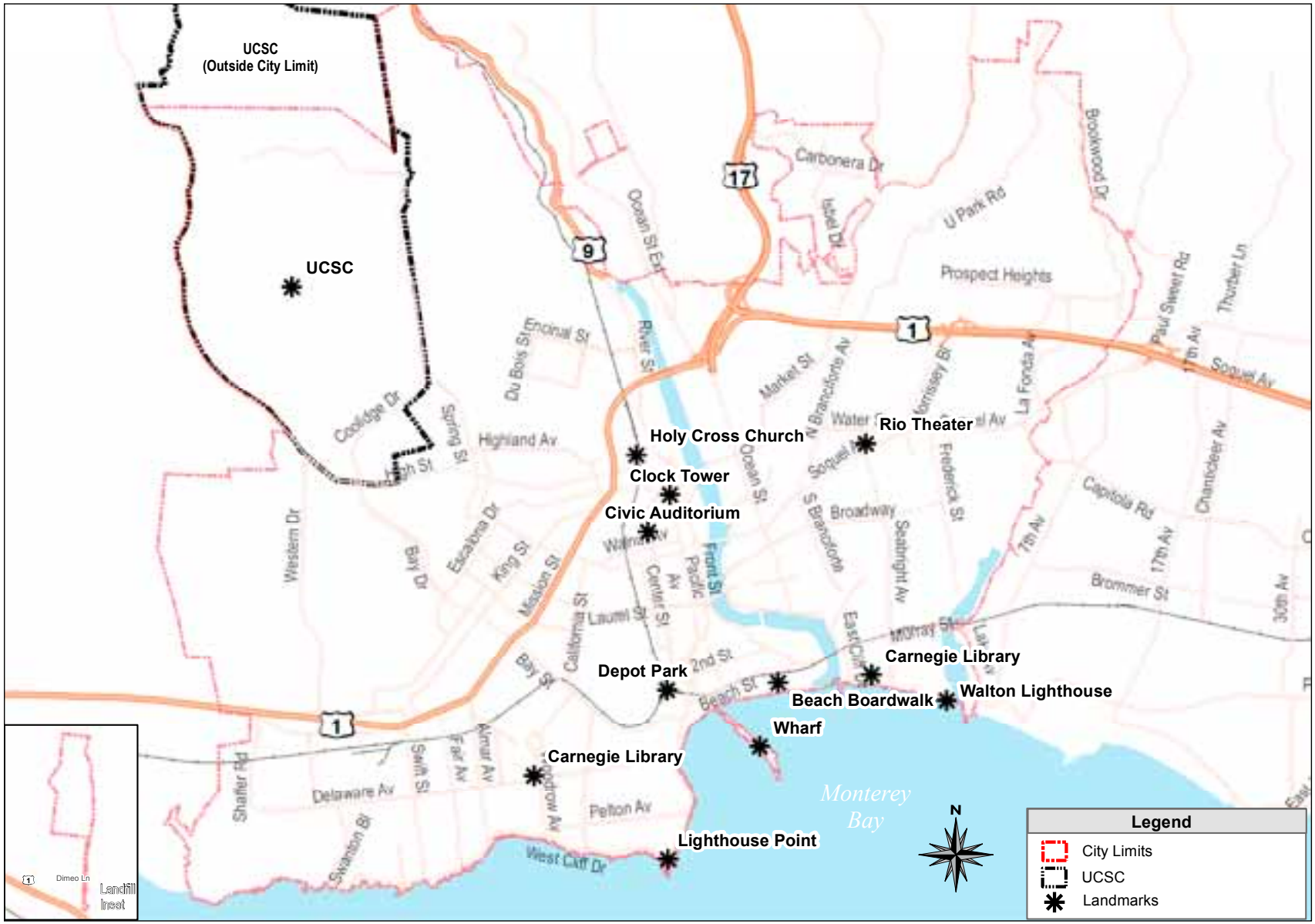


# Existing and Proposed Historic Districts




UCSC
(Outside City Limit)
Legend
City Limits
UCSC
Holocene Alluvium
Late Pleistocene Alluvium
Purisima Formation (Late Miocene to Pliocene)
Santa Cruz Mudstone (Late Miocene)
Santa Margarita Sandstone (Late Miocene)
Metamorphic Bedrock (Mesozoic or Paleozoic)
Igneous Bedrock (Mesozoic or Paleozoic)
Monterey Bay
N
SOURCE: LSA Associates
Landfill Inset
0
0.75
1.5 Miles

# Landmarks


UCSC
(Outside City Limit)
UCSC
Holy Cross Church
Rio Theater
Clock Tower
Civic Auditorium
Depot Park
Carnegie Library
Beach Boardwalk
Walton Lighthouse
Wharf
Carnegie Library
Lighthouse Point
Monterey Bay
N
Legend
City Limits
UCSC
Landmarks
0
0.75
1.5 Miles

CHAPTER 3

# COMMUNITY DESIGN



The *General Plan 2030* Vision and Principles were established to guide development of the City's General Plan. The vision for the city capitalizes on Santa Cruz's unique location, vibrancy, and character—themes central to the Community Design element:

> *Surrounded by greenbelt and the Pacific Ocean, Santa Cruz is a compact, vibrant city that preserves the diversity and quality of its natural and built environments, creates a satisfying quality of life for its diverse population and workers, and attracts visitors from around the world.*

The following principle relates directly to community design—retaining the identity of the city's neighborhoods, providing housing for the populace, and emphasizing high quality design.

- **Neighborhood integrity and housing**. We will maintain the identity and vitality of our neighborhoods, actively pursuing affordable housing for a diversity of households and promoting compatible livability and high quality design in new buildings, major additions, and redevelopment.

This chapter is divided into three sections.

- **Community Design Setting** reviews the various features and history of the city's development.
- **City Character** describes the city's architectural and design characteristics and how development was regulated as of 2008.
- **Goals, Policies, and Actions** provide guidance for the City in making land use and implementation decisions.

## Community design setting

Santa Cruz has grown dramatically since its incorporation in 1866. From its early origins as a Spanish settlement, Santa Cruz's character was shaped by its role as a port city and seaside resort. After the University of California at Santa Cruz (UCSC) campus opened in 1964, the city continued to grow, and new neighborhoods were built at the foot of campus.

Through all of these changes, the city retained a distinctive look and feel, with a mix of small-scale residential neighborhoods; widely-visited beaches; a river, many creeks, and riparian corridors; a more intensely-developed downtown with high-quality, distinctive buildings; and automobile-oriented commercial corridors, many of which provide connections to the highway. All of these combine to create Santa Cruz's overall community character—the sense of place and well-being that characterizes the city.

## Natural setting

The natural setting played a major role in establishing the character of the community as Santa Cruz developed. The city hugs four miles of coastline on Monterey Bay, which defines the city's entire southern boundary.

Views toward Monterey Bay and the Pacific Ocean provide orientation and a strong sense of identity. In some places, the city's coastline slopes gently toward large beaches; in others, tall coastal cliffs drop off sharply, and stairways lead from the top of the cliff down to the rocky shoreline and beaches below. The city's beaches and its coastal bicycle, pedestrian, and automobile routes are extremely popular destinations for residents and visitors alike.

Santa Cruz has maintained clearly-defined urban boundaries as it has grown. At the city's northern edge, the coastal terraces below the Santa Cruz Mountains are home to the UCSC campus and much of the open space that comprises the city's Greenbelt, including Pogonip and DeLaveaga parks. These coastal terraces provide a backdrop of protected open space and afford panoramic views of the city and Monterey Bay. Additional open space surrounds the creeks and ravines that run along the city's western edge, cutting through the rugged topography on their way to the coast. The city's eastern edge is defined by the Santa Cruz Harbor and the protected open space of Arana Gulch.

The San Lorenzo River—an important defining feature—flows through the center of Santa Cruz and serves as the dividing line between the Eastside and Westside areas. To control floods, high levees were built along the river in the 1950s, isolating it from adjacent areas. At the same time, pedestrian and bicycle paths along the levees provide views of the river and the riparian vegetation that lines the channel. Bridges over the river offer similar views for drivers. Historically, most buildings near the San Lorenzo River have faced away from it, rather than toward it. At a community design workshop held in 2006, participants' highest-ranked goal was to create a "Riverwalk" district in Santa Cruz, with shops and restaurants along the river.

Varied topography shapes the city's character and creates many public views throughout the community, including views of Monterey Bay and the city as a whole. Arroyos and steep coastal cliffs provide the greatest variation in the city's topography. Other features include pronounced hills—most notably the coastal terraces of the UCSC campus, Pogonip, the Carbonera area, and DeLaveaga Park; smaller hills—such as Beach Hill and Mission Hill—that act as community landmarks; and shallow slopes toward Monterey Bay. Ridgelines along Escalona Drive and Grandview Street mark significant changes of elevation.

Open space areas, including those that make up the city's Greenbelt, are significant contributors to Santa Cruz's natural setting. Pogonip, DeLaveaga Park, Arana Gulch, Neary Lagoon, Younger Lagoon, Antonelli Pond, Arroyo Seco Canyon, the Moore Creek Preserve, and the Jessie Street Marsh are all important natural features that provide scenic amenities and contribute to the identity of surrounding residential neighborhoods. Public views to and from these open spaces help to orient people within the community, and trails in some of the areas provide limited recreational access.

Over the timeframe of this General Plan, the City expects to take advantage of opportunities to enhance its connections to Santa Cruz's natural features, and in so doing, enhance its community character.

## City character

Although there were still areas of Santa Cruz in 2006 where empty parcels were available for future development, the city was, by then, largely built out. The City will look for opportunities to shape future development in those areas—and redevelopment elsewhere—to provide for expected needs

while respecting and enhancing the city's unique identity and existing community character.

## COMMUNITY VALUES

Santa Cruz values the character of its finely-scaled residential neighborhoods. Residents also value diversity. The varied character allows residents and visitors to hike in a natural open space, then travel a few minutes to—and meet a friend in—the bustling downtown. When asked, "What are the physical attributes of Santa Cruz that brought you here, or keep you here?" participants at a community design workshop held in 2006 said they like the city's "small-town character" and "unique neighborhoods," but also enjoy having a "real downtown" and "access to a bit of everything."

As growth and change inevitably occur, Santa Cruz must consider which aspects of its community character to retain and which to enhance. During the general plan update process, most community members indicated they enjoy the existing character of most of the city's residential neighborhoods, yet they support enhancements such as streetscape improvements, new public gathering places, and limited amounts of neighborhood-serving businesses. Residents were more supportive of change along Santa Cruz's commercial corridors, many of which have vacant and underutilized parcels and buildings that lack historic character and are nearing the end of their useful lives. Participants in the general plan update process expressed strong support for more-intensive "infill development" and higher-density housing along these corridors.

Although a 20-year general plan cannot anticipate every change that may affect the city's character, this Plan attempts to resolve the challenges and embrace the opportunities presented by change. Considerable discussion during the preparation of *General Plan 2030* focused on the decisions that will shape Santa Cruz's character over the timeframe of the Plan. This section of the Plan analyzes the city's community character and ways to ensure that new development will enhance that character.

## NEIGHBORHOODS

The distinctive character of Santa Cruz's built environment was created from a mix of small-scale residential neighborhoods, commercial corridors with varied architectural styles and development patterns, and a more intensively-developed downtown with high-quality, distinctive buildings. Much of this character has evolved organically over time, without detailed design guidance from the City. In some cases, the results of this evolution left Santa Cruz with highly valued components of the built environment, such as the city's many historic buildings. In other cases, the unregulated building environment left unsightly features, such as the overhead utility lines widely used during the 20th century.

In addition to a general plan, Santa Cruz adopted Area Plans and design guidelines that make major contributions to the city's overall character in several distinct parts of the city. The most notable of these plans is the Downtown Recovery Plan, adopted after the 1989 Loma Prieta earthquake caused enormous damage to the city's historic downtown. The plan's design requirements helped create an attractive, vibrant downtown—almost entirely rebuilt by 2007. Area Plans for other parts of the city have also helped to ensure the high quality of new development.

In parts of Santa Cruz not covered by an Area Plan, developers must still obtain a "design permit" to ensure that most new development includes high-quality design and site planning. However, unlike many cities of its size, Santa Cruz did not establish comprehensive citywide design guidelines. One result is that the community's vision for its residential neighborhoods has not been clearly defined. By creating comprehensive guidelines, the City can ensure that new buildings will add to the city's overall character, accompanied by high-quality enhancements to the public realm.

## A SENSE OF PLACE

A community's sense of place is defined in large part by its roadways and points of entry. The community's road network should include streetscape improvements (such as street trees) that make each street as welcoming and attractive as possible. In addition, the city's gateways should include landscaping, signage, banners, street furniture, and other improvements that convey a strong sense of arrival.

In general, Santa Cruz's gateways to the city lack design enhancements that would make the entries more recognizable and important. A few entrances to Santa Cruz include special gateway signs that welcome visitors as they leave the highway. Other gateways are marked by distinc-

tive structures or pronounced changes in character. For example, the Clock Tower acts as a gateway to Downtown on Pacific Avenue.

While many of the city's roadways are aesthetically pleasing, others are primarily automobile-oriented and suffer from visual clutter, sparse landscaping, and exposed parking areas. These issues are especially common on the city's commercial corridors. Many of the city's streets could be enhanced by distinctive landscaping treatments, in conjunction with improved building design and site planning along the roadways. Some of the city's neighborhoods, such as Beach Flats, have signs that help people understand their location and find their way in the city.

The local landscaping helps give the city its unique sense of place. A wide variety of plants can adapt to the city's Mediterranean climate, and the many microclimates and soil types allow for further diversity. As in many communities, the year-round availability of irrigation water has encouraged people to plant lawns and other landscaping that requires large amounts of water during dry months. The use of native and drought-resistant plants for new landscaping can help reduce water use, ensuring that precious city water supplies are available for more essential uses.

### WALKABILITY

Many things, including building design, contribute to the walkability of Santa Cruz's built environment. A number of the city's residential and commercial buildings, especially the historic ones, offer varied articulation and fine-grained architectural features that help them relate to the pedestrian. Some commercial buildings also include features that encourage foot traffic, such as large storefront windows and street-facing entrances. However, buildings along the city's corridors are often located behind large parking lots, discouraging pedestrians from walking from one business to another.

The nature and arrangement of land uses also contribute to a city's walkability. Many of the city's commercial corridors provide space for businesses that serve the surrounding neighborhoods, including grocery stores, laundromats, restaurants, and cafes. The city's parks and plazas enhance walkability by providing opportunities for pedestrian enjoyment and passive recreational uses such as strolling, shopping, talking, and relaxing.

Most important, the city's network of streets and pedestrian paths defines where people can walk. The most beloved streets, including Pacific Avenue and West Cliff Drive, are also the most pedestrian-friendly. They offer wide sidewalks, public art, and other features that create visual interest and enjoyment. West Cliff Drive, for example, enjoys stunning panoramic views of Monterey Bay, and Pacific Avenue offers a vibrant retail center, large street trees, limited vehicle traffic, and high-quality architecture. Streets in some of the city's residential neighborhoods, however, lack sidewalks and other basic amenities, discouraging people from walking. Other streets are hampered by fast-moving traffic that creates safety hazards for pedestrians.

Improved walkability was frequently discussed during the general plan update process. Many community members spoke of the need for more street trees and landscaping on neighborhood streets, as well as new pocket parks, community gardens, and attractive commercial areas that would create more destinations for pedestrians. They also wanted to improve connections to the coast with better directional signs and an enhanced "coast walk." Others suggested using traffic calming measures to slow down traffic, discourage neighborhood through-traffic, and improve pedestrian safety.

## Goals, policies, and actions

### GOAL CD1 A built environment in harmony with its natural setting

CD1.1 Preserve natural features that visually define areas within the city.

- CD1.1.1 Update and maintain Zoning Ordinance standards that minimize the impact of grading and development on important natural features such as coastal terraces and bluffs. Cf. NRC6.1.
- CD1.1.2 Protect the Monterey Bay National Marine Sanctuary and the shoreline and views to and along the ocean, recognizing their value as natural and recreational resources. Cf. LU3.11.1, ED6.1.2, NRC6.2.
- CD1.1.3 Protect and enhance unique natural areas citywide through the development and maintenance of management plans.

CD1.1.4 Identify and emphasize distinguishing natural features that strengthen Santa Cruz's visual image (i.e., open space, Monterey Bay).

CD1.2 Ensure that the scale, bulk, and setbacks of new development preserve important public scenic views and vistas.

CD1.2.1 Develop complimentary siting, scale, landscaping, and other design guidelines to protect important public views and ensure that development is compatible with the character of the area.

CD1.2.2 Develop minimum standards and guidelines for residential, commercial, and industrial development that reflect the character and needs of the districts.

CD1.3 Ensure that development is designed to be in harmony with natural topography and vegetation.

CD1.3.1 Encourage UCSC development to blend with the natural landscape and maintain natural ridgelines as seen from the city.

CD1.3.2 Update the Zoning Ordinance to address new construction techniques and "best management practices" related to construction on slopes.

CD1.3.3 Review the slope development provisions of the Zoning Ordinance and update them as deemed necessary.

CD1.4 Ensure that development adjacent to open space lands maintains visual and physical connections to that open space. Cf. LU3.11, PR3.3.

CD1.4.1 Use planned development and other clustering techniques to protect resources and views and allow for siting that is sensitive to adjacent uses.

CD1.4.2 Consider visual access to nearby natural areas as part of developmental review.

CD1.4.3 Require or maintain an appropriate buffer to commercial agricultural fields, where appropriate.

CD1.4.4 Work with local and state fire agencies to maintain and update urban wildland interface zones that preserve the character of the natural environment while providing wildland fire safety.

CD1.5 Ensure that new development adjacent to the San Lorenzo River relates to the river in its design.

CD1.5.1 Enhance the prominence of the San Lorenzo River as a natural feature that provides structure, orientation, and recreational enjoyment by including it in surrounding area and management plans.

CD1.5.2 Provide incentives for new development adjacent to the San Lorenzo River that includes patios overlooking the river, enhanced connections to the levee trails, and other design features that connect the built environment to the river.

### GOAL CD2 Diverse neighborhoods and business districts with well-defined character

CD2.1 Protect and enhance the distinctive physical and design characteristics of neighborhoods and districts throughout the city.

CD2.1.1 Update City Area Plans as necessary in order to reflect new development, improvements, and potential opportunities.

CD2.1.2 Establish citywide design principles for areas not covered by an area or specific plan.

CD2.1.3 Develop design guidelines as needed to address the visual transition between areas of higher density and/or intensified development (i.e., along corridors such as Water and Soquel Streets) and adjacent existing developed neighborhoods with less intense development.

CD2.1.4 As part of the Zoning Ordinance amendment to establish mixed use districts, establish development standards to ensure that siting, massing, height, and scale of infill and intensified development are sensitive to existing neighborhood and business districts.

CD2.1.5 Develop an Ocean Street Area Plan. Cf. CD 4.4 and 4.4.1.

CD2.1.6 Update the Seabright Area Plan to address historic development patterns and future infill and intensification impacts, including visitor parking. Cf. LU3.9.1 ED1.8.13, ED1.8.14, and ED5.3.2.

CD2.1.7 Update the Downtown Recovery Plan to reflect Santa Cruz's successful recovery from the 1989 Loma Prieta earthquake, and to respond to current opportunities and challenges.

CD2.1.8 Develop plans for the Harvey West and Westside Industrial districts that define the appropriate character for new development, including its relationship to neighborhoods surrounding those areas.

CD2.1.9 Ensure that new commercial development and lodging contributes positively to the overall aesthetic character of Ocean Street and communicates the unique qualities and character of the city.

CD2.2 Work with local groups when planning significant public improvements for their neighborhoods and districts.

CD2.2.1 Develop a protocol for involving local neighborhood groups in planning significant neighborhood improvements. Cf. CC1.1.1

CD2.2.2 Engage the public in long range planning projects including Area Plans and General Plan updates.

CD2.3 Preserve and create defining edges, transitions, and landmarks that characterize individual neighborhoods.

CD2.3.1 Develop a citywide signage plan that identifies and defines neighborhoods and relates to Area Plan requirements, where appropriate.

CD2.3.2 Update the City's landmark maps and the related Zoning Ordinances to further the identification and preservation of landmarks. Cf. HA1.8, 1.8.5, 1.11, and 1.11.1.

CD2.4 Improve neighborhood quality and housing through rehabilitation and code enforcement.

CD2.4.1 Update and implement the sign ordinance to address nonconforming and illegal signs.

CD2.4.2 Refine the zoning regulations regarding property maintenance as a means of improving neighborhood quality.

CD2.4.3 Seek grants and other funding for additional City code enforcement.

CD2.4.4 Educate the public on available home rehabilitation programs.

### GOAL CD3 High-quality design that reinforces the community's unique character

CD3.1 Develop and maintain physical and visual linkages between key areas in the city.

CD3.1.1 Strengthen the linkage between Downtown, the Beach Area, and San Lorenzo River through amendments to corresponding Area Plans and the Zoning Ordinance.

CD3.1.2 Maintain, update, and implement the City's San Lorenzo Urban River Plan.

CD3.1.3 Create a new link between Ocean Street and the Downtown through an Ocean Street Area Plan and corresponding Zoning Ordinance amendments.

CD3.1.4 Revise the Zoning Ordinance to require that the design of public and private development promote connectivity between neighborhoods and districts.

CD3.2 Ensure that the scale, bulk, and setbacks of new development preserve public views of city landmarks where possible.

CD3.2.1 Update the City Landmark Map, as necessary, to include new and restored landmarks.

CD3.2.2 Revise the Zoning Ordinance to include design guidelines for the protection of existing landmarks and for the development of new landmarks.

CD3.3 Encourage assembly of small parcels along transit corridors to achieve pedestrian-oriented development compatible with neighborhood characteristics.

CD3.3.1 Develop incentives to encourage the assembly of small parcels through Area Plan amendments and Zoning Ordinance changes.

CD3.3.2 Revise the Zoning Ordinance to limit development possibilities for small parcels.

CD3.4 Encourage new development to incorporate "universal design" principles.

CD3.4.1 Assist the public with the design of accessible homes.

CD3.4.2 Ensure that development is designed and constructed to allow for easy accessibility conversion.

CD3.5 Require superior quality design for buildings at visually significant locations throughout the city, such as gateways to Santa Cruz and intersections of major corridors. Cf. HA4.1.

CD3.5.1 Require superior quality design for existing or proposed landmark buildings.

CD3.6 Develop a street lighting plan. Cf. M1.6.1, M3.2.10, HZ5.1, NRC7.1.2.

## GOAL CD4 Attractive gateways, roadways, and landscaping

CD4.1 Make the city's major gateways defining, attractive, and welcoming.

CD4.1.1 Develop a citywide Gateway Plan that identifies and defines neighborhoods and relates to Area Plan requirements.

CD4.1.2 Develop a citywide Directional Sign Program that specifically addresses the downtown, the beach, and Ocean Street.

CD4.1.3 Identify and establish design concepts that make visitor-serving corridors attractive and interesting through landscaping, banners, flags, art, and displays.

CD4.1.4 Protect and enhance historic street patterns, rail lines, walls, and pedestrian walkways to emphasize historic routes and help define districts and neighborhoods.

CD4.1.5 Maintain the visual prominence of important city landmarks and destinations as viewed from major circulation routes and public viewpoints when possible.

CD4.1.6 Encourage rehabilitation and adaptive reuse of architecturally significant buildings rather than demolition.

CD4.2 Ensure that new development and right-of-way improvements enhance the visual quality of streetscapes. Cf. LU1.1.3, M1.3, M1.4.1, M4.1.5, CD4.3.1.

CD4.2.1 Where possible, site buildings at the street frontage and place parking areas away from street corners and to the rear of buildings. Cf. M1.3, LU1.1.3.

CD4.2.2 Review landscaping requirements for parking lots. Cf. M1.6, ED5.4.1.

CD4.2.3 Underground utilities when major road improvement or reconstruction is proposed, if possible.

CD4.2.4 Develop guidelines that ensure sound walls, retaining walls, or fences are visually interesting and well landscaped.

CD4.3 Ensure attractive, functional, and appropriate landscaping throughout the city.

CD4.3.1 Update the Zoning Ordinance to provide functional and appropriate landscape options (for a variety of developments) that reflect a commitment to conservation and aesthetics and provide amenities that will encourage pedestrians. Cf. LU1.1.3, CD4.2, CD 5.2, M1.3, M4.1.5.

CD4.3.2 Maintain high quality landscaping on City-owned lands, parking lots, and parks.

CD4.3.3 Protect existing significant vegetation and landscaping that provides scenic value along with wildlife habitat and forage. Cf. CC3.3.6, and NRC2.1, 2.2, 2.4, and 6.3.

CD4.3.4 Maintain an ordinance requiring replacement and maintenance when heritage tree removal is necessary for new development.

CD4.3.5 Develop a Street Tree Master Plan and landscaping theme for city streets and entrances.

CD4.3.6 Implement streetscape and other landscaping plans in the City's Area and Specific Plans.

CD4.3.7 Compose a list of recommended landscaping species that are appropriate, drought tolerant, and have forage value for wildlife.

CD4.3.8 Maintain a list of noxious and invasive species and educate the public about their disadvantages.

CD4.4 Improve the building design and streetscape along the Ocean Street corridor to emphasize its role as a gateway. Cf. CD2.1.5.

CD4.4.1 Prepare an Ocean Street Area Plan that identifies design standards and guidelines for new development, as well as proposed streetscape enhancements. Cf. CD2.15.

## Goal CD5 Walkable neighborhoods and districts of compatible uses and buildings

CD5.1 Create a well connected street and pedestrian network. Cf. M4.1, M4.2, CC8.4, PR4.1.2.

CD5.1.1 Implement the Master Transportation Study's recommendations for improving the city's pedestrian network.

CD5.2 Require new development to include elements that relate to the pedestrian scale. Cf. CD4.3.1, M1.3.

CD5.2.1 Encourage buildings to be oriented towards sidewalks, public plazas, walkways, or rivers and to include features such as public benches and natural seating areas.

CD5.2.2 Encourage the incorporation of public benches and natural seating areas along public walkways and in public plazas and parks. Cf. LU1.1.3, M1.6, M1.6.3, and ED5.4.

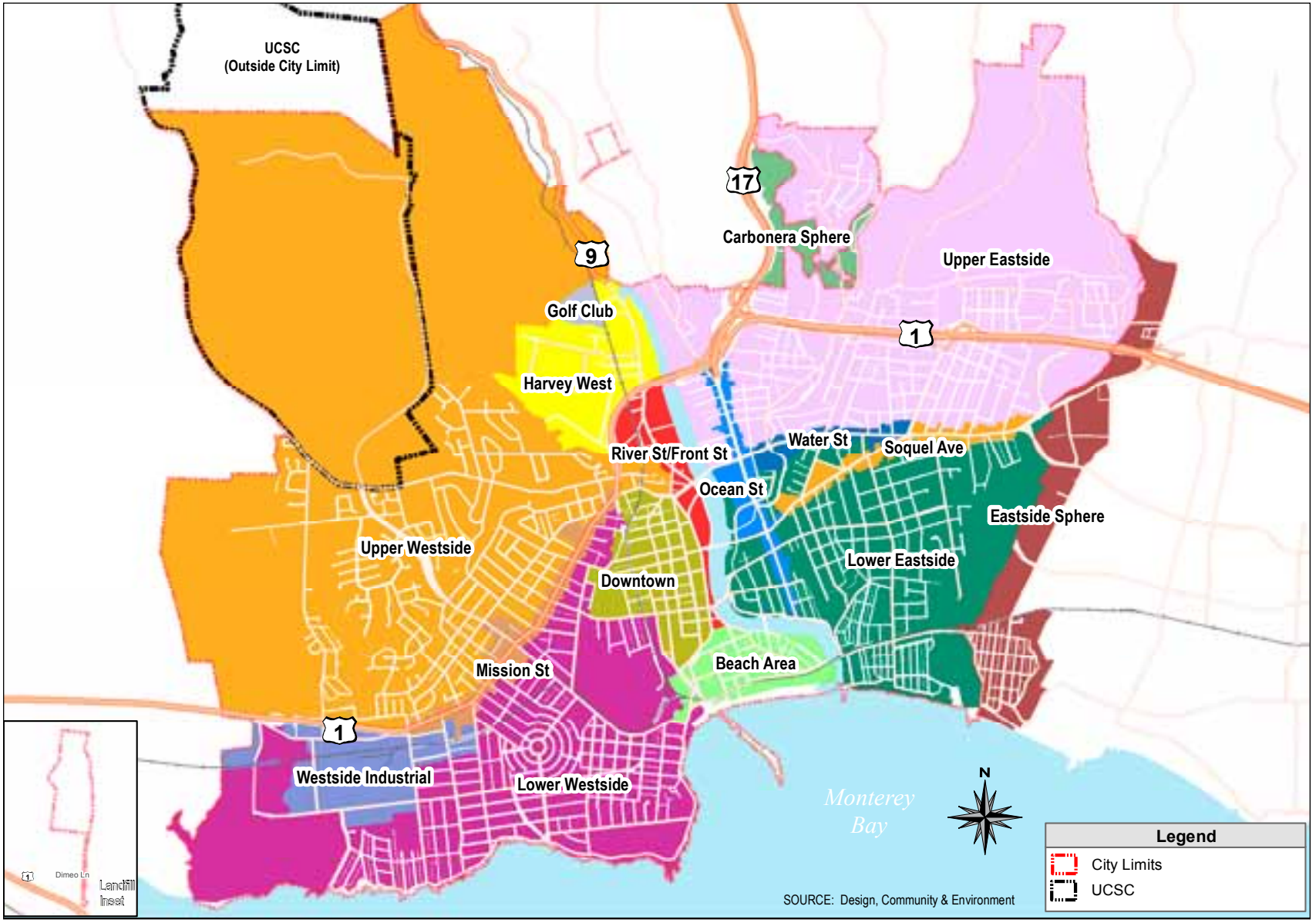
CD5.2.3 Design parking strategies at a district or neighborhood-wide level to foster a pedestrian-oriented environment. Cf. LU1.1.3, M1.5, M1.5.3, and ED5.4.

CD5.2.4 Ensure that new and revised design guidelines encourage the use of pedestrian-scaled fenestration, awnings, entrances, landscaping, and other amenities.

CD5.3 Encourage increased access to existing community facilities, such as schools, to serve as neighborhood parks and open space. Cf. LU4.3, CC2.1.

CD5.3.1 Work with Santa Cruz City Schools to identify school facilities that could accommodate greater public access. Cf. CC8.2.1.

# Neighborhoods



CHAPTER 4

# LAND USE

The purpose of the Land Use chapter is to shape the location and nature of future physical development and redevelopment in Santa Cruz in ways that preserve, protect, and enhance the community's quality of life.

This chapter is divided into five sections:

- **Land use background** highlights legal requirements and existing conditions and problems, and outlines the issues that led to the categorization and distribution of land uses.
- **Land use element requirements** briefly lists the requirements of California Government Code Section 65302(a) and Public Resources Code Section 2762(a) for general plans.
- **Existing land uses** describes the land use patterns existing in Santa Cruz in 2006.
- **General Plan land use designations** defines the characteristics and intensity of each land use category and maps the location of each land use category proposed for Santa Cruz in 2030.
- **Goals, Policies and Actions** provides City bodies with guidance in making land use decisions and implementing the actions recommended in this chapter.

## Land use background

Vision and Principles were adopted to guide the development of the City's General Plan. The following principle relates directly to how land uses will be modified and arranged to meet and balance the community's needs.

> **A balanced community**. *We will maintain the community's longstanding commitment to shared social and environmental responsibility, fostering a balance between employment, housing affordable to persons of all income levels, transportation, and natural resources.*

In following that principle, this Plan strives to ensure that all aspects of the city's development will balance the need for creating housing and jobs, and protecting the environment, while considering mobility, community facilities, and resources. Grouped in five themes below are the issues examined in drafting the Land Use Goals and Policies recommended for *General Plan 2030*.

### SUSTAINABILITY

Environmental quality, land uses, and development are inexorably linked. By providing for the city's continued economic growth and high quality of life without compromising the needs of future generations, sustainable land uses respond to environmental values widely held in the community.

At the heart of this Plan is sustainable development. In its broadest sense, it promotes harmony among people and between humanity and nature. Also, because development cannot subsist on a deteriorating

environmental or economic base, sustainable development maintains or enhances economic opportunity and community well-being, while protecting and restoring the natural environment upon which people and economies depend.

Even with an increased focus on sustainable development, Santa Cruz will not become entirely self-sustaining during the life of this General Plan. Like all cities, it will continue to depend on food, raw materials, and manufactured products from around the world. However, by limiting the effect of new local development on natural resources, this Plan contributes to protecting the natural environment while ensuring that Santa Cruz residents and the city's economy will continue to thrive.

### COMPLETE NEIGHBORHOODS

Cities need to accommodate a variety of land uses if they are to provide for all of their community's needs. For example, Santa Cruz requires a variety of housing types, including single-room occupancy (SRO) units and small ownership units (SOUs) for students and single adults, as well as homes, apartments, and co-housing projects that accommodate larger households. These "places to live" must be arranged in some fashion in relation to other parts of the community. Residents need access to parks, open space, and other places where they can relax and socialize. They also need stores nearby so that they don't have to drive across town to do laundry or buy a few groceries. Many residents also desire community gardens so they can become more self-sustaining by growing some of their own food. These desires and basic needs are relevant to the city's remaining undeveloped lands as well as its existing residential neighborhoods, most of which lack at least some of these amenities.

### EMPLOYMENT OPPORTUNITIES

The city needs a variety of opportunities to employ its residents' skills and educational backgrounds. *General Plan 2030* seeks to encourage a jobs/housing balance, so that Santa Cruz residents can live in housing that is affordable for the wages they earn and is near their workplaces. As of 2007, there were 38,604 jobs in Santa Cruz and 28,869 employed residents—a ratio of 1.27 local jobs per employed resident. (The standardized jobs/housing ratio divides the number of jobs in an area by the number of employed residents. A ratio of 1.0 indicates a balance. A ratio above 1.0 indicates a net in-commute; below 1.0 indicates a net out-commute.) Thus, even if all of the city's employed residents had worked in Santa Cruz in 2007, it would still have been necessary for local businesses to hire workers from outside Santa Cruz in order to fill the 27 percent of available jobs over the 1.0 ratio.

In spite of the 27 percent surplus of jobs in 2007, more than half of all jobs in the city were held by people living outside of and commuting into Santa Cruz. This may be in part because people living elsewhere find employment in Santa Cruz but can't or don't want to move. Indeed, many people who worked in Santa Cruz in 2007 could not afford the city's high cost of housing. As of 2004, almost a third of the jobs in Santa Cruz were in the Retail, Lodging and Entertainment sector, where the median income was $20,241. A household with two employed workers in the retail sector would not have earned enough to purchase any market-rate housing in Santa Cruz and could not have afforded to rent the vast majority of apartments in the city.

Almost half of the city's employed residents worked outside of Santa Cruz in 2007. People choose where to live based on many factors, not just the commute. Some Santa Cruz residents who work in highly specialized fields drive to higher-salaried jobs outside the city. Nevertheless, to promote sustainability, the community desires to lower Santa Cruz's jobs/housing ratio in an effort to reduce vehicle trips.

### LAND USE AND MOBILITY

Decisions about where and at what densities people will live, work, shop, and play have immediate implications for the city's circulation system. Traditional planning and zoning in Santa Cruz (and many other cities) separated land uses to reduce the impacts of undesirable uses on residential areas. But the wide separation of uses made it necessary to drive long distances to get from one land use to another. As a result, and because of region-wide traffic increases, per capita increases in car use, and the additional traffic generated by population growth and increased UCSC enrollment, the city's transportation network has been under increasing stress for decades.

Many parts of the city lack the residential and employment densities needed to support a higher-quality public transportation system that could get solo drivers out of their cars. Another challenge to an effective

transportation system is that jobs are dispersed throughout the region. That increases the number of locations that a transit system must serve.

The Mobility chapter of this Plan acknowledges that circulation planning must focus on improving the efficiency of the existing circulation system and reducing automobile dependence. In support, this chapter de-emphasizes the traditional separation of land uses in favor of mixed-use and higher density development. Future growth and change will be focused in the Downtown and along corridors where transit, bicycling, and walking can be strengthened as primary modes of travel.

In addition, areas along the Santa Cruz Branch Rail Line, which runs roughly parallel to Highway 1 between Watsonville and Davenport, will be examined as potential locations for housing and job centers. The Santa Cruz County Regional Transportation Commission has acquired this right-of-way to create a commuter rail line that connects Santa Cruz with other nearby cities.

### OPEN SPACE AND NATURAL RESOURCES

Open space lands include any area that has been left essentially unimproved for purposes of preserving natural resources, public health and safety, managed production of resources, or providing a recreational and aesthetic amenity. Open space uses within and surrounding the city include agriculture/grazing lands, natural areas, coastal recreation areas, and park lands. They define the community's sense of place, protect environmental quality, and provide wildlife habitat and recreational opportunities.

Monterey Bay endows the area with a vast open space to the south, giving the city its mild climate and identity as a coastal town. The open spaces that comprise the Santa Cruz Greenbelt also contribute strongly to the city's identity and are highly valued by community members. They include DeLaveaga Park, Henry Cowell State Park, Pogonip, UCSC, and sparsely-populated hilly terrain that provides an open space buffer to the north. Along the eastern edge of the city, less-expansive open spaces, including the Santa Cruz Harbor and Arana Gulch, combine with varying topography to create a perceptible edge. On the west, the Moore Creek Corridor, Younger Lagoon, and Wilder Ranch State Park make the transition to lands in agricultural and grazing use.

## Land use element requirements

As required by California Government Code Section 65302(a), and Public Resources Code Section 2762(a), the Land Use chapter of the General Plan addresses:

- Distribution, location, and extent of the uses of land for housing, business, industry, open space, natural resources, recreation and enjoyment of scenic beauty, education, public buildings and grounds, and other categories of public and private uses of land.
- Standards of population density and building intensity for the land use designations.

The Land Use chapter must also address solid and liquid waste disposal facilities. The City owns and operates a Class III sanitary landfill approximately three miles west of the city limits near Highway 1. In addition, the City owns and operates a regional wastewater treatment facility at Bay and California Streets. This chapter includes policies to ensure that adequate capacity is available in these facilities before new development occurs.

This chapter sets forth goals, policies, and actions to guide the intensity and distribution of land uses in Santa Cruz. The General Plan Land Use Map (a part of this chapter) graphically represents the City's vision for the future development of the city and it's Sphere of Influence (SOI). The Land Use chapter also includes goals, policies, and actions for the Planning Area, which encompasses the city, the Sphere of Influence, and "areas of interest" outside the city limits under the jurisdictional control of Santa Cruz County. Through the General Plan and the Land Use Map, the City indicates its land use preferences for areas outside the city limits.

## Existing land uses

Santa Cruz's land use patterns are the result of the community's historic development patterns (including the city's original development as a manufacturing and shipping center), the establishment of the UCSC campus in 1964, and the more recent land use policies established by the City. Table LU-1 shows how much of Santa Cruz's land was occupied by various uses in 2006.

Existing land uses within the city limits have been categorized as described below. These categories differ from the General Plan land use

designations that are described later in this chapter, as they reflect land uses in 2007 as opposed to desired future uses.

- **Single-Family Residential.** Parcels that contain a single residence, along with associated yards or common areas and related structures such as garages and sheds.
- **Two- to Four-Unit Residential.** Parcels that contain two, three, or four dwelling units, including duplexes, single-family homes with an accessory dwelling unit (ADU), and large houses that have been divided into apartments.
- **Multifamily Residential.** Parcels containing more than four dwelling units in the form of apartments, condominiums, townhouses, cohousing or other group housing arrangements. This category does not include mobile home parks or mixed-use buildings where a commercial use may be combined with a multifamily residential use.
- **Mobile Home Park.** Parcels where mobile homes are installed on a long-term basis.
- **Commercial/Mixed Use.** Parcels used for buying or selling goods and services (for example, food markets, restaurants, banks, and car dealerships). Included in this category is mixed-use development where various uses, such as office, commercial, institutional, and residential, are combined in a single building or on a single site in an integrated development project with significant functional interrelationships and a coherent physical design (for example, a building with retail uses on the ground floor and offices or residential units on the upper floors).
- **Office.** Parcels where business is conducted, but where retail uses do not occur.
- **Industrial.** Parcels that include manufacturing uses, warehousing, and similar uses.
- **Public/Institutional.** Parcels that include government-owned facilities, such as public schools, post offices, fire and police stations, and civic institutions such as libraries, community centers, and houses of worship. Properties owned by the University of California are included in this category.
- **Park.** Parcels where neighborhood, community, and regional parks are located.
- **Open Space.** Parcels reserved for the preservation and enjoyment of open space.
- **Parking.** Parcels reserved solely for vehicle parking, including multistory parking garages and surface parking lots shared by multiple businesses.
- **Vacant.** Parcels that are completely undeveloped, excluding parking lots.

**Table LU-1** Existing Land Uses in Santa Cruz City Limits, 2006

| Land Use | Acres | Percentage of Total Acres |
|---|---|---|
| Total Residential | 2,617 | 38.3% |
| Single-Family Residential | 2,068 | 30.3% |
| Two- to Four-Unit Residential | 198 | 2.9% |
| Multifamily Residential | 311 | 4.6% |
| Mobile Home Park | 40 | 0.6% |
| Commercial | 252 | 3.7% |
| Office | 61 | 0.9% |
| Industrial | 197 | 2.9% |
| Public/Institutional | 1,756 | 25.7% |
| Parks | 654 | 9.6% |
| Open Space | 1,068 | 15.6% |
| Parking | 52 | 0.8% |
| Vacant | 169 | 2.5% |
| **Total** | **6,826** | **100%** |

Source: County Assessor; City of Santa Cruz GIS, 2006; field reconnaissance and observations and examination of aerial photographs, May 2006 to October 2006. Acreages and percentages do not include public or private roads.

## General Plan land use designations

The General Plan Land Use Map depicts the proposed organization of land uses and the intended future use of each parcel of land within the Santa Cruz Planning Area. Table LU-2 shows the proposed total acreage for each land use category.

**Table LU-2** Total Acreage for General Plan Land Use Categories Santa Cruz City Limits

| Land Use | Acres |
|---|---|
| Agriculture/Grazing | 6 |
| Coastal Dependent | 79 |
| Community Facilities | 471 |
| Community Commercial | 179 |
| Coastal Recreation | 108 |
| High Density Residential | 8 |
| Industrial | 377 |
| Low Density Residential | 2,427 |
| Low Medium Density Residential | 598 |
| Medium Density Residential | 227 |
| Mixed Use High Density | 41 |
| Mixed Use Medium Density | 51 |
| Mixed Use Visitor Commercial | 38 |
| Natural Areas | 1,531 |
| Neighborhood Commercial | 10 |
| Office | 56 |
| Parks | 394 |
| Regional Visitor Commercial | 206 |
| UCSC | 1,180 |
| Very Low Density Residential | 186 |

*The total acreage includes the land area of streets and roads.*

Allowed uses and the standards of density and intensity are specified below for each land use designation. All densities and intensities are based on gross acres.

The allowable development density for residential land use is defined as the minimum and maximum number of permanent dwelling units per acre over the entire project or development site. A mix of residential densities may be used to achieve that average. The actual development density that can be accommodated on any one individual site will depend on many factors, including but not limited to architectural design, parking requirements, landscaping, street layout, and neighborhood compatibility.

For nonresidential uses, including commercial, office, and industrial uses, development intensity is expressed as an average Floor Area Ratio (FAR). FAR is a measure of the total building floor area in proportion to the size of the building's lot. Specifically, FAR is the gross floor area permitted on a site divided by the total net area of the site, expressed in decimals.

## RESIDENTIAL DENSITIES

Residential density is the number of permanent residential dwelling units per gross acre of land. Santa Cruz's residential land use designations come in a variety of densities, so that a range of housing types and opportunities can be provided in the city.

Each residential designation establishes a maximum and a minimum development density. A site's density must be at or above the minimum unless constraints associated with the natural environment require a lower density. A site's density must not exceed the maximum requirement, except as otherwise permitted or encouraged by policies and actions in this Plan.

Residential units within a single development project may be clustered on a site in order to respond to the site's topography and environmental factors, provided that the site's overall density does not exceed the maximum density. (In clustered development, a number of dwelling units are placed in closer proximity than usual, or are attached, to protect resources and views and allow for siting that is sensitive to adjacent uses.)

Residential uses are encouraged as part of mixed-use developments in commercial districts. The residential density for these projects is controlled by the maximum FAR for the commercial district plus the development standards in the Zoning Ordinance and Building Code.

## RESIDENTIAL DESIGNATIONS

**Very-Low-Density Residential (VL), 0.1 to 1 du/ac.** Intended to provide a rural transition area between undeveloped land and single-family residential neighborhoods. Also applied to areas with significant environmental constraints. Large-lot, single-family homes are typically developed under this designation.

**Low-Density Residential (L), 1.1 to 10 du/ac.** Provides for single-family residential neighborhoods typically comprising detached homes. Santa Cruz's low-density residential areas include a wide variety of architectural styles.

**Low-Medium-Density Residential (LM), 10.1 to 20 du/ac.** Provides for moderately higher densities in areas with a mix of single-family and multifamily residential uses. Accommodates a variety of residential building types that can fit within a single-family neighborhood, including low-rise apartments, condominiums, and townhomes. Also includes areas with historic boardinghouses that have been converted to multifamily residential use.

**Medium-Density Residential (M), 20.1 to 30 du/ac.** Accommodates a mix of single-family and multifamily residential uses, including low-rise apartments, condominiums and townhomes. This land use category has been designated for some single-family neighborhoods with a historic pattern of small lots. It is the intent of the Plan that, in areas designated M where detached single-family homes are prevalent, new development should reflect the scale and character of the then-existing homes.

**High-Density Residential (H), 30.1 to 55 du/ac.** Accommodates mid-rise multifamily buildings, typically apartments, in areas where increased densities and building heights are appropriate. Used in locations where the City's goal is to provide for intensive infill housing.

## COMMERCIAL DESIGNATIONS

Santa Cruz's commercial designations accommodate a variety of retail and office uses, including neighborhood-serving uses as well as businesses

that serve the entire region. All commercial designations allow mixed-use developments that provide permanent residential dwelling units.

**Neighborhood Commercial (NC), 0.25 to 1.5 FAR.** Intended for small-scale commercial uses that serve residential neighborhoods, such as laundromats, grocery stores, and convenience stores. These uses can provide a focal point for the neighborhood and help reduce the number of automobile trips that nearby residents must take.

**Community Commercial (CM), 0.25 to 1.75 FAR.** Accommodates businesses that serve the general needs of the community, including retail, service, and office establishments. Typical uses in these areas include restaurants, grocery stores, furniture stores, general merchandise, medical and legal offices, and auto parts stores, as well as mixed-use projects that include these commercial uses on the ground floor.

**Regional Visitor Commercial (RVC), 0.25 to 3.5 FAR.** Applies to areas that emphasize a variety of commercial uses that serve Santa Cruz residents as well as visitors. Mixed-use development is strongly encouraged in RVC districts. Areas designated RVC include:

- **Downtown Santa Cruz.** Emphasizes a mix of regional office and retail uses, residential and mixed-use developments, restaurants, and visitor attractions such as entertainment venues. The Downtown Recovery Plan provides detailed requirements for this area.
- **South of Laurel.** Emphasizes mixed-use and residential development along with visitor-serving and neighborhood commercial uses to connect the Beach Area with Downtown Santa Cruz. The Beach and South of Laurel Comprehensive Area Plan provides detailed requirements for this area.
- **Beach Area.** Emphasizes visitor-serving commercial uses such as hotels, motels, restaurants, and amusement parks, as well as residential and mixed-use development in the Beach Area neighborhoods. The Beach and South of Laurel Comprehensive Area Plan provides detailed requirements for this area.

For most areas designated RVC, the minimum and maximum development intensity is specified in the Downtown Recovery Plan or the Beach and South of Laurel Comprehensive Area Plan. In areas that are designated RVC but are not addressed in an Area Plan, the minimum FAR is 0.25 and the maximum is 1.75.

**Office (OF), 0.25 to 1.75 FAR.** Provides for small-scale office uses and mixed-use projects. Typical uses include dental offices, limited-hour medical clinics, and insurance agents.

### MIXED-USE DESIGNATIONS

Santa Cruz has a limited amount of vacant land available for new development needed to accommodate economic growth and new businesses so that residents can find jobs in the community. Santa Cruz also needs to provide new housing to accommodate its expanding population, as required by the Housing Element of this General Plan. The city's population will continue to grow as UCSC grows and as more people are attracted to the city by the quality of life.

To provide for these needs, the General Plan Land Use Map designates Multi-use Focal Centers along Santa Cruz's major transit corridors where mixed-use development is generally required. These mixed-use designations support the General Plan's goals and policies by encouraging new housing in places well served by transit. Each mixed-use designation specifies the infill areas along Santa Cruz's transit corridors where the designation may be applied. Because these transit corridors also supply much of the city's commercial land, the mixed-use designations afford additional opportunities for the city's residents to live near their workplace.

Any site that is within one of these infill areas, and which also has a Community Commercial (CM) designation, may apply for a General Plan amendment to obtain a mixed-use designation. The City may choose to grant the mixed-use designation if it would support the General Plan's goals, policies, and actions.

**Mixed-Use Medium Density (MXMD), 0.75 to 1.75 FAR, 10 to 30 du/ac.** This designation may be applied to sites along the Ocean Street corridor and the Mission Street corridor between Swift Street and Laurel Street. It accommodates mixed-use development at a scale that is similar to existing buildings along the corridor. The typical commercial uses are similar to those in the Community Commercial (CM) designation, and pedestrian-oriented commercial uses are encouraged on the ground floor.

**Mixed-Use High Density (MXHD), 1.0 to 2.75 FAR, 10 to 55 du/ac.** This designation may be applied to sites along Water Street, and Soquel Avenue corridors. The typical commercial uses are similar to those in the Community Commercial (CM) designation, and pedestrian-oriented commercial uses are encouraged on the ground floor.

The MXHD designation allows a maximum FAR of 1.75 as of right, including a maximum of 30 dwelling units per acre. However, a project that meets a number of specific criteria, as determined by the Planning Commission, may have an FAR of up to 2.75, including up to 55 dwelling units per acre. Details are contained in the Zoning Ordinance.

**Mixed-Use Visitor Commercial (MXVC), 1.0 to 2.75 FAR, 0 to 55 du/ac.** This designation may be applied to sites along the Ocean Street corridor, as well as sites within 1,000 feet of Ocean Street's centerline and which front on Water Street, Soquel Avenue, May Avenue, or Broadway. The designation is intended to encourage high-quality visitor-serving commercial development along Ocean Street, particularly hotels and motels. However, it also accommodates other multi-story commercial development, such as office buildings.

The MXVC designation allows a maximum FAR of 2.75. It does not allow any dwelling units as of right. However, a project that meets a number of specific criteria, as determined by the Planning Commission, may include up to 55 dwelling units per acre within this FAR. Details are contained in the Zoning Ordinance.

### INDUSTRIAL DESIGNATIONS

**Industrial (IND), 0.25 to 2.0 FAR.** Designates lands reserved for the city's most employment-intensive uses, including industrial. Typical industrial uses include food and beverage manufacturing, warehousing, metalworking, and woodworking. These businesses may include accessory retail uses (to sell products that are manufactured onsite, for example).

This designation also allows for other employment-intensive uses, such as office parks or incubator spaces for new businesses that are likely to provide high-quality jobs to the community. Although residential uses are discouraged in lands designated IND, this designation nevertheless allows for limited development of live-work units that accommodate home-based businesses.

**Coastal Dependent (CD), 0 to 0.1 FAR.** Identifies lands along or near the coastline that are used by industries that require direct proximity to the ocean, such as small craft harbors, fisheries, boating, and aquaculture. Harbor uses are limited to areas within the jurisdiction of the Santa Cruz Port District.

### PUBLIC AND INSTITUTIONAL DESIGNATIONS

**Community Facilities (CF), 0 to 2.5 FAR.** Designates existing and potential community facilities, including schools, government offices, community buildings such as the Civic Auditorium, sewer and water facilities, and the City landfill. Also applies to land used by State highways.

**UCSC Development (UC).** Applies to land that is owned by the University of California, including the UCSC campus and the University's off-campus research facilities and residential developments. The City does not have jurisdiction over new development in these areas. Instead, new development is governed by UCSC's Long Range Development Plan (LRDP) and any specific facility plans, such as the Marine Science Campus Coastal LRDP.

### PARK AND OPEN SPACE DESIGNATIONS

**Coastal Recreation (CR), 0 to 0.1 FAR.** Includes beaches and other lands along the coastline that are used for outdoor recreation, such as swimming, boating, fishing, surfing, and picnicking. Also includes limited development of structures and vehicle parking to support these recreational uses.

**Parks (PR), 0 to 0.1 FAR.** Includes neighborhood, community, and regional parks that are owned by the City, County, or State, and which are used by residents and visitors for passive or active recreation. Also allows limited development of structures to support these recreational uses.

**Natural Areas (NA), 0 to 0.1 FAR.** Includes land that should remain in an undeveloped state in order to protect vegetation or wildlife habitat, ensure public safety, or provide for public recreation. Areas designated NA may include public recreational and educational uses. The suitability of these uses is determined by the Planning Commission on a case-by-case basis, and any such uses must be consistent with the Natural Resources and Conservation chapter of this General Plan.

**Agriculture/Grazing (AG), 0.5 du/ac.** Applies to grazing land on the western edge of the city. The AG designation is applied only to areas that are used predominantly for large-scale agriculture or grazing. It is not applied to community gardens or other small-scale agricultural uses.

## Goals, policies, and actions

### GOAL LU1 Sustainable land uses

LU1.1 Relate residential, commercial, and industrial land use intensities to the capability and location of the land while ensuring optimum utilization of infill parcels.

LU1.1.1 Review the Zoning Ordinance for opportunities to allow for creative development such as lowering the minimum net lot area required for a Planned Development Permit.

LU 1.1.2 Create incentives for the consolidation of underdeveloped parcels relative to development potential.

LU1.1.3 Develop design strategies for combined parking facilities in strategic locations throughout the city. Cf. CD4.2, CD4.2.1, CD4.3.1, M4.1.5.

LU1.1.4 Obtain Local Coastal Plan certification for the 11-acre Swenson parcel pursuant to the following:

- Require a specific plan for the property (with a land use designated as Low Medium Density Residential/Neighborhood Commercial/Office).
- The environmental review process shall guide the location and intensity of all uses. The height, scale, and bulk of development shall take into consideration the rural transition at the city's edge.
- Neighborhood Commercial and Office land uses shall be at least 10 percent but no more than 20 percent of the total net developable area.
- The extent of open space buffers/setbacks to wetland areas on and adjoining the site will ultimately be determined by the California Coastal Commission. Based upon the Coastal Commission's buffer/setback determination, neighborhood park land shall be considered on the site.
- The specific plan shall prioritize away from the pond, any required uncovered off-street parking for residential uses. Except for parking for the disabled, off street uncovered parking and driveways near Antonelli Pond and residential uses is discouraged.
- The circulation system of the specific plan shall provide access from Shaffer Road.
- Public access to Antonelli Pond shall be preserved.

LU 1.1.5 Any future land divisions within the Golf Club Drive shall be limited to three lots and a remainder per existing parcel. These limited land divisions may be approved prior to adoption of an Area Plan. Proposed parcels shall be clustered and the area of the parcels shall be in the higher range (R-1-7) of the Low Density Residential designation (1.1-10 DU/acre) with a remainder that may be larger than the minimum parcel area allowed by the Low Density Residential designation. Any land division application processed prior to adoption of an Area Plan shall not impede or detract from the future development potential of the remainder property.

- Prior to allowing any subdivision for the creation of lots less than 7,000 square feet in area, an Area

Plan for the 20-acre Golf Club Drive Area shall be approved by the City. All new construction proposed prior to the adoption of the Area Plan shall be subject to a design permit.

- The Area Plan shall provide housing within developable areas of the site at 10.1-20 DU/acre. Upon adoption of the Area Plan the Golf Club Drive Area shall be designated Low Medium Density Residential on the General Plan Land Use Map.
- The Area Plan shall preserve up to five acres of open space. Urban wildlife interface zones, community gardens and riparian corridor areas could be included in the open space requirement.
- Pedestrian and bicycle access to Pogonip and nearby employment areas are to be incorporated into the plan.
- The evaluation of a future rail transit stop is to be included in the Area Plan analysis.

LU1.2 Ensure that growth and development does not lead to the overdraft of any water source, the creation of unacceptable levels of air pollution, or the loss of prime agricultural land. Cf. HZ2.2.2 and 2.2.3, LU2.3, LU2.3.5, NRC3.4.

LU1.2.1 Environmental review for specific projects shall be accompanied by sufficient technical data and reviewed by appropriate departments.

LU1.2.2 Work with the County to ensure that lands within the City's Planning Area are developed with appropriate uses.

LU1.3 Ensure that facilities and services required by a development are available, proportionate, and appropriate to development densities and use intensities. Cf. LU3.7.1, LU3.8.

LU1.3.1 Conduct a study to determine if City facilities and services are lacking to allow for appropriate development citywide.

LU1.3.2 Report annually on the state of City facilities and services.

LU1.3.3 Consider assessment districts for appropriate facilities and for services when necessary.

LU1.4 Ensure that new development pays its proportional share of the costs of expanded infrastructure needed to serve new development. Cf. M3.1.5, ED2.3.1.

LU1.4.1 Review the City's impact fee requirements periodically, and revise them as necessary to reflect current costs.

### GOAL LU2 A compact community with boundaries defined by the city's greenbelt and Monterey Bay

LU2.1 Maintain the city's urban development line at Moore Creek Preserve (east branch above Highway 1) and along the city limits below Highway 1.

LU2.2 Do not expand the city's Sphere of Influence or annex lands, except as specified in actions in this Plan.

LU2.2.1 Consider consolidating the city limits in the Carbonera Area.

LU2.2.2 Pursuant to the UCSC/City Comprehensive Settlement Agreement amend the City's Sphere of Influence to add approximately 374 acres of the north campus area.

LU2.2.3 Annex the 5.5 acre Humphrey Property (APN 056-121-07) south of and adjacent to the City's Landfill and Resource Recovery Center located on Dimeo Lane.

LU2.3 Preserve open space and agricultural land uses at the edge of the city. Cf. LU1.2, NRC3.4.

- LU2.3.1 Protect, maintain, and enhance publicly accessible coastal and open space areas.
- LU2.3.2 Work with the County to maintain in open space the lands between Moore Creek Preserve (west branch), the city's western boundary above and below Highway 1, Younger Lagoon, and Wilder Ranch State Park.
- LU2.3.3 Develop and maintain a master or similar plan for the long-term preservation and maintenance of each of the city's greenbelt lands.
- LU2.3.4 Encourage the continued preservation of portions of the UCSC campus in open space uses pursuant to the UCSC Long Range Development Plan.
- LU2.3.5 Support County policies and programs aimed at preserving agricultural and grazing uses within the Planning Area and on the North Coast. Cf. LU1.2, NRC3.4.
- LU2.3.6 Prohibit land divisions that could degrade natural features.

## GOAL LU3 A complementary balance of diverse land uses

### LAND USE PATTERNS

LU3.1 Foster land use patterns that balance economic, housing, community, and environmental needs, and promote social diversity.

- LU3.1.1 Encourage through incentives and expedited permit processing a variety of housing types, when appropriate.
- LU3.1.2 Work with representatives from regional, State, and federal agencies to include Santa Cruz in any incentives programs that link housing to transportation and jobs.
- LU3.1.3 Work with the County and other agencies to develop strategies for improving the region's jobs/housing balance and matching employment opportunities with housing costs.

### JOB CREATION

LU3.2 Maintain lands currently designated for industrial and office in land use designations that promote job creation and retention. Cf. ED6.6.

- LU3.2.1 Pursue the expansion of employment-intensive uses that have long-term economic viability. Cf. ED1.1.1, 6, 6.4 and 6.6.2, and NRC7.2.
- LU3.2.2 Develop land use and economic plans for the Westside Industrial and Harvey West areas.
- LU3.2.3 Encourage light industrial uses and creative industry to locate in the Harvey West Area.
- LU3.2.4 Allow incubator uses in employment-intensive areas such as the Westside Industrial Area. Cf. ED6.5.2
- LU3.2.5 In considering new types of uses for the Westside Industrial Area, give priority to those that deliver long-term job creation and retention.
- LU3.2.6 Amend the Zoning Ordinance to increase the number of stories allowed in the Westside Industrial Area within the existing height limitations.
- LU3.2.7 Amend the Zoning Ordinance to provide for employment generation in the city's industrial areas, and to restrict uses that are incompatible with industrial uses. Cf. ED6.6, HZ3.2.
- LU3.2.8 Direct large regional retail uses to, and locate remote parking in, a portion of Harvey West. Cf. M2.4.3.

### COMMERCIAL USES

LU3.3 Develop, maintain, and encourage economically viable neighborhood-serving commercial districts. Cf. LU4.2.4 and ED5.2.

- LU3.3.1 Amend the Zoning Ordinance to discourage strip commercial development in favor of clustered commercial and mixed-use development along transit corridors. Cf. LU4.1.1 and ED5.3 and 5.3.1.
- LU3.3.2 Revise the Zoning Ordinance to include mixed use zoning and to define appropriate uses.
- LU3.3.3 Limit the number, density, and placement of fast food outlets.

LU3.4 In neighborhoods near visitor areas, give priority to uses that serve both visitors and residents.

LU3.4.1 Revise the Zoning Ordinance to allow for appropriate neighborhood uses in strategic locations.

LU3.5 Encourage a mix of uses, including public facilities, along Lower Pacific Avenue, linking Downtown with the Wharf.

LU3.5.1 Amend the Downtown Recovery Plan and the Beach and South of Laurel Plan to encourage and allow additional public and commercial uses along Lower Pacific Avenue and Front Street. Cf. LU3.6.1 and ED5.5.7.

LU3.5.2 Further develop Depot Park as a multi-modal center.

LU3.53 Foster improved recreational and economic opportunities at the Municipal Wharf.

LU 3.6 Create a mixed-use River District.

LU3.6.1 Amend the Downtown Recovery Plan to expand the area of the High Density Overlay (HD-O) to include Front Street south of Highway 1 and portions of Lower Pacific Avenue. Cf. LU3.5.1, ED5.5.7.

### RESIDENTIAL USES

LU3.7 Encourage higher-intensity residential uses and maximum densities in accordance with the General Plan Land Use designations. Cf. LU4.1.

LU3.7.1 Allow and encourage development that meets the high end of the General Plan Land Use designation density unless constraints associated with site characteristics and zoning development standards require a lower density. Cf. LU1.3.

LU3.8 Allow the following residential uses to exceed the maximum densities in this chapter: Cf. LU1.3 and 3.7.1.

- Single-room occupancy (SRO) units;
- Small ownership units (SOU);
- Accessory dwelling units (ADU);
- Density bonus units; and
- Residential uses within areas designated High-Density Overlay District (HD-O).

LU3.9 Protect and improve existing residential areas.

LU3.9.1 Update the Seabright Area Plan through a community process that will consider design, density, intensity, and parking needs for the area. Cf. CD2.1.6, ED1.8.13, and ED1.8.14.

LU3.9.2 Apply the Neighborhood Conservation Overlay District when necessary to preserve and maintain the area's housing stock.

LU3.9.3 Develop a citywide rental inspection program.

LU3.9.4 Maintain and expand City Historic Districts. Cf. HA1.8.2 and 1.9.

### COMMUNITY NEEDS

LU3.10 Upon the selection of a desalination plant site, initiate the General Plan amendments needed for a new community facility for sites that such uses are not allowed under existing zoning districts that are consistent with the General Plan land use designation.

### OPEN SPACE

LU3.11 Protect open spaces that provide scenic, recreational, educational, and environmental benefits. Cf. CD1.4, PR3.3.

LU3.11.1 Continue to recognize and protect the Pacific Ocean, Monterey Bay, and the Monterey Bay National Marine Sanctuary as natural resources and valuable open space. Cf. CD1.1.2, ED6.1.2, NRC6.2.

LU3.11.2 Ensure appropriate land uses and development standards that do not adversely impact adjacent open spaces.

LU3.11.3 Maintain and protect existing open space through management plans.

## GOAL LU4 Land use patterns that facilitate alternative transportation and/or minimize transportation demand (Cf. ED1.9.2, M1, M2.2, M2.3.2, M3.1.9)

LU4.1 Encourage a transition to higher densities along the city's transit and commercial corridors. Cf. LU3.7.

LU4.1.1 Support compact mixed-use development Downtown, along primary transportation corridors, and in employment centers. Cf. LU3.3.1, M1, ED5.3, ED5.3.1.

LU4.1.2 Amend the Zoning Ordinance to ensure that infill and intensified development is sensitive to existing neighborhood and business districts.

LU4.1.3 On major corridors, encourage mixed-use development, especially projects with priority for commercial uses that can provide services to the adjacent community.

LU4.1.4 Revise the Zoning Ordinance to allow live-work units.

LU4.2 Encourage land use changes that reduce the need for autos. Cf. LU4.4, M1.1, M1.5.1, M3.1.1, M3.1.2, ED4.3.5.

LU4.2.1 Amend the Zoning Ordinance to allow for increased development in the areas designated on the Land Use Map as Mixed Use High Density (MXHD), Mixed Use Medium Density (MXMD), and Mixed Use Visitor Commercial (MXVC).

LU4.2.2 Establish criteria for and amend the Zoning Ordinance to allow infill parcels near or adjacent to the areas designated on the Land Use Map as Mixed Use High Density (MXHD), Mixed Use Medium Density (MXMD), and Mixed Use Visitor Commercial (MXVC) to be re-designated to the same or a similar category, where appropriate.

LU4.2.3 Prepare a Rail Transit Land Use Plan and recommend land use changes at and near proposed transit stops in anticipation of local rail service. Cf. LU4.5 and M1.4.1 and 1.4.2.

LU4.2.4 Encourage the location of University-serving shopping and services on University lands. Cf. LU3.3 and ED5.2.

LU4.3 Encourage the development and expansion of neighborhood facilities such as parks, schools, daycare centers, and neighborhood commercial services. Cf. CD5.3, CC2.1.

LU4.3.1 Identify parcels or areas to allow or to expand existing neighborhood facilities within easy walking distance of residential areas or areas well-served by transit. Cf. CC2.1.4

LU4.3.2 Develop and implement a citywide Childcare Plan to ensure that childcare facilities are encouraged and provided. Cf. CC10.1.3.

LU4.4 Encourage the development and expansion of home occupations and telecommuting. Cf. LU4.2, M3.1.1, ED4.3.5.

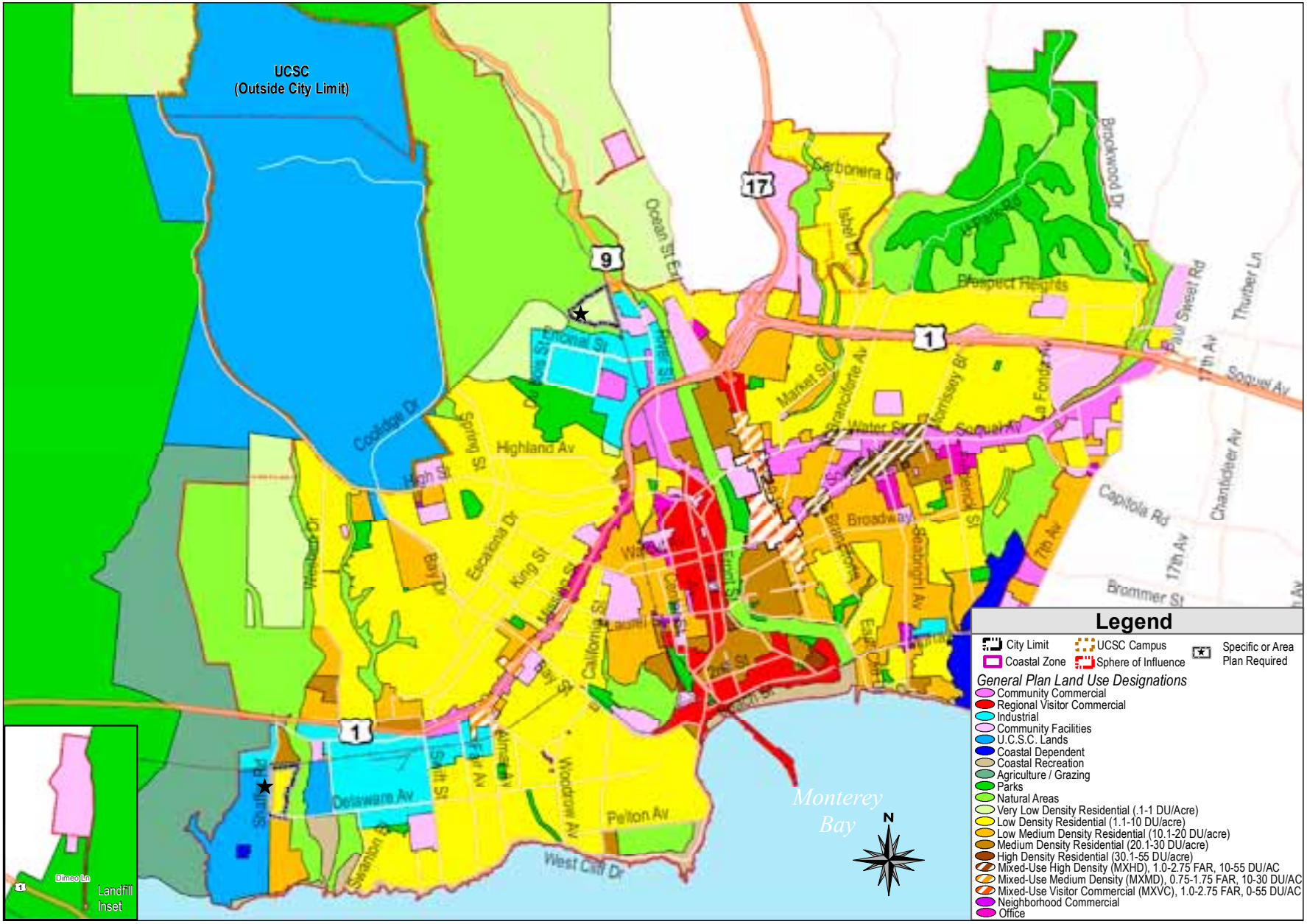
LU4.4.1 Review and revise the Home Occupation Permit requirements to allow for increased numbers of telecommuting and home occupation workers.

LU4.5 Seek opportunities to secure land for transit center development along rail lines. Cf. LU4.2.3, M1.4.1, M1.4.2, M2.2.

LU4.5.1 Consult with the Regional Transportation Commission on land dedications or land use changes related to future transit centers.

LU4.5.2 Condition projects located along rail lines for potential rail stops.

# General Plan Land Use



# General Plan Planning Area

CHAPTER 5

# MOBILITY

This chapter corresponds to the required circulation element. Its purpose is to set forth policies and ways to ease the ability of people and vehicles to move around, out of, and into the city in the long term, through 2030.

This chapter is divided into three sections.

- **Mobility background** briefly highlights existing conditions, their causes, and the basic approaches taken in the Plan.
- **Transportation basics** briefly describes the overarching circulation problem and challenge facing Santa Cruz and the components of the city's road system.
- **Goals, Policies and Actions** provides City bodies with guidance in making decisions related to the city's transportation and road systems and in implementing the actions recommended in this chapter.

## Mobility background

To guide development of the General Plan, the City Council adopted the following key principle with regard to Mobility:

> *We will provide an accessible, comprehensive, and effective transportation system that integrates automobile use with sustainable and innovative transportation options–including enhanced public transit, bicycle, and pedestrian networks throughout the community.*

This chapter of *General Plan 2030* looks at ways to facilitate transportation alternatives, keep transportation and road systems safe and efficient, and systematically interconnect bicycle and pedestrian ways. The proposals below aim to encourage greater use of alternative transportation modes and reduce automobile travel in concert with other parts of the Plan that foster supportive land uses, building types, and activities.

### TRANSPORTATION MODES

Roads, rail lines, bikeways, and pedestrian paths move people and goods from one place to another. Their location and nature derives from—and in turn, affects—physical settlement patterns, air quality, plant and animal habitats, noise, energy use, safety, visual appearance, social interaction, and economic activity within the community.

Traffic congestion on city streets during peak commute periods and summer and holiday weekends has been a major concern in Santa Cruz for decades. With no change in transportation behavior, traffic volumes and congestion are projected to increase with regional population growth, increasing numbers of visitors, the growth of UCSC, increased car miles traveled per person, and development and population growth within the city. Traffic increases will increase fuel consumption, air pollution, noise, traffic accidents, and undesirable impacts on the city's residential areas.

### LAND USE PATTERNS

Traffic engineering in past decades generally focused on improving vehicle mobility by expanding roadway capacity—too often without consideration for increasing person-trip mobility. Credit must be given to the previous General Plan which focused on integrating land use and circulation planning in order to reduce dependence on the automobile. That plan looked to develop viable pedestrian, bicycle, and mass transit systems, ridesharing, traffic operations improvements, and other transportation systems management (TSM) strategies. Where deficiencies were identified in the road system, alternative transportation improvements and TSM programs were to be used to mitigate the deficiencies.

Actions in this chapter emphasize activity centers, livable streets, and sustainable transportation systems.

"Activity centers" are walkable, mixed-used, transit-oriented areas with a distinct focus, identity, function, and sense of place, in which the city's economic, educational, recreational, cultural, and social life is concentrated. The six major activity centers in Santa Cruz are Downtown, the Beach Area, UCSC, the Harvey West industrial area, the Mission Street commercial area, and the Soquel Avenue Eastside business district.

"Livable streets" encourage walking by emphasizing pedestrian character and design features that reduce the negative impacts of vehicles on pedestrians. People can walk and cycle rather than drive to meet their daily needs. An interconnected system of pedestrian paths and bikeways will provide safety and security; and with transit-oriented design elements, it will encourage cycling. The Downtown and other activity and employment centers will become more accessible.

"Sustainable transportation systems" manage travel demand. They reduce auto use and promote alternative transportation to reduce traffic congestion. In addition to an excellent transit system, ridesharing, flextime, and telecommuting, the essential elements for sustainable mobility include reasonable housing density and street connectivity, bike lanes and sidewalks that support biking and walking, a regional carpool system (including online ride-matching), taxicabs, and car sharing.

Together, the Plan's policies and actions relating to activity centers, livable streets, and sustainable transportation systems support the intent of Section 65302(b) of the California Government Code to create "complete streets" planned, designed, operated, and maintained to provide safe mobility for all users, including "bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors." Section 65302(b) takes effect January 2011. For purposes of this Plan, the terms "livable streets" and "complete streets" are the same and are interchangeable.

## Transportation basics

### REGIONAL TRANSPORTATION

Santa Cruz is not an island. The City needs and takes a regional perspective on transportation issues. One of the aims of the City's 2003 Master Transportation Study (MTS) was to lay a foundation for *General Plan 2030,* UCSC's Long Range Development Plan, and other regional transportation planning documents.

The MTS noted that about half of the peak-hour vehicle trips within Santa Cruz are internal to the city. These are trips over which the City can have the most influence.

Santa Cruz will continue to grow relatively slowly, but it will remain a major job center. On the other hand, the unincorporated areas of the county and Watsonville will continue to grow more quickly and develop at lower densities. These divergences will contribute to an increasing dependence on the auto for work trips between Santa Cruz and outlying areas in the county.

The Association of Monterey Bay Area Governments (AMBAG) addresses regional transportation problems and concerns through its regional transportation system management element. The University of California at Santa Cruz (UCSC) implements a transportation systems management and parking program that provides a comprehensive package of commute options, including car-pools, bicycles, and transit; free bus passes; and shuttle buses serving all areas of the campus. A key challenge for Santa Cruz will be to address regional travel as it affects the city and *vice versa.*

### ROAD SYSTEM

The city's road system consists of arterial highways and streets, collector streets, and local streets. Each street category has a unique transporta-

tion function, although overlaps in use occur. In addition, visitor/coastal access and truck routes have been designated to facilitate the movement of visitor traffic and commodities.

*Arterial highways and streets* carry the heaviest traffic and provide regional and intercommunity access. Arterial highways include Highways 1, 17, and 9. Major arterial streets in the city include Ocean Street (the primary north-south arterial) and Mission Street, Water Street, and Soquel Avenue (the primary west-east arterials). All of the arterial highways and arterial streets in the city have been designated as Countywide Congestion Management roads.

*Collector streets* provide circulation within and between neighborhoods and commercial and industrial areas. These streets usually serve relatively short trips and are meant to collect traffic from local streets and distribute them to the arterial network.

*Local streets* provide direct access to abutting land uses, collectors, or arterials, and usually carry no bus routes.

*Visitor/coastal access routes* are intended to be inviting to visitors and to provide convenient, clear access to and from visitor and coastal destinations.

*Truck routes* are intended to channel trucks through the community and away from residential and other areas where they would be a nuisance.

### FUTURE IMPROVEMENTS

The City faces an ongoing challenge to meet its capital needs with limited resources. Preparing and adopting a Capital Improvements Program (CIP) is an important part of the City's planning process to identify and meet those needs. It is a multi-year schedule of projects with their associated costs and proposed funding sources. The CIP represents the best efforts to allocate available resources toward projects that provide the most benefit for the people of Santa Cruz. It also highlights areas where funding is deficient.

Generally, projects in the CIP are of relatively large dollar amount, are nonrecurring outlays, and are for constructing, purchasing, improving, replacing, or restoring assets with a multi-year useful life.

## Goals, policies and actions

**GOAL M1 Land use patterns, street design, parking, and access solutions that facilitate multiple transportation alternatives (Cf. LU4 LU4.1.1, LU4.2, ED1.9.2, and M2.2, 2.3.2, and 3.1.9)**

M1.1 Reduce automobile dependence by encouraging appropriate neighborhood and activity center development. Cf. ED5.1, LU4.2; and M1.5.1, M2.4.2, 3.1.2, and 4.3.

- M1.1.1 Create walkable, transit-oriented activity centers throughout the city. Cf. ED5.1, LU4.2; and M2.4.2, 3.1.2, and 4.3.
- M1.1.2 Connect activity centers with pedestrian and bicycle paths. Cf. M4.3.
- M1.1.3 Implement pedestrian and bicycle improvements that support transit ridership.
- M1.1.4 Amend the Zoning Ordinance to create an activity-center-oriented urban form.
- M1.1.5 Support consolidating employment centers.

M1.2 Create livable streets.
"Livable streets" support the intent of Section 65302(b) of the California Government Code to create "complete streets" planned, designed, operated, and maintained to provide safe mobility for all users, including "bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors."

- M1.2.1 Facilitate implementation of livable street design guidelines for key street types as defined in the City's Master Transportation Study.
- M1.2.2 Maintain street access to neighborhoods through the Capital Improvements Program.

M1.3 Create pedestrian-friendly frontage and streetscapes and attractive pedestrian-oriented areas. Cf. CD4.2, 4.2.1, 4.3.1, 5.2.

- M1.3.1 Amend the Zoning Ordinance to require pedestrian improvements appropriate to development type and design.

M1.4 Ensure that sidewalks, transit centers, and major transit stops are conveniently located, usable, and accessible to all. Cf. PR1.6.3.

This policy and Action M1.4.1 support the intent of Section 65302(b) of the California Government Code to create "complete streets."

- M1.4.1 Assure that right-of-way acquisition and street design will support pedestrian and bike improvements and transit. Cf. LU4.2.3, LU4.5, M4.1.5, CD4.2.
- M1.4.2 Allow for future multi-modal use of future rights-of-way by protecting them from development. Cf. LU4.5.

M1.5 Reduce the need for parking and promote parking efficiency. Cf. CD5.2.3, ED5.4 and PR1.6.3.

- M1.5.1 Increase land use efficiency and the walkability of activity centers. Cf. LU4.2, M1.1, M3.1.2, M4.3.
- M1.5.2 Encourage innovative solutions that provide adequate parking while maximizing living and working space.
- M1.5.3 Manage nonresidential parking in residential areas. Cf. CD5.2.3 and ED5.4.
- M1.5.4 Develop a City employee parking strategy.
- M1.5.5 Amend the Zoning Ordinance to encourage shared parking for uses that are compatible in terms of hours of operation or seasonality.
- M1.5.6 Develop a strategy for new public off-street parking along major corridors to accommodate infill and intensification.

M1.6 Design parking areas and parking garages that are safe, pleasant, and easy to use. Cf. CD4.2.2, and ED1.9.3 and 5.4.1.

- M1.6.1 Design parking areas with adequate lighting, safe pedestrian circulation, adequate landscaping, a minimum amount of pavement, and adequate numbers of accessible spaces reserved for the physically disabled. Cf. CD3.6, M3.2.10, HZ5.1, PR1.6.3, NRC7.1.2.
- M.1.6.2 Amend the Zoning Ordinance to address landscaping, lighting, and access in parking lots.

### GOAL M2 A safe, sustainable, efficient, adaptive, and accessible transportation system

M2.1 Provide leadership on sustainable regional mobility.

- M2.1.1 Encourage diverse local and regional transit options.
- M2.1.2 Encourage use of alternative modes of transportation.
- M2.1.3 Implement pedestrian, bike, mass transit, and road system improvements through the Capital Improvements Program.
- M2.1.4 Support regional funding and implementation of key regional projects that can significantly benefit Santa Cruz and further the City's mobility policies.
- M2.1.5 Do not adopt, approve, or construct an Eastern Access to the university without a vote of the people in a citywide general election.

M2.2 Encourage passenger rail transit or other alternative transportation options via the continued support, acquisition, and expansion of railroad rights-of-way. Cf. LU4, LU4.5, ED1.9.2, M1, M2.3.2.

- M2.2.1 Protect existing and potential railroad lines and rights-of-way, and other potential rights-of-way, from land uses that would prevent the development of rail or fixed-guideway services or other transportation-related uses in the future.
- M2.2.2 Encourage the continued transport of goods by rail.

M2.3 Increase the efficiency of the multi-modal transportation system.

- M2.3.1 Design for and accommodate multiple transportation modes.
- M2.3.2 Promote alternative transportation improvements with transportation system management (TSM) strategies, road improvements, and widening/expansion projects that can achieve an acceptable level of service. Cf. LU4, ED1.9.2, M1, M2.2, M3.1.9.
- M2.3.3 Incorporate pedestrian, bicycle, and mass transit facilities in the design of bridges and road projects.
- M2.3.4 Encourage visitor-serving developments, such as hotels, to make bicycles and shuttle programs available to patrons.

M2.4 Support and promote the efficient use of transit.

- M2.4.1 Encourage a Downtown/Beach bus shuttle along the route of the trolley proposed in the Downtown Recovery Plan.

M2.4.2 Encourage high occupancy, high frequency transit that connects city activity centers and provides service to major local and regional destinations. Cf. ED5.1, M1.1, and 4.3.

M2.4.3 Establish an employee parking strategy that includes remote parking and shuttle services for the downtown area and other major employment centers. Cf. LU3.2.8.

M2.4.4 Work with the University to develop and implement strategies to reduce congestion along city-to-university travel corridors.

M2.4.5 Consider giving priorities to transit service on city transportation corridors.

M2.4.6 Encourage increased transit service capacity.

M2.4.7 Maintain and expand bus service along major commute corridors and to major destinations and to any future fixed-guideway systems.

M2.4.8 Encourage commuter bus travel to and from major destinations. Favor express bus systems along major commute corridors with a minimum number of stops.

M2.4.9 Increase local and regional transit ridership by encouraging the implementation of new, innovative technologies.

M2.4.10 Encourage the maintenance and upgrading of transit infrastructure.

M2.4.11 Provide safe and secure links to transit.

M2.4.12 In coordination with the transit district, require development along arterial streets to provide adequate and accessible bus shelters, with curb cuts leading to the shelter and to destination and loading platforms. Cf. PR1.6.3.

M2.5 Consider innovative transportation solutions.

M2.5.1 Promote the use of new technologies for transportation and other community services.

M2.5.2 Utilize TSM planning, implementation, and monitoring to improve transportation efficiency and safety.

## GOAL M3 A safe, efficient, and adaptive road system

M3.1 Acknowledge and manage congestion.

M3.1.1 Seek ways to reduce vehicle trip demand and reduce the number of peak hour vehicle trips. Cf. LU4.2, LU4.4, ED4.3.5.

M3.1.2 Encourage high occupant vehicle travel. Cf. M1.1, and M1.5.1.

M3.1.3 Strive to maintain the established "level of service" D or better at signalized intersections.

M3.1.4 Accept a lower level of service and higher congestion at major regional intersections if necessary improvements would be prohibitively costly or result in significant, unacceptable environmental impacts.

M3.1.5 Maintain and update the Transportation Impact Fee to ensure that developers pay a proportional share of circulation system improvements. Cf. LU1.4 and ED2.3.1.

M3.1.6 Finance circulation system improvements by using local revenues as a match to leverage federal and State funds.

M3.1.7 Encourage businesses and employees to participate in ridesharing, bus pass, and shuttle programs.

M3.1.8 Encourage variable work hours including the institution of staggered hours, flextime, telecommuting, or compressed work weeks.

M3.1.9 Consider reducing parking requirements for employers, developments, businesses, and major destination centers that implement effective alternative transportation programs. Cf. LU4, ED1.9.2, M1 and M2.3.2.

M3.1.10 Utilize up-to-date multi-modal transportation studies and reports to identify areas where major deficiencies are projected.

M3.1.11 Minimize disruption of newly paved or resurfaced streets by ensuring that road projects are coordinated with utility work.

M3.1.12 Update and maintain coordinated signal timing on traffic corridors.

M3.1.13 Improve access to and from Harvey West, including a possible new approach to Highway 1 and a better connection to the downtown.

M3.2 Ensure road safety for all users.

M3.2.1 Maintain the condition of the existing road system.

M3.2.2 Ensure safe and efficient arterial operations.

M3.2.3 Ensure that street widths are adequate to safely serve emergency vehicles and freight trucks. Cf. HZ1.1.3, HZ1.2.4.

M3.2.4 Improve traffic safety and flow. Ways to do this include installing and maintaining traffic signs, pavement markings, and median improvements.

M3.2.5 Improve traffic safety at high collision locations, in residential areas, and in congested areas through speed enforcement programs, improved street design, improvements needed to reduce accidents, and by offering traffic safety educational programs in coordination with other local agencies.

M3.2.6 Regularly inspect streets and maintain pavement in a condition that keeps maintenance costs at a minimum, encourages bicycling, and ensures that repairs are acceptable and long-lasting.

M3.2.7 Regularly inspect bridges to determine if load restrictions are adequate and to evaluate maintenance needs; safety; the effects of accident damage, environmental damage, capacity, and usage; and the need for seismic retrofitting.

M3.2.8 Prohibit contractors from tracking or dropping excavated material, construction material, and other debris onto city streets.

M3.2.9 Where possible, underground the utilities along city roads, especially on streets scheduled for reconstruction.

M3.2.10 Install energy-efficient and adequate street lighting in traffic hazard, public gathering, and pedestrian areas. Cf. CD3.6, M1.6.1, HZ5.1, NRC7.1.2.

M3.2.11 Improve traffic flow and safety and reduce impacts on arterial streets by limiting driveways, mid-block access points, and intersections; removing on-street parking; clustering facilities around interconnected parking areas; providing access from side streets; and other similar measures.

M3.3 Discourage, reduce, and slow through-traffic and trucks on neighborhood streets.

M3.3.1 Enhance neighborhood livability through the design of road and transit improvements.

M3.3.2 Improve access along the Visitor/Beach Area travel corridors through coordinated signs and street naming, protected turn lanes, remote parking/shuttle programs, and other strategies. Cf. PR1.6.3.

M3.3.3 Update the Beach and South of Laurel Area Plan to reflect needed improvements along the Visitor/Beach Area travel corridors.

M3.3.4 Mitigate safety, noise, and air quality impacts from roadways on adjacent land uses through setbacks, landscaping, and other measures. Cf. HZ2.2.1, HZ3.1.7.

M3.3.5 Require new development to be designed to discourage through traffic in adjacent neighborhoods and to encourage bicycle or pedestrian connections.

M3.3.6 Reduce traffic in residential neighborhoods by improving arterial and collector streets and providing appropriate signs along arterial and collector routes. Cf. HZ3.1.7.

M3.3.7 Develop neighborhood traffic control plans where necessary to minimize traffic impacts on local streets.

## GOAL M4 A citywide interconnected system of safe, inviting, and accessible pedestrian ways and bikeways

M4.1 Enable and encourage walking in Santa Cruz. Cf. CD5.1, CC8.4, PR4.1.2.

M4.1.1 Update and implement the Pedestrian Master Plan for development of a complete, continuous, and structurally adequate system of pedestrian paths and walkways.

M4.1.2 Include and address sidewalk improvements in the Capital Improvements Program.

M4.1.3 Encourage pedestrian travel by providing pedestrian pathways on cul-de-sac and loop streets.

M4.1.4 Encourage walking in Santa Cruz through educational outreach and promotional programs.

M4.1.5 Where there are proposed or existing plan lines, require developments to dedicate land for rights-of-way, and require that sidewalks be added or repaired within, and in the area adjacent to, new developments. Cf. M1.4.1, CD4.2, CD4.3.1.

M4.1.6 Enhance the pedestrian orientation of the Downtown Central Business District.

M4.1.7 Require that site and building design facilitate pedestrian activity.

M4.1.8 Remove or reduce obstructions and sidewalk tripping hazards, ensure accessibility to the physically disabled and elderly, and improve amenities along existing and potential pedestrian paths and walkways.

M4.1.9 Require landscaping in the development, replacement, and repair of sidewalks, including the placement of trees on private property and/or in tree wells on sidewalks.

M4.2 Provide and maintain a complete, interconnected, safe, inviting, and efficient citywide bicycle network. Cf. CD5.1, CC8.4, PR4.1.2.

M4.2.1 Maintain and update as necessary the City's Bicycle Transportation Plan.

M4.2.2 Work with appropriate agencies to seek funding for pedestrian and bicycle projects.

M4.2.3 Facilitate bicycling connections to all travel modes.

M4.2.4 Implement bicycle safety programs and cooperate with other agencies in the enforcement of bicycle safety.

M4.2.5 Study the development of parking alternatives (such as removal of parking from one side of the street) and off-street parking facilities prior to the removal of any on-street spaces.

M4.2.6 Provide regular sweeping, pavement repairs, striping, and signs along bike routes.

M4.3 Require pedestrian and bicycle improvements in major activity centers and activity areas. Cf. ED5.1, and M1.1, 1.1.2, 1.5.1 and 2.4.2.

M4.3.1 Promote the development of bike lanes on arterial and collector streets and in proposed and already-adopted City plans.

M4.3.2 Develop bike commute routes along railroad rights-of-way (while ensuring the ability to develop rail transit) and along West Cliff Drive, Broadway, King, and other streets.

M4.4 Assure a high level of bicycle user amenities. Cf. PR1.6.4.

M4.4.1 Maintain Zoning Ordinance and parking district requirements that require secure, covered bicycle parking and/or storage lockers at private and public facilities.

M4.4.2 Provide design guidelines for safe and secure bicycle parking, and promote bicycle access for special events.

M4.4.3 Increase the supply of bicycle parking throughout the city.

M4.4.4 Consider ways to require existing development to upgrade and/or retrofit on-site bicycle user amenities.

M4.5 Support pedestrian and bicycle safety improvements.

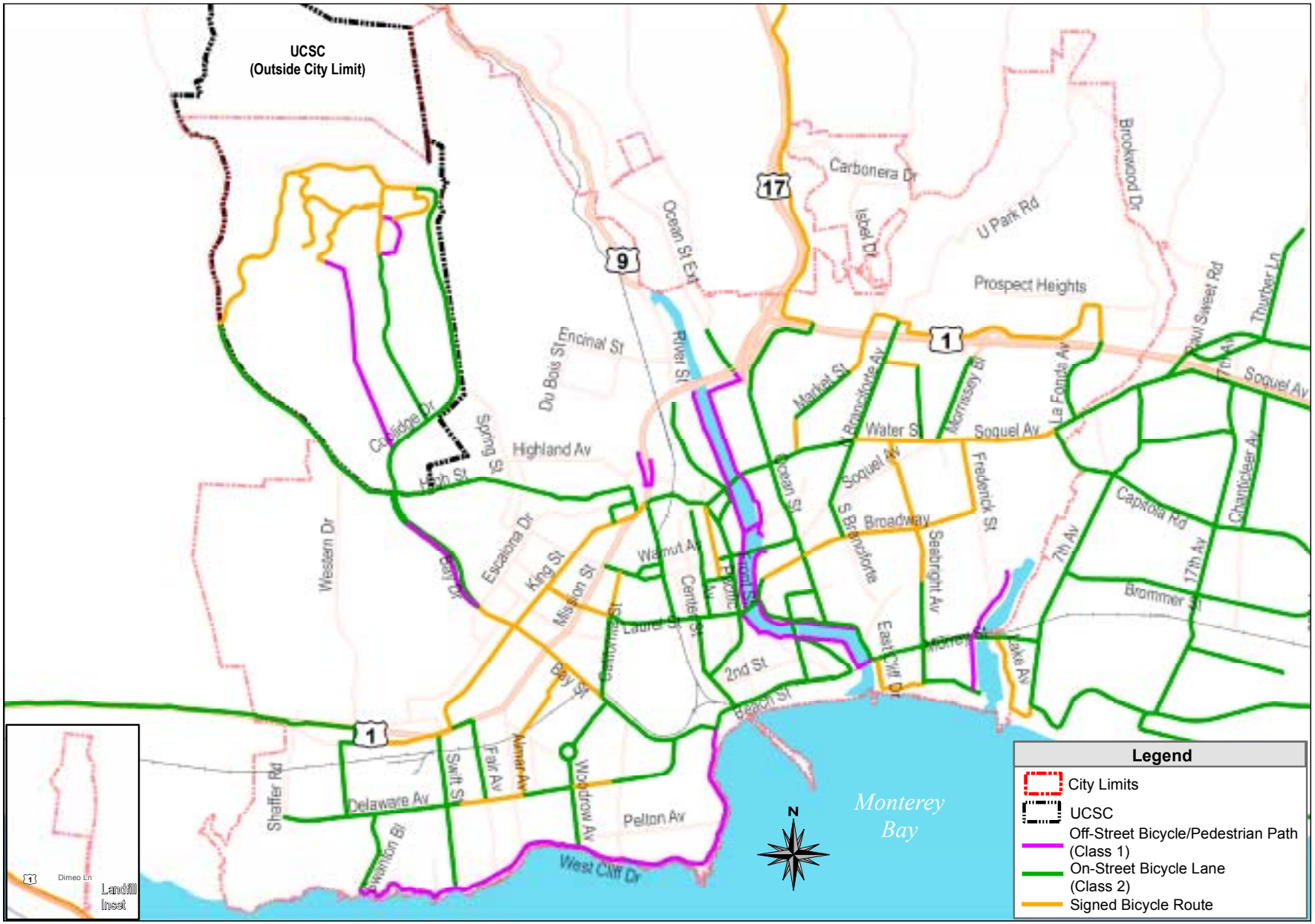
M4.5.1 Design and also modify intersections using striping, pedestrian crossing signs, pedestrian islands, and pedestrian-friendly signal phasing.

M4.5.2 Design driveway access ramps to not interfere with the safe use of sidewalks.

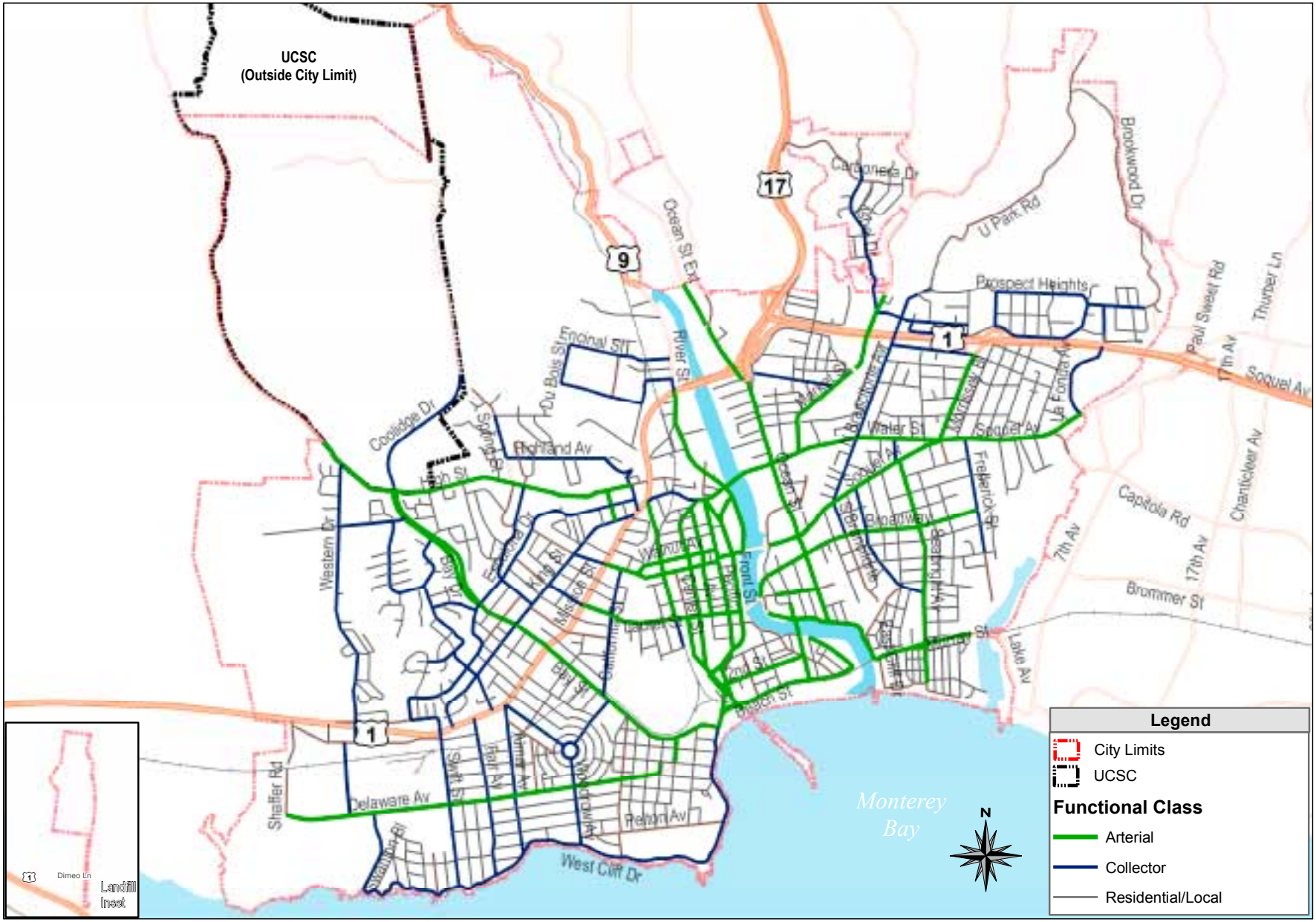
M4.5.3 Develop a schedule and comprehensive funding program for proposed bike system improvements within the Capital Improvements Program.

M4.5.4 Consider counter-flow bike lanes on one-way streets where significant bicycle traffic is expected and where safety measures are in place.

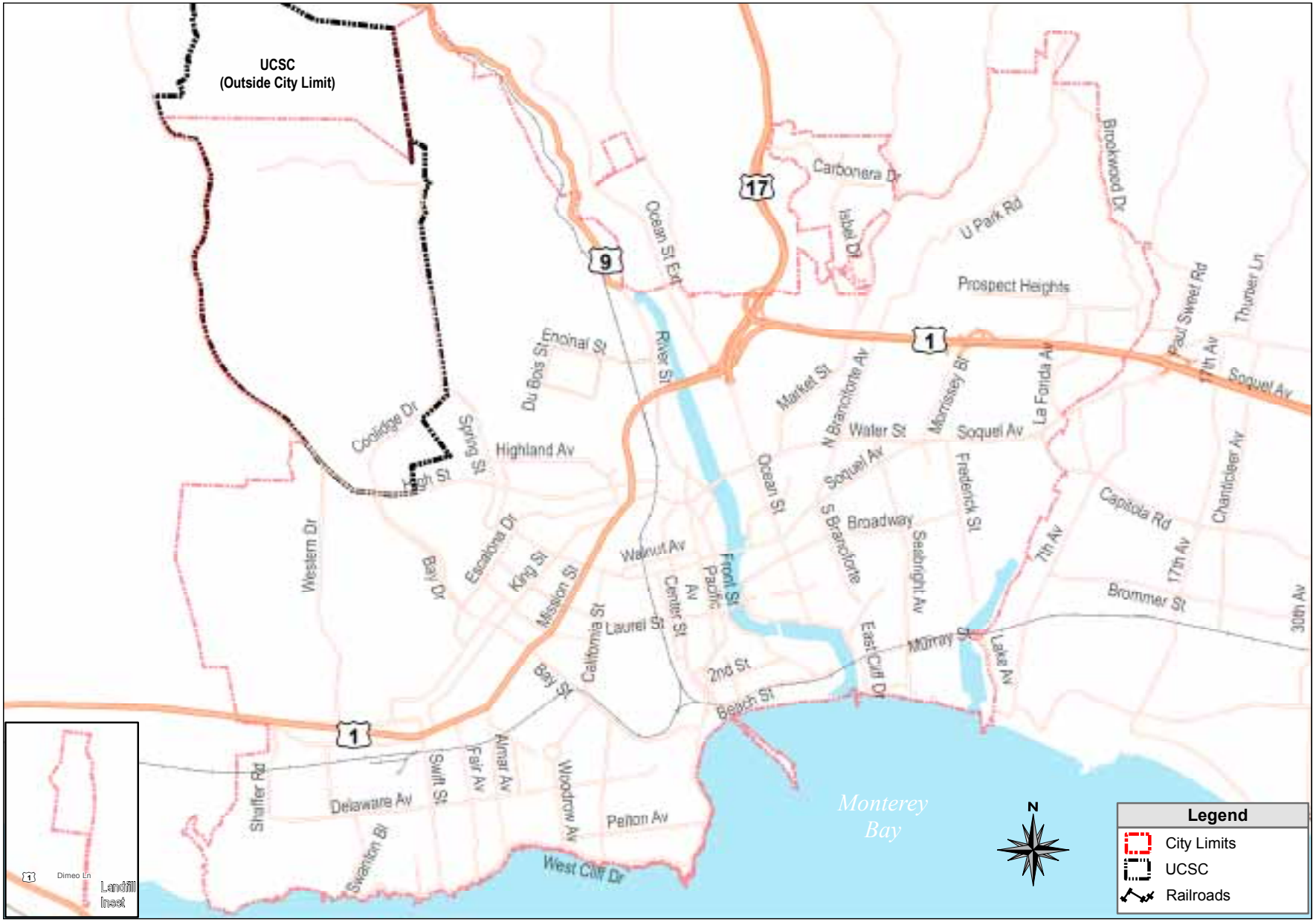
# Bicycle and Pedestrian Paths



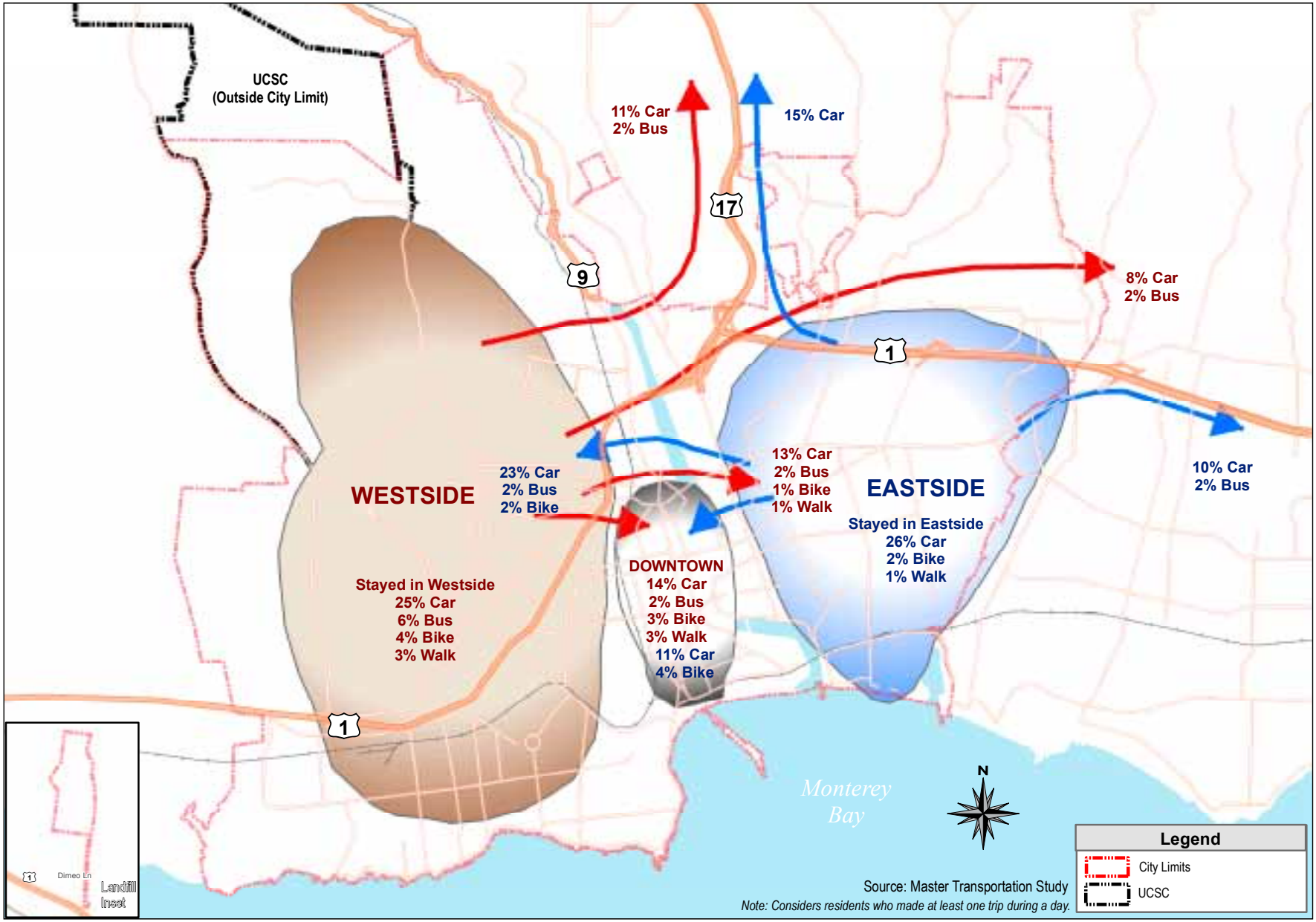
# Functional Classification



# Railway System



# Resident Daily Travel Patterns



CHAPTER 6

# ECONOMIC DEVELOPMENT

The well-being of residents and businesses and the overall quality of life in Santa Cruz depend, to a significant extent, on economic development. This chapter of the Plan focuses on what will be needed to maintain the city's competitive advantages, mitigate its economic weaknesses, and nurture a vigorous and diverse economy. The chapter is divided into two sections.

- **Economic background** focuses on six major issues that highlight existing conditions and problems: the regional economy, the City's tax base, role of the University in the local economy, the local workforce, the city's business districts, and a sustainable economy.
- **Goals, Policies and Actions** provides City bodies with guidance in making economic development decisions and implementing the actions recommended in this chapter.

## Economic background

"Prosperity for all" is one of the 11 principles on which *General Plan 2030* is built:

> *We will ensure a sustainable economy for the community, actively encouraging the development of employment opportunities for residents of all levels and ages, and actively protecting from elimination our current and potential sources of sustainable employment.*

### THE REGIONAL ECONOMY

Santa Cruz is not an economic island. It is in, is part of, is surrounded by, and is dependant on the regional economy. Much of the revenue the City receives comes from taxes on retail sales and hotel occupancy. Those economic sectors in turn depend on healthy economic conditions in the wider region. But retailing concepts are changing, and nearby beach and resort areas are building hotels to attract the tourists who now flock to Santa Cruz.

One way the City can maintain and potentially improve its economic position and revenues is to expand retail sales. That objective can be pursued through economic development. A second way is to evolve into a full service overnight lodging destination. The expansion of visitor accommodations presents an opportunity to move beyond the level of existing hotel and lodging offerings to bring a broader range of overnight visitors and daytime business services to the city.

Knowing a prosperous economy consists of multiple enterprises connected by mutually beneficial interests, the City recognizes there may be many other ways to improve its economic position and revenues. Accordingly, the City will encourage the expansion of existing and development of new business sectors as these opportunities arise.

## THE CITY'S TAX BASE

The condition of the economy in the city and the region, and the financial health of City government, are two different things. While the local economy experienced substantial overall growth since 1970, the City's ability to take in money to pay for the services it provides has diminished over the same period.

During the 1970s, the City established a number of taxes and increased those as needed to pay for the services it was providing to the community. Beginning in the late 1970s and into the 1980s, multiple statewide ballot propositions changed the tax laws, making it impossible for cities to impose new taxes or increase old ones. Thus constrained, the City's tax base and revenue were unable to benefit from and reflect the vigor of the larger economy. In order to continue and pay for those services deemed most essential (like public safety), the City had to budget less money for other public services.

Over the years, Santa Cruz has maintained a healthy retail base. Auto dealers, the Boardwalk, and Costco are the city's largest tax generators, but their growth and retail sales trends have been relatively flat. Santa Cruz lost ground in taxable retail sales in the economic downturn of 2001. By 2006, eating and drinking sales and general merchandise sales had recovered some of that ground, but were offset dramatically by sales captured in nearby Capitola. To provide increased services to both residents and visitors, the City has to grow its tax base.

## ROLE OF THE UNIVERSITY IN THE LOCAL ECONOMY

The area's K-12 schools and UCSC make Education Services, as a sector, a substantial contributor to the local economy. The sector increased by 520 jobs between 2002 and 2004, and accounted for almost 18 percent of the local economy in 2004. The growth of UCSC is closely linked to the future economy of Santa Cruz and should be a part of the City's economic development strategic planning.

The City and University have sought ways to enhance and expand ongoing communication and collaborative planning, beyond the commitment to an annual Chancellor-Mayor public meeting. And while the University offers the public performing arts and lecture programs and use of the University Library and physical education and recreation amenities, the two entities also need to look for joint opportunities and projects—such as the Technology Incubator—that encourage business activities, generate local employment, and expand the local tax base.

## THE LOCAL WORKFORCE

A high quality of life and an educated and seasoned labor force can offer a major competitive advantage in both attracting new businesses and expanding existing ones. A skilled and diverse workforce will attract entrepreneurs and nurture growing companies, and can reasonably be expected to buffer the city from low employment levels, even during economic downturns.

A key attribute of the Santa Cruz workforce is that residents tend to work within the community. Of the total of 28,869 employed Santa Cruz residents in 2000, 15,550 (almost 54 percent) worked within the city limits, including 1,653 who worked at home.

Santa Cruz residents are highly educated. In 2000, more than 44 percent of city residents over age 25 had a bachelor's degree or higher, and almost 18 percent had a graduate or professional degree. That level of educational attainment is higher than the countywide level (34 percent with bachelor's degree or higher) or the regional level (just under 27 percent), and represents an attractive feature of the resident labor force to many employers. Effectively utilizing the skilled, educated, and diverse workforce in the city will require creative policies and programs.

## THE CITY'S BUSINESS DISTRICTS

The City has worked and will continue to work with property owners and retail developers to expand local-serving, region-serving, and specialty retail Downtown. This effort can be expanded to support small, independently owned businesses throughout the city.

## A SUSTAINABLE ECONOMY

This Plan applies the term "sustainable" "to resources or systems that can be maintained without compromising the needs of future generations, and in so doing, will conserve or restore an ecological balance and avoid depleting resources." A "sustainable economy" is one that offers a wide variety of economic opportunities, creates strong local prosperity, and contributes to the local tax base, providing needed public services.

Communities across the country are exploring ways to foster a business climate that promotes and gains from "green" building and sustain-

able energy. The City can focus on ways that public and private "green" buildings and planning efforts, education, and technical assistance can reduce the climate, health, and cost impacts associated with expanding and operating the built environment. Santa Cruz also can facilitate future local employment opportunities and encourage the development of high-quality space for small businesses and local professionals with a mix of office uses and Research & Development.

## Goals, policies, and actions

### GOAL ED1 A vibrant regional economic center

ED1.1 Promote Santa Cruz as the principal retail, cultural, recreational, restaurant, entertainment, and commercial destination in the region.

- ED1.1.1 Encourage the development of diverse, innovative, and sustainable business enterprises that reinforce Santa Cruz's position as a regional employment, cultural, visitor, and shopping center. Cf. LU3.2.1, ED6, 6.4, and 6.6.2, and NRC7.2.
- ED1.1.2 Support the development and expansion of businesses that make a balanced contribution to the cultural, environmental, and economic health of the city.
- ED1.1.3 Encourage the development of year-round businesses and visitor activities, resources, and destinations that can also attract and engage local residents. Cf. HA4.5, HA4.5.2, ED1.8, PR2.2.3.
- ED1.1.4 Encourage, sponsor, and increase the number and quality of special events and recreational programs attractive to both visitors and residents. Cf. HA2.1, 2.2 and 3.3 ED 6.9.2; CC8.3.8; PR1.1.4, 2.1, and 2.2.4.
- ED1.1.5 Encourage additional commercial businesses that support and enhance creative industries and lifestyles, such as marine, retail, visitor, and recreational activities and services. Cf. ED6.8.
- ED1.1.6 Revitalize the RiverFront area.
- ED1.1.7 Continue and expand Beach Area marketing efforts.

ED1.2 Ensure that Santa Cruz remains an attractive, safe, and welcoming city for visitors.

- ED1.2.1 Encourage transportation improvements and pedestrian activity along Ocean Street to stimulate economic vitality.

ED1.3 Promote ecotourism and adventure tourism.

- ED1.3.1 Promote the development of ecotourism programs that are or could become associated with environmentally focused activities such as the Monterey Bay National Marine Sanctuary, Long Marine Lab, whale watching, the UCSC Farm and Arboretum, and others.

ED1.4 Promote Santa Cruz as a conference destination.

- ED1.4.1 Support the development of a new conference center, evaluate the contribution it would make in attracting visitors, and consider opportunities to link such a facility to a performing arts center. Cf. HA2.2.5, ED1.7.3, and CC2.1.2.

ED1.5 Encourage the development of new lodging facilities, particularly those targeting a higher-end market and those providing additional visitor amenities.

ED1.5.1 Encourage the development of facilities that would accommodate conferences and conference-goers in conjunction with existing or new hotel development.

ED1.5.2 Attract a top-end, full-service hotel to expand and improve the year-round conference segment of the tourism market.

ED1.5.3 Develop and implement a comprehensive Beach Area quality lodging strategy. The study should examine the growth in visitor demand and the needs and opportunities (including funding) for lodging, conference facilities, other visitor services, parcel assembly, and associated public improvements (including streetscape, parking, transit, and directional signs).

ED1.6 Discourage the conversion of lodging to housing in Santa Cruz, and encourage upgrades to existing lodging facilities.

ED1.6.1 Assess the impacts of an oversupply of inferior hotel/motel rooms, and develop incentives to encourage owners to upgrade existing hotel/motel facilities while ensuring the retention of moderately priced accommodations.

ED1.7 Enhance and market the city's cultural and historic resources as a vital tool for economic development. Cf. HA1.10, HA1.10.1, HA4.5.4.

ED1.7.1 Provide continuing support for cultural events and festivals, especially during the off-season.

ED1.7.2 Diversify the range of visitor attractions in Santa Cruz, particularly those that draw on the city's unique natural and cultural assets.

ED1.7.3 Encourage the growth of local performing arts, visual arts retail, artistic co-ops, and historic and cultural events. Cf. ED1.4.1, HA1.10, HA10.1, HA2.2.5, HA4.5.4, and CC2.1.2.

ED1.8 Increase the promotion of Santa Cruz as a year-round tourist destination and enhance and promote the identity of existing and potential visitor areas in the city. Cf. HA4.5, HA4.5.2, ED1.1.3, PR2.2.3.

ED1.8.1 Coordinate scheduling, promotion, and administration of special events at City facilities among City departments, the County Visitors Center, hotel and business associations, and other appropriate groups.

ED1.8.2 Improve the visual appearance of visitor routes and entrances to the city.

ED1.8.3 Implement a comprehensive sign program to facilitate visitor orientation to the city and its complete range of attractions.

ED1.8.4 Improve access to and routes between tourist and visitor designations and lodging facilities.

ED1.8.5 Consider the use of new technology along the city's principal entry roads to inform visitors about and guide them to beach shuttle services, parking areas, and retail business areas. Cf. CC11.2.4.

ED1.8.6 Consider the development of regular tourism programming on radio and local cable television to provide information about cultural activities and other community events.

ED1.8.7 Enhance and manage a citywide banner program to promote arts and cultural activities and events.

ED1.8.8 Encourage the participation of smaller lodging facilities in serving the conference and other markets.

ED1.8.9 Work to retain the city's core visitor attractions.

ED1.8.10 Work with local owners to ensure a continuing high quality visitor experience for their patrons.

ED1.8.11 Work to develop tour bus trips to local attractions throughout Santa Cruz County such as the Boardwalk.

ED1.8.12 Encourage the Santa Cruz and Big Trees Railroad and other operators using historic rail cars to provide tours of Santa Cruz.

ED1.8.13 Promote Seabright area beaches and the harbor to play a more significant role as Santa Cruz visitor attractions. Cf. LU3.9.1, CD2.1.6.

ED1.8.14 Provide convenient shopping and services for Seabright residents and visitors to the harbor and Seabright Beach. Cf. LU3.9.1, CD2.1.6.

ED1.9 Develop strong and vibrant retail sectors serving local and regional shopping needs.

ED1.9.1 Promote and develop clean, visually inviting, and safe shopping environments.

ED1.9.2 Implement transportation, parking, and alternative transportation improvements consistent with circulation planning. Cf. LU4, ED5.4, and M1, 2.2, 2.3.2, and 3.1.9.

ED1.9.3 Provide a variety of parking resources to support a diverse retail base. Cf. ED5.4.1, M1.6.

ED1.9.4 Encourage creative and flexible approaches to parking supply along Ocean Street.

## GOAL ED2 Real growth in the City's tax base

ED2.1 Foster a robust and diversified economic and municipal tax revenue base.

ED2.1.1 Recruit new and support existing businesses that generate substantial municipal revenue.

ED2.1.2 Maintain and expand retail sales tax opportunities within the city.

ED2.1.3 Educate the public about the need for a strong economic tax base.

ED2.1.4 Encourage public/private partnerships that stimulate economic growth.

ED2.2 Encourage the City, residents, businesses, and other institutions to "buy local."

ED2.2.1 Promote the purchase of locally-produced, recycled, and environmentally sound products and packaging.

ED2.2.2 Identify businesses that purchase goods and services outside the county and match them with businesses that can locally provide the same or better goods and services.

ED2.2.3 Support local and environmentally sound vendors.

ED2.2.4 Encourage businesses to provide for easy consumer identification of locally produced and environmentally sound goods.

ED2.2.5 Retain and strengthen the clusters of medical office and professional office businesses south of Soquel Avenue in the Eastside.

ED2.3 Consider the fiscal and economic impacts of major developments.

ED2.3.1 Ensure that new developments pay their proportional share of infrastructure costs. Cf. LU1.4, M3.1.5.

ED2.3.2 Ensure sufficient tax revenue growth to reduce reliance on privatization of public ways and services in new developments.

## GOAL ED3 The University as a major contributor to and beneficiary of a successful local economy

ED3.1 Cooperate with the University in working toward a mutually beneficial economic relationship.

ED3.1.1 Support positive relations and open dialog with UCSC.

ED3.1.2 Partner with UCSC and other public and private entities to promote scientific and technological partnerships, and cultural, commercial, and visitor-serving development. Cf. ED4.2.2, 6.4, 6.7, and 6.7.1.

ED3.1.3 Work with UCSC to bring to Santa Cruz new companies growing out of the university's academic enterprises.

ED3.1.4 Encourage and facilitate entrepreneurial business efforts by UCSC graduates and others.

## GOAL ED4 A skilled, educated, and diverse local workforce

ED4.1 Promote the education and training of the workforce to meet the needs of emerging economies.

- ED4.1.1 Improve the match between emerging job opportunities and training programs.
- ED4.1.2 Ensure that educational institutions address the business community's needs for worker training and continuing education in digital arts and media, alternative health care, and computer-based professions. Cf. CC8.3.
- ED4.1.3 Promote local educational agencies' vocational programs to the business community.
- ED4.1.4 Market public and private employment training programs and business assistance services.
- ED4.1.5 Cooperate regionally in the development of a day laborer program.

ED4.2 Retain and expand the existing base of medium and large employers in Santa Cruz.

- ED4.2.1 Encourage the expansion and selective attraction of commercial businesses and industries that create diverse opportunities for employment at wages adequate to buy or rent decent housing in Santa Cruz.
- ED4.2.2 Preserve existing and seek new industries and businesses at the cutting edge of science and technology. Cf. ED3.1.2, 6.4, 6.7, and 6.7.1.
- ED4.2.3 Market Santa Cruz to employers; emphasize the area's highly educated workforce and linkage with the University.

ED4.3 Encourage diverse and year-round employment opportunities.

- ED4.3.1 Encourage businesses that provide part-time and seasonal job opportunities for people of all ages, skills, and experience levels.
- ED4.3.2 Encourage flexible work arrangements (such as split shifts, job sharing, or reduced work week) that will promote broader employment opportunities.
- ED4.3.3 Encourage the expansion and attraction of commercial businesses and industries that create stable, year-round, livable wage jobs with maximum health benefits.
- ED4.3.4 Seek ways to smooth out seasonal fluctuations in local unemployment.
- ED4.3.5 Encourage and support small home-based businesses while respecting issues of neighborhood character and compatibility. Cf. LU4.2, LU4.4, M3.1.1.

ED4.4 Encourage the development of businesses with strong minority outreach.

- ED4.4.1 Provide support to businesses with strong minority outreach and hiring programs and to those operated by historically excluded groups.

## GOAL ED5 Diverse and dynamic business districts

ED5.1 Nurture activity centers and districts that serve neighborhoods and businesses, provide jobs, and meet local and regional needs. Cf. M1.1, 2.4.2, and 4.3.

- ED5.1.1 Provide for the development of supporting land uses adjacent to retail shopping areas, while assuring protection of existing residential neighborhoods.
- ED5.1.2 Coordinate and expand Beach Area services and employment.

ED5.2 Provide for residents' daily shopping needs in local-serving neighborhood commercial centers. Cf. LU3.3 and 4.2.4.

- ED5.2.1 Encourage neighborhood shopping in nodes of commercial development that serve residential areas and have adequate transit, pedestrian, and bicycle access.
- ED5.2.2 Support the development of neighborhood gathering places in conjunction with local-serving neighborhood commercial.
- ED5.2.3 Encourage new neighborhood commercial/convenience retail businesses that can provide for the daily shopping needs of Prospect Heights residents.

ED5.3 Support neighborhood commercial and mixed-use development along the city's transportation corridors. Cf. LU3.3.1 and 4.1.1.

- ED5.3.1 Provide for attractive commercial development (including more intensive and higher quality ground floor retail) along commercial corridors, provided the

uses are compatible with or transition easily to adjacent residential areas. Cf. LU3.3.1, LU4.1.1.

ED5.3.2 Support redevelopment of the light industrial properties on Murray Street in Seabright, including more land intensive commercial and/or mixed use development, provided that the uses are compatible with existing residential. Cf. CD2.1.6.

ED5.4 Review standards and apply creative and flexible approaches to parking supply issues along commercial corridors, with emphasis on ground floor commercial, tax-revenue-producing uses. Cf. CD5.2.3, M1.5, M1.5.3, and ED1.9.2.

ED5.4.1 Pursue multi-story development of surface parking lots for parking and other uses. Cf. CD4.2.2, ED1.9.3, M1.6.

ED5.4.2 Develop a parking strategy and parking solutions for the Beach Area.

ED5.5 Promote Downtown as the primary local and regional retail, entertainment, and cultural center.

ED5.5.1 Enhance Downtown as a welcoming and inviting destination for residents, visitors, and businesses.

ED5.5.2 Support the creative reuse of buildings for commercial and office uses complementary to the Downtown.

ED5.5.3 Retain existing businesses and attract new ones to downtown Santa Cruz.

ED5.5.4 Create a distinctive and active pedestrian environment Downtown.

ED5.5.5 Allow for the extension of café and retail uses within the public right-of-way, subject to design standards and management guidelines.

ED5.5.6 Require continuity of active ground-level uses (retail, restaurant, cultural, etc.) along Pacific Avenue.

ED5.5.7 Revitalize the Lower Pacific area (Pacific Avenue south of Cathcart Street). Cf. LU3.5.1 and 3.6.1.

### GOAL ED6 A sustainable economy Cf. ED1.1.1, LU3.2.1.

ED6.1 Build on and leverage Santa Cruz's unique environment, community, and culture.

ED6.1.1 Support the establishment of industries and "lifestyle businesses" that draw on Santa Cruz's natural assets and environment.

ED6.1.2 Recognize the importance of and promote the Monterey Bay National Marine Sanctuary in support of the city's tourism, recreation, fishing, and aquaculture industries. Cf. CD1.1.2, LU3.11.1, NRC6.2.

ED6.2 Encourage and support "green" and environmentally-oriented businesses to locate in Santa Cruz. Cf. NRC7.2.1.

ED6.2.1 Support commercial projects that demonstrate a public benefit.

ED6.2.2 Require commercial and industrial construction and facilities to incorporate green and sustainable building features and operating practices. Cf. NRC7.1.4.

ED6.2.3 Encourage businesses that: are socially beneficial, provide jobs to local residents, don't pollute or deplete natural resources, and use locally-reclaimed resources.

ED6.3 Foster and retain locally owned businesses and start-ups.

ED6.3.1 Assist small businesses and small-scale, low-impact, start-up uses in navigating the City's permit process, and expedite project review.

ED6.3.2 Market existing financial assistance programs to small businesses.

ED6.4 Ensure that economic development strategies and programs undertaken by the City are in step with changing economic conditions and technologies. Cf. LU3.2.1, ED1.1.1, ED3.1.2, 4.2.2, 6.7, and 6.7.1; and CC11.1.

ED6.4.1 Work with stakeholders to initiate and implement economic development, municipal tax revenue, and investment strategies.

ED6.4.2 Seek economic development projects for Santa Cruz and establish incentives and methods for realizing those projects.

ED6.4.3 Consider the impacts of taxes, fees, and incentives on economic growth.

ED6.4.4 Increase the competitiveness of Santa Cruz relative to other jurisdictions with regard to development permits and fees.

ED6.5 Meet the space and infrastructure needs of a variety of business types. Cf. ED6.7.1.

ED6.5.1 Encourage innovative commercial and industrial facility and site designs.

ED6.5.2 Work to establish business "incubator" space and facilities. Cf. LU3.2.4.

ED6.5.3 Consider the development of new, regional-serving services.

ED6.6 Protect the ability of industrial uses to locate and operate within the city's industrial areas. Cf. LU3.2 and 3.2.7.

ED6.6.1 Carefully weigh the effect on regional and local jobs/housing balance when considering any reduction in the amount of industrial-zoned land.

ED6.6.2 Seek ways to retain or convert at-risk industries and/or businesses to economically viable activities. Cf. ED1.1.1, LU3.2.1.

ED6.7 Foster new technology-based enterprises. Cf. ED3.1.2, 4.2.2, 6.4, and 6.7.1.

ED6.7.1 Promote development of new and retrofitted industrial and office space that meets the need of technology-based businesses. Cf. ED3.1.2, 4.2.2, 6.4 and 6.5.

ED6.7.2 Work toward expanding the City's technology infrastructure. Cf. CC11.

ED6.8 Retain and attract "creative industries." Cf. ED1.1.5.

ED6.8.1 Support the development of a design center and the growth of related industry.

ED6.8.2 Provide a cultural and natural environment attractive to a creative workforce.

ED6.8.3 Encourage creative and design-based employment to locate in Santa Cruz.

ED6.9 Promote cultural tourism as a vital element of the local economy.

ED6.9.1 Utilize and market the area's arts and cultural resources as a vital tool for economic development.

ED6.9.2 Continue to support parks and recreation programs and the arts as contributors to the economy. Cf. HA2.1, 2.2 and 3.3; ED 1.1.4; CC8.3.8; PR1.1.4, 2.1, and 2.2.4.

ED6.9.3 Promote and support local historic and cultural enterprises.

ED6.9.4 Support efforts to increase film production activities in the county.

CHAPTER 7

# CIVIC AND COMMUNITY FACILITIES

This chapter of the Plan looks to 2030 while continuing and expanding on the Community Facilities Element in the previous General Plan.

The City Council adopted the following key principles to guide the development of this chapter of the General Plan:

- **An involved citizenry**. We will welcome citizen participation in government, encourage respectful cooperation and mutual regard among residents, workers, students, and visitors, and fully accept shared responsibility for community well-being.
- **Community facilities and services**. We will offer excellent social services and will improve and maintain our infrastructure, community safety, and emergency preparedness.
- **Natural resources**. We will highlight and protect our unique setting, our natural and established open space, and the sustainable use of our precious natural resources.

How these principles are implemented is discussed below and in the Goals, Policies and Actions at the end of the chapter.

This chapter is presented in two sections.

- **Background** describes existing conditions, their causes, and the basic approaches taken in the Plan with regard to 11 subjects, each of which is the focus of a unique goal in this chapter: *citizen involvement, comprehensive community facilities and services, water, wastewater, stormwater, solid waste, community safety, education, health and human services, childcare, and technical innovation.*
- **Goals, Policies and Actions** provides City bodies with guidance in making decisions and in implementing the actions related to citizen involvement, community facilities and services, and the promises of new technology.

## Background

Santa Cruz provides a variety of facilities and services to meet the daily needs of residents, businesses, and visitors including water supply, sewage treatment, garbage collection, police services, and parks and recreation facilities. The State, County, and quasi-public agencies such as Dominican Hospital and PG&E also provide community facilities and services.

Each year the City prepares a Capital Improvements Program (CIP) allocating public funds for capital improvements to community facilities. The CIP is prepared by reviewing the goals in the General Plan and assessing the ability of existing facilities and services to meet community needs. Community facilities and services needing improvement receive priority for funding.

### INVOLVED AND INFORMED CITIZENRY, RESPONSIVE AND EFFECTIVE GOVERNMENT

The City welcomes citizen participation in government; encourages respectful cooperation and mutual regard among residents, workers, students, and visitors; and accepts a shared responsibility for community

well-being. The City can inform and educate the community and obtain feedback about topics related to community life and commerce. To do so, it needs a visible, efficient, and user-friendly means of communication and information exchange.

Santa Cruz already has a communications and information network that facilitates community interaction to produce, process, and consume information through several media. The quality of this network has consequences for the community's physical, social, and economic well-being.

Electronic services in particular (cable television, telephone, satellite, computer networking technologies, internet, radio, and other such services) create greater accessibility to and exchange of information, impact the ways people communicate, and create job opportunities. Enhancing and improving access to these resources will have a profound effect on the quality of daily life and work. Toward improving both, the City continually examines and responds to the possibilities and challenges offered by—and the implications of—technological advances and opportunities.

## COMPREHENSIVE COMMUNITY FACILITIES AND SERVICES

The City provides a number of facilities and services for the community. They range from venues for special events to facilities such as neighborhood parks. Where other sections of the Plan discuss specific community facilities, this chapter focuses on community facilities in the broader sense. The chapter includes policies related to the City working in partnership with other entities, such as private interests or UCSC, to provide community services that the City alone would be unable to supply.

## WATER SUPPLY

The opening principle of the Plan (one of the three noted above) states that the City "... will highlight and protect ... the sustainable use of our precious natural resources." This chapter follows that principle by a call for improving and maintaining the public infrastructure, among other things. This section provides a brief overview of the city's water supply system. A more complete description of the existing conditions, goals, management, and operation of the Santa Cruz water system is contained in the City's adopted Integrated Water Plan (IWP), incorporated herein by reference.

**Service area characteristics.** The Santa Cruz Water Department service area (approximately 30 square miles) includes the entire city of Santa Cruz, Live Oak and adjoining unincorporated areas of Santa Cruz County, portions of irrigated agricultural land on the north coast, and a small part of the city of Capitola. The water system in 2006 served approximately 24,000 connections, 88 percent of which were residential. With a 2007 student enrollment of 15,000, UC Santa Cruz was, and remains, the City's largest water customer.

Total annual water demand in 2003 varied between 4.0 and 4.5 billion gallons. Just under two-thirds of treated water went to residential uses, and the remaining one-third to various commercial, industrial, institutional, and irrigation uses. Average daily water demand ranged from about 8.5 million gallons per day (mgd) in winter to 14.5 mgd in summer, with peak days up to 16 mgd.

**Overview of the City water system.** Santa Cruz draws its water from four main supply sources: North Coast sources (including Laguna,

Majors, and Reggiardo Creeks, and Liddell Spring), San Lorenzo River (including Tait Street Diversion, Tait Wells, and Felton Diversion), Loch Lomond Reservoir (capacity = 2,810 million gallons), and Live Oak Wells. Groundwater constitutes only 4 to 5 percent of the city's entire water supply, but has been a crucial component for meeting peak season demands and during periods of drought.

The supply system relies entirely on rainfall, runoff, and groundwater infiltration within watersheds in Santa Cruz County. There are no facilities in place to transfer water to the City system from adjacent water districts, nor is any water purchased or imported to the region from outside the Santa Cruz area. The North Coast sources—which excel in water quality, are least affected by water rights limitations, and are cheapest to produce—are used to the greatest extent possible. As of February 2006, the system was operating at about 93 percent of capacity. Water demand under normal conditions is expected to exceed water system capacity at some point between 2015 and 2020.

On average, nearly 75 percent of the city's annual water supply needs are met by surface diversions from coastal streams and the San Lorenzo River. The yield from these sources in any given year is directly related to the amount of rainfall received and runoff generated during the previous winter. Water stored in Loch Lomond Reservoir is used mainly in the summer and fall months when the flows from coast and river sources drop off and additional supply is needed to meet higher daily demands. Loch Lomond accounts for about 22 percent of the city's annual supply.

Except for water drawn from the Live Oak wells, all raw water is pumped to the Graham Hill Water Treatment Plant (2007 capacity = 24 mgd) for purification. It then is conveyed by gravity to the Bay Street Reservoir for storage, introduced directly into the distribution system for use, or pumped to various elevated pressure zones within the system. Groundwater from the Live Oak wells is treated at a separate water treatment plant near 38th Avenue.

**Water supply reliability.** One of the primary challenges the City faced in setting goals and policies for *General Plan 2030* is the continued likelihood of some degree of growth and the historic inadequacy of water supply during periods of drought. The city experienced serious water supply deficiencies during droughts in 1976-77 and 1987-92.

With the exception of the Felton booster station (added in 1975), the city's water supply system is essentially the same as it was in 1960, when Loch Lomond reservoir was completed. The population of the city at that time was 25,600, and the service area population was estimated at 31,000.

The City has been in the process of considering possible new water supplies since the 1970s. It explored the possibility of developing local groundwater resources and brackish groundwater on the north coast, but neither option was pursued.

**The City's water plans.** The Integrated Water Plan (IWP) was adopted in 2005. It addresses the city's drought problems and provides a flexible, phased approach to providing water to the service area through 2030. The City subsequently adopted its 2005 Urban Water Management Plan in 2006, as required by the State Water Code.

The IWP includes:

- A broad set of water conservation programs which are expected to yield long-term water savings of nearly 300 million gallons per year.
- Provisions for temporary curtailment of service to 85 percent of normal demand when a shortage occurs.
- Plans for a supplemental water supply for drought protection to be provided by a 2.5 mgd desalination plant with potential for expansion. (Seawater desalination was identified as the only feasible alternative for a backup supply of drinking water in times of drought.)
- A recognition that droughts will continue, whether or not the community grows or increases its water supply, and there will be periods of water shortage. State water law assigns a low priority to outdoor irrigation, meaning that landscapes will suffer first and most, as outdoor watering is restricted.

The Urban Water Management Plan indicates there is potential that saltwater intrusion might jeopardize the safe production of groundwater from the Purisima aquifer; however, as of 2007, there was no imminent threat of seawater intrusion.

### WASTEWATER SYSTEM

Conservatively, the City's wastewater treatment facility has the capacity to treat up to 17 million gallons of wastewater per day (mgd) to second-

ary standards set by U.S. EPA and the California Regional Water Quality Control Board. The City in 2007 treated approximately 9.5 mgd.

It is difficult to estimate future increases in wastewater that might be generated by even modest new growth. At the same time, the closure of several older manufacturing businesses since 1995 resulted in decreasing the amount of wastewater treated; and it is unlikely that the treatment plant's 17 mgd capacity will be reached during the life of *General Plan 2030*. Nevertheless, when the flow to the treatment facility reaches 13 mgd (estimated to occur in 2020), the City plans to conduct a study to determine the capacity of the facility. The results of that study could start a process of design modification and possible facility additions to increase treatment capacity.

The wastewater collection system consists of approximately 160 miles of sewer and 17 pump stations. As of 2007, the pump stations were in excellent condition, but the collection pipes were aging. The City was spending about $1 million annually to maintain the current condition of the pipeline system. The system is large enough to handle the wastewater generated, but during rain events, excess infiltration and inflow can overwhelm it. Thus the City expects to continue to focus on reducing infiltration and inflow.

## STORMWATER SYSTEM

The flow of water does not respect jurisdictional boundaries. Topographical features form drainage basins, streams, and rivers, and multi-jurisdictional effort is required to address urban drainage and flood control problems and needs.

The City plans to develop a Storm Drain Master Plan. In addition, the Municipal Code sets standards for drainage improvements required in conjunction with new construction.

Underground storm drains are designed to carry 10-year recurring storm events. Major storms, though infrequent, exceed the capacity of the city's underground storm drains and flood some streets for short periods. On those occasions, stormwater is conveyed on surface facilities such as streets and channels that must be designed to withstand the effects of a 100-year storm without substantial damage to property and also remain usable by emergency vehicles.

Storm drainage is significantly affected by urbanization. A given amount of rainfall produces a vastly greater volume of storm water runoff on developed land than it does when the land is in its natural state. For that reason, the City examines all proposed development to ensure that drainage is addressed in the overall design.

The quality of stormwater runoff is another concern. Pollutants and particulates that enter the stormwater in urbanized areas affect water quality on urban and non-urban lands throughout the region and may pose hazards to persons, plants, and wildlife.

## SOLID WASTE

The opening principle of *General Plan 2030* highlights sustainable use of the community's natural resources. This section of the Plan addresses sustainability through waste reduction, reuse, and recycling.

The City owns and operates a Class III Sanitary Landfill at the Resource Recovery Facility (RRF) approximately three miles west of the city off State Route 1. The RRF operation complies with regulations, plans, and permits required by the California Integrated Waste Management Board, the California Regional Water Quality Control Board, and the Monterey Bay Air Pollution Control District.

**Landfill capacity.** The landfill's permitted disposal area was increased from 40 to 67 acres in the mid-1990s; that increase, along with waste reduction and recycling programs, has extended the life of the landfill to approximately 2052. State law requires operating agencies to begin planning for new waste disposal/ reuse facilities at least 15 years in advance of closure dates for existing landfills. Accordingly, the City must begin planning for a new facility by approximately 2037.

**Waste diversion.** Solid waste and recycling industries are highly regulated by federal, State and local agencies. Assembly Bill 939 (1989) required communities to divert 25 percent of their 1990 waste-streams from landfill disposal by 1995, and 50 percent by 2000. The City of Santa Cruz met and has exceeded those goals through waste reduction, reuse, and recycling, including expanded curbside recycling. In addition, the City has programs to divert and reuse construction and demolition debris and wastewater treatment plant bio-solids. The City's aim is ultimately to elim-

inate the need for a City landfill. The City Council adopted a long-term Zero Waste Goal in October 2000.

**Landfill gas power generation.** The landfill gas collection system and onsite power generation facility operates near its peak capacity and generates enough electricity to power 1500-1600 homes. Upgrades to the power generation facility were completed in 2010.

## COMMUNITY SAFETY

Residents of Santa Cruz have long preferred and expect a community-oriented approach to policing. From a single station located at 155 Center Street, the City's Police Department provides crime protection and prevention activities, and works to foster a partnership between citizens and police officers.

Enforcement, education, and collaboration are the three prongs of the department's strategy to counter crime. As the city's residential, tourist, and student populations have increased, so have the number of law enforcement service calls.

An independent police auditor, working out of the City Manager's Office, provides commentary and feedback on police activities, policies, and procedures.

## EDUCATION

Elementary through high school education is provided by the Santa Cruz City School District, a number of private and charter schools, and alternative school programs offered through the District.

The Santa Cruz City School District provides K-8 education in six schools: Bay View, DeLaveaga, Gault, Westlake, Branciforte Middle School, and Mission Hill Middle School. The District's five high schools and continuation schools (Harbor High, Santa Cruz High, Soquel High, The Ark, and Loma Prieta) provide education for grades 9-12.

## LIBRARIES

Libraries are an important link in the city's communications and information network. They serve as repositories of the city's culture, provide places where the community connects with itself and the world, and are places people go for information.

The Santa Cruz City-County Public Library System comprises 10 libraries with three branches within the city: Santa Cruz Central, Garfield Park, and Branciforte. The system's aim is to increase public access to information.

UCSC has an extensive library linked to all University of California libraries. While it primarily serves UCSC students and staff, its collections are available to the public through the interlibrary lending system or direct borrowing privileges for an annual fee.

## HEALTH AND HUMAN SERVICES

Santa Cruz is served with a range of health and medical services by Dominican Hospital and various care facilities, clinics, and private practices in and around the city. Several health care services and programs (including Meals on Wheels and the Santa Cruz AIDS Project) focus on more specialized needs. The City's fire department and several paramedics programs provide emergency medical services.

## CHILDCARE

Children are part of the social infrastructure for community development and an investment in our collective future. While the education of children has been acknowledged as a public responsibility, the pre-school and after-school care of children traditionally has been seen as the private problem of families, especially women, and not of public concern. Childcare, however, is more than a family matter; it is part of an integrated system that supports human development, labor force participation, and job opportunities.

The benefits of early childhood development and care in the community speak to the labor market, business recruitment, and retention; improved school readiness and success; and reduced public cost for remediation, prison, and welfare. Consideration for the needs of children is a critical part of community planning. Children have intrinsic worth, and this Plan recognizes the value of investing in our collective future.

## A TECHNOLOGICALLY INNOVATIVE COMMUNITY

Technology forms the backbone of our local and regional economy, and will continue to do so in the future. As technology spreads through more aspects of our lives, tremendous opportunities arise to creatively and care-

fully use technology to shape our community. Technological innovation can help the city in many ways. It can facilitate citizen interaction with each other and government; company services to customers; and City services to visitors; and it can provide ways to showcase Santa Cruz's commitment to a sustainable environment.

## Goals, policies and actions

### GOAL CC 1 An involved and informed citizenry and responsive and effective government.

CC1.1 Facilitate the participation of residents, citizen commissions, and other groups in local government decision-making.

- CC1.1.1 Develop new forums to discuss controversial issues in advance of formal public hearings. Cf. CD2.2.1.
- CC1.1.2 Use public access television, radio, newspapers, and mailings to publicize public meetings and announce agendas, public hearing dates, and City-sponsored events (with Spanish language noticing where appropriate).
- CC1.1.3 Develop information centers at the City library and other departments for public viewing and comment.
- CC1.1.4 Facilitate the network of community organizations.
- CC1.1.5 Maintain the General Plan and City Master and Area Plans as functioning documents that implement the community's goals and policies.
- CC1.1.6 Use the required annual review of the General Plan to monitor consistency among General Plan goals, policies, and actions and the Capital Improvements Program.
- CC1.1.7 Develop an annual work program for implementing proposals in the General Plan.

CC1.2 Ensure that City information, meetings, and buildings are accessible to all.

- CC1.2.1 Improve the efficiency and effectiveness of municipal services through the implementation of new technologies.
- CC1.2.2 Increase public access to information and involvement in City land-use decision-making.
- CC1.2.3 Maintain an up-to-date land-use information system, community profile, and facts book.
- CC1.2.4 Improve online access to City information including agendas, minutes, public hearing dates, and land-use data.
- CC1.2.5 Video-record public workshops and meetings, and maintain the video records at the City Clerk's office or public library for viewing or borrowing.

CC1.3 Encourage early communications between project applicants and adjacent neighbors.

### GOAL CC2 Comprehensive community facilities and services

CC2.1 Provide community services and facilities in keeping with the needs of a growing and diverse population. Cf. CD5.3, LU4.3.

- CC2.1.1 As appropriate, update and replace facilities consistent with the General Plan. Cf. HZ1.1.5.
- CC2.1.2 Provide leadership in the development of a performing arts center in the Downtown area. Cf. HA2.2.5 and ED1.4.1 and 1.7.3.
- CC2.1.3 Facilitate efforts of private and nonprofit public service and facility providers.
- CC2.1.4 Locate community facilities within easy walking distance of residential areas or in areas well-served by transit. Cf. LU4.3.1.
- CC2.1.5 Work with UCSC in planning for community facilities and services on and off campus. Cf. PR1.2.3.
- CC2.1.6 Utilize faculty, staff, and student expertise in the areas of resource protection, enhancement, and restoration.

### GOAL CC 3 A safe, reliable, and adequate water supply

CC3.1 Implement the City's Integrated Water Plan.

- CC3.1.1 Implement the City's Long-Term Water Conservation Plan to reduce average daily water demand and maximize the use of existing water resources.
- CC3.1.2 Periodically update the City's Water Shortage Contingency Plan to prepare for responding to future water shortages.

CC3.1.3 Develop a desalination plant of 2.5 mgd for drought protection, with the potential for incremental expansion to 4.5 mgd, if it is environmentally acceptable and financially feasible.

CC3.2 Meet or exceed all regulatory drinking water standards.

CC3.2.1 Regularly and comprehensively evaluate the water system relative to federal and State water quality regulations and standards, and develop recommendations and an action plan to address findings.

CC3.2.2 Develop, maintain, and update sampling and analysis programs, and laboratory procedures for the treated water distribution system and storage facilities.

CC3.2.3 Maintain required federal and State laboratory certification.

CC3.2.4 Prepare and submit compliance reports to all regulatory agencies.

CC3.2.5 Regularly sample and analyze finished water in accordance with approved methods and parameters identified by the State, U.S. Environmental Protection Agency, and the City.

CC3.2.6 Monitor the quality of water from all sources.

CC3.2.7 Provide annual drinking water quality reports to all consumers of city water.

CC3.3 Safeguard existing surface and groundwater sources.

CC3.3.1 Manage City watershed lands relative to protecting the sources of drinking water.

CC3.3.2 Maintain compliance with all applicable drinking water source protection-related regulations.

CC3.3.3 Secure and maintain all City water rights to existing and future water supplies to provide certainty and operational flexibility for the water system.

CC3.3.4 Review and comment on new State Water Resources Control Board water rights applications and timber harvest plans on City drinking water source watersheds.

CC3.3.5 Pursue appropriate regulatory enforcement of environmental violations committed by other watershed stakeholders.

CC3.3.6 Conduct hydrologic and biotic monitoring throughout drinking water source watersheds to protect water supplies and habitat. Cf. CD4.3.3 and NRC2.1, 2.2, 2.4, and 6.3.

CC3.3.7 Ensure that fisheries conservation strategies address and protect water storage, drinking water source quality, and water system flexibility, as well as protect the environmental resource.

CC3.3.8 Monitor groundwater levels and quality.

CC3.3.9 Participate with the Soquel-Aptos Groundwater Management Alliance in cooperative efforts to assure the quality and production of groundwater resources.

CC3.3.10 Explore and implement, when feasible, replenishing existing aquifers in the County and entering into transfer agreements with other agencies.

CC3.3.11 Provide adequate pumping, treatment, and distribution facilities for the reliable production of groundwater, consistent with pumping rates/volumes identified in the City's Urban Water Management Plan.

CC3.4 Maintain and improve the integrity of the water system.

CC3.4.1 Maintain and improve water facilities to meet pressure and fire flow requirements and ensure customer delivery. Cf. HZ1.4.3.

CC3.4.2 Modernize City water treatment plants.

CC3.4.3 Optimize storage, transmission, and distribution capacities and efficiencies.

CC3.4.4 Evaluate and improve the water system so as to minimize water outages due to emergencies and disasters.

CC3.5 Promote maximum water use efficiency.

CC3.5.1 Implement 14 urban water conservation "best management practices" and meet reporting requirements in the *Memorandum of Understanding Regarding Urban Water Conservation in California*.

CC3.5.2 Promote public education and awareness about the City's water resources and the importance of water conservation.

CC3.5.3 Offer water audit programs and technical assistance for homes, businesses, and large landscapes to help

customers reduce their average daily water use and control their utility bills.

CC3.5.4 Provide financial incentives to City water customers for installing high efficiency plumbing fixtures, appliances, and equipment.

CC3.5.5 Provide public information regarding onsite water catchment systems.

CC3.5.6 Administer and enforce water waste regulations, plumbing fixture retrofit requirements, and water efficient landscape standards for new development.

CC3.5.7 Explore and consider promoting or requiring new opportunities and technologies for more efficient use of water and energy.

CC3.5.8 Evaluate water use by residential, commercial, industrial and other customer categories and trends per capita.

CC3.5.9 Regularly audit the water distribution system and implement programs to minimize system losses and underground leaks.

CC3.5.10 Participate in regional water conservation partnerships, events, and opportunities.

CC3.5.11 Play a leadership role in supporting research, policy development, standards, and legislation aimed at furthering water use efficiency across the state.

CC3.5.12 Implement additional water conservation programs that provide a reliable gain in supply and can be justified in terms of their cost.

CC3.6 Coordinate major land use planning decisions in all three jurisdictions served by the City water system based on water supply availability.

CC3.6.1 Implement the City's Urban Water Management Plan and update it periodically as required by State law.

CC3.6.2 Provide annual updates to the city council on the status of remaining water supply.

CC3.6.3 Confirm or adjust the estimate of remaining supply to avoid oversubscribing the water system.

CC3.6.4 Consider developing criteria for determining significance of environmental impacts of development projects on the City water system to streamline the environmental review process.

CC3.7 Allow extension of the Water Service Area only if an application is approved by city council and/or LAFCO

CC3.8 Prohibit additional connections to the North Coast water system, in accordance with City Council Resolutions NS-17372 and NS-21056.

CC3.9 Sustain long-term fiscal stability.

CC3.9.1 Maintain a rate schedule based on cost of service and designed to provide an economic incentive for conservation.

CC3.9.2 Collect sufficient revenues to assure adequate maintenance of the water system infrastructure.

CC3.9.3 Maintain a Water Rate Stabilization Fund to protect against unanticipated emergencies, and Operating Reserves as needed for cash flow.

CC3.9.4 Confine long-term borrowing to major capital improvements.

CC3.9.5 Develop and implement a long-term Capital Improvements Plan for prioritizing and financing major projects.

CC3.10 Investigate new supply options to meet planned growth.

CC3.10.1 Explore opportunities to use recycled water for future water supply.

CC3.11 Conserve water resources. Cf. NRC1.3.1 and 3.1.

CC3.11.1 Promote water conservation.

CC3.11.2 Regularly update guidelines and standards for new landscaping that emphasizes xeriscaping, climate-appropriate landscape design, and other water-conserving practices.

CC3.11.3 Conduct a landscape irrigation audit program and target large water consumers to reduce consumption. Examples of large consumers are large turf customers, large commercial and industrial customers, and property management firms.

## GOAL CC 4 A sustainable and efficient wastewater system

CC4.1 Provide an adequate and environmentally sound wastewater collection, treatment, and disposal system.

- CC4.1.1 Regularly maintain the sewer system.
- CC4.1.2 Identify pipeline deficiencies.
- CC4.1.3 Maintain and upgrade the wastewater collection and treatment system.
- CC4.1.4 Provide wastewater treatment services for the County of Santa Cruz and the City of Scotts Valley in accordance with Memoranda of Understanding.
- CC4.1.5 Periodically update wastewater master plans and rates.
- CC4.1.6 Identify capital and operational funding needs.
- CC4.1.7 Establish reporting procedures required by regulatory agencies.
- CC4.1.8 Monitor wastewater treatment plant capacity and develop a plan to address future needs.

CC4.2 Maintain secondary wastewater treatment and explore the potential for tertiary treatment.

CC4.3 Explore the potential for recycling wastewater.

## GOAL CC 5 A sustainable and efficient stormwater system

CC5.1 Develop and maintain a Stormwater Master Plan.

- CC5.1.1 Implement the City's stormwater quality program.
- CC5.1.2 Maintain clear flow of the storm drain system.
- CC5.1.3 Develop and maintain a Storm Drain Master Plan.
- CC5.1.4 Conduct annual maintenance each fall.
- CC5.1.5 Strive to contain drainage within each drainage basin.
- CC5.1.6 Design the storm drainage system so as not to transfer storm drainage problems from one drainage basin to another.
- CC5.1.7 Manage and maintain the San Lorenzo River floodway.
- CC5.1.8 Require new development to maintain predevelopment runoff levels.
- CC5.1.9 Reduce stormwater pollution.
- CC5.1.10 Implement a water pollution prevention program.

- CC5.1.11 Implement the Clean Ocean Business Program.
- CC5.1.12 Educate the public about the downstream impacts of new development.

## GOAL CC 6 Minimal solid waste production

CC6.1 Lead the community in recycling and in reducing waste in an effort to achieve the goal of Zero Waste.

- CC6.1.1 Develop and implement a comprehensive recycling and waste reduction plan for City facilities.
- CC6.1.2 Develop and implement a citywide comprehensive recycling and waste reduction plan to:
  - Increase the quantity and convenience of recycling.
  - Ensure that systems are in place to enable recycling when practical.
  - Provide receptacles for separating recyclable from non-recyclable materials at City parks and recreation facilities, schools, the Wharf, beaches and other public facilities.
  - Develop and disseminate educational programs about reducing waste and recycling.

- Promote and practice source reduction and recycling.

CC6.1.3 Identify and implement incentives and penalties to encourage waste reduction and recycling.

CC6.1.4 Adopt an ordinance to require commercial and industrial recycling.

CC6.1.5 Adopt an ordinance to require waste audits for commercial and industrial waste generators.

CC6.1.6 Develop a program that results in recycling all cement and asphalt concrete when removed.

CC6.1.7 Require new developments to design service areas that encourage recycling.

CC6.1.8 Implement programs to reduce and, when possible, recycle environmentally hazardous materials. Cf. HZ1.5.6, HZ2.2.3, Goal HZ4, HZ4.1.6, NRC3.2.

CC6.1.9 Increase the use of recycled materials such as asphalt, groundcovers, carpet, etc., in City operations and construction.

CC6.1.10 Promote and purchase products made from recycled content.

CC6.1.11 Extend producer responsibility to costs of product recycling and disposal.

CC6.1.12 Promote the use of products that are reusable, recyclable, or biodegradable.

CC6.1.13 Adopt and implement an ordinance requiring all plastic bags provided to customers in the city limits to be biodegradable or compostable.

CC6.1.14 Increase the convenience of recycling and the number and types of materials accepted by the City.

CC6.1.15 Develop programs for composting organic materials at the Resource Recovery Facility, community gardens, schools, and residences.

CC6.1.16 Develop a food waste collection and composting program.

CC6.1.17 Adopt an ordinance banning polystyrene foam disposable food service ware and requiring the use of biodegradable, compostable, or recyclable disposable food service ware.

CC6.1.18 Cooperate with nonprofit organizations, local government agencies, special districts, and contiguous counties to jointly develop waste management alternatives.

CC6.1.19 Encourage and attract local industries that manufacture products from reused and recycled materials.

CC6.2 Provide convenient, economical, and efficient waste and recycling collection service.

CC6.2.1 Perform route studies as needed.

CC6.2.2 Expand the list of curbside recyclables.

CC6.2.3 Consider alternatives to curbside pickup.

CC6.3 Operate and maintain the Resource Recovery Facility in compliance with adopted plans and regulations, and ensure public health and protection of the environment.

CC6.3.1 Develop a comprehensive operating plan for the Resource Recovery Facility.

CC6.4 Maintain efforts to extend the life of the landfill.

CC6.4.1 Revise landfill permits as needed to reflect operational and/or design changes and to comply with State regulations.

CC6.4.2 Strive to achieve maximum compaction densities of all landfill waste.

CC6.4.3 Reduce the percentage of recyclable material becoming landfill.

### GOAL CC 7 A safe and secure community

CC7.1 Ensure adequate police training and resources. Cf. PR1.5.

CC7.1.1 Ensure appropriate police staff, stations, equipment, and training to meet the demands of increased population and tourism.

CC7.1.2 Train officers in personal and interpersonal conflict resolution, and maintain a current list of community referral agencies.

CC7.1.3 Participate in developing programs aimed at preventing traumatic crimes and violence.

CC7.1.4 Maintain the Sexual Assault Team program.

CC7.1.5 Enhance response to and prevention of domestic violence.

CC7.1.6 Provide rapid and timely response to all emergencies and services. Cf. HZ1.2 and HZ4.3.

CC7.1.7 Update and maintain police response time standards.

CC7.2 Maintain Community Oriented Policing.

CC7.2.1 Maintain the Community Service Officer program.

CC7.2.2 Reduce crime through neighborhood-based crime prevention activities.

CC7.2.3 Update and maintain Beach Area programs designed to reduce crime.

CC7.2.4 Respond to community service and special assistance calls; aid those who cannot care for themselves.

CC7.2.5 Seek ways to reduce police service demands through land use planning and project design.

CC7.2.6 Support housing projects that promote the proprietary interest of residents in their neighborhoods and apartment complexes.

CC7.2.7 Work with the Planning Department to develop site and building design guidelines that create defensible space in residential, industrial, commercial, and recreational areas.

CC7.3 Cooperate with other agencies in ensuring public safety and emergency preparedness.

CC7.3.1 Cooperate with the County on public safety and policing issues outside the city limits.

CC7.3.2 Encourage UCSC participation and support in providing safety and emergency services within the city.

CC7.4 Enhance programs designed to reinforce positive juvenile behavior and prevent delinquency. Cf. PR1.5.

CC7.4.1 Provide diversion programs and referrals for juvenile offenders.

CC7.4.2 Monitor repeat juvenile offenders and identify them to the proper authorities.

CC7.4.3 Work with Santa Cruz City Schools and private schools to provide drug prevention.

CC7.5 Direct investigative services toward successful prosecution and conviction of criminal offenders.

CC7.5.1 Identify evolving or existing crime patterns, particularly those involving career criminals and gang activity.

CC7.5.2 Investigate all reported felony crimes where solvability factors are sufficient to warrant, and provide for quality preliminary investigations that will enhance the success of follow-up and subsequent court investigations.

CC7.6 Coordinate law enforcement planning with local, regional, State, and federal agencies and private security companies.

CC7.6.1 Participate in multi-jurisdictional crime suppression units with emphasis on career criminal apprehension and reducing the number of victims.

CC7.6.2 Maintain mutual aid agreements and train in mutual aid procedures.

## GOAL CC 8 Excellent educational opportunities and resources

CC8.1 Cooperate with public and private institutions seeking to meet their educational objectives.

CC8.1.1 Cooperate with the school district in monitoring the impact of housing developments on elementary school populations.

CC8.1.2 Promote local educational agencies' vocational programs to the business community.

CC8.2 Ensure adequate, current, and future sites for educational facilities.

CC8.2.1 Encourage joint-use facilities that combine educational and community uses. Cf. CD5.3.1.

CC8.2.2 Plan for adequate sites for schools.

CC8.3 Maximize educational, developmental, and recreational opportunities for all. Cf. ED4.1.2.

CC8.3.1 Develop programs that promote youth leadership, empowerment, self-esteem, and an understanding, appreciation, and respect for cultural diversity.

CC8.3.2 Provide appropriate training opportunities for professionals who work with children, youth, and families.

CC8.3.3 Promote or sponsor teen activities such as dances, job fairs, special classes geared to teen interests and issues, and volunteer programs for youth.

CC8.3.4 Work with appropriate agencies to develop aggressive prevention and early intervention efforts toward reducing educational failure and other problems for children and youth.

CC8.3.5 Promote widely available public and private educational programs in the city.

CC8.3.6 Support youth and family programs through the community grant program.

CC8.3.7 Promote children, youth, and family programs in the annual budget review process.

CC8.3.8 Work to provide recreational, educational, and arts and cultural programs for residents of the community and region. Cf. HA2.1, 2.2, 2.2.1, 2.2.2, 3.3, 4.5.3; ED1.1.4 and 6.9.2; and PR1.1.4, 2.1, and 2.2.4.

CC8.4 Encourage all educational facilities to provide for safe and convenient pedestrian and bike access. Cf. CD5.1, M4.1, M4.2, PR4.1.2.

CC8.4.1 Implement the Safe Routes to School program where funded.

CC8.4.2 Re-stripe streets for school zone safety as needed.

CC8.5 Provide free and equal access to City libraries.

CC8.5.1 Assure that basic library services are provided free of charge.

CC8.5.2 Maintain a significant collection and user-oriented hours at all City libraries.

CC8.5.3 Make all library buildings accessible to the physically disadvantaged and the elderly.

CC8.5.4 Provide accurate information and professional guidance for the use of library reference and community resources.

CC8.5.5 Ensure that the public is aware of the full range of information services provided by the library.

CC8.6 Strive for library collections that meet community needs.

CC8.6.1 Ensure that residents and businesses have full access to current communications, information technologies, and resources.

CC8.6.2 Remove those obstacles to the use of available technologies that are under City control.

CC8.6.3 Provide collections, staff, resources, and basic services in languages appropriate to the library's service area.

CC8.7 Expand the communication and information network in the City's libraries and optimize its quality.

CC8.7.1 Support provision of public library services via Library Joint Powers Agreements.

CC8.8 Promote responsible care of companion animals.

CC8.8.1 Provide educational information regarding responsible care of companion animals.

### GOAL CC 9 High-quality and accessible health and human services for all

CC9.1 Promote activities and programs that contribute to the physical and mental health and well-being of all Santa Cruz residents.

CC9.1.1 Work with regional agencies to develop policies that promote health, wellness, and local sustainable food options.

CC9.2 Provide adequate seasonal and permanent shelters and services.

CC9.2.1 Work with cooperating agencies to provide shelters and services for those in need.

CC9.2.2 Work with cooperating agencies to ensure adequate nutrition for children, youth, and families.

CC9.3 Offer family-oriented employment policies to City employees and encourage similar policies citywide.

CC9.4 Encourage provision of and access to a full range of adequately distributed health services for city residents.

CC9.4.1 Maintain paramedic and emergency medical services, consistent with population growth, through the Joint Powers Authority.

CC9.4.2 Make operational improvements toward providing emergency services at accident or disaster scenes within an average time of 4 minutes or less and within 5 minutes or less 90 percent of the time.

CC9.4.3 Facilitate accessibility of farmers' markets or other fresh food outlets to low-income residents.

CC9.5 Promote equal access for all to comprehensive family planning.

CC9.6 Cooperate with Dominican Hospital and other health care providers to determine the medical care needs of the city's population.

### GOAL CC 10 Accessible high-quality childcare facilities and services

CC10.1 Encourage an adequate and diverse supply of childcare facilities and services citywide.

CC10.1.1 Develop a mechanism to obtain and preserve planned childcare sites.

CC10.1.2 Provide startup and licensing information to assist childcare providers.

CC10.1.3 Allow childcare centers and facilities in all land use designations. Cf. LU4.3.2.

CC10.1.4 Streamline processing and permit regulations for childcare facilities.

CC10.1.5 Support and promote subsidized childcare for low- and moderate income Santa Cruz families.

CC10.1.6 Encourage the development of childcare facilities.

CC10.2 Encourage development of accessible, affordable, and quality childcare facilities near public transportation, employment centers, and in the Downtown.

CC10.2.1 Investigate the feasibility of incentives for encouraging employer-provided childcare programs within the city.

CC10.3 Support a childcare center to be located within the proposed Downtown transit center.

CC10.4 Consider the impacts of new residential and employment development on childcare needs.

CC10.4.1 Consider allowing the square footage area of a childcare facility to be built without counting toward lot coverage.

CC10.4.2 Offer density bonuses to promote childcare facilities in new developments in accordance with State law.

CC10.5 Support regional, State, and federal efforts and funding for childcare services.

CC10.5.1 Implement a childcare impact fee on new development.

CC10.6 Encourage joint-use facilities that combine childcare with other educational and community uses.

CC10.7 Promote the availability of lower-cost insurance, or help establish insurance pools for childcare providers, or both.

### GOAL CC11 A technologically innovative community Cf. ED6.7.2.

CC11.1 Facilitate access to current communications, information technologies, and resources. Cf. ED6.4.

CC11.1.1 Facilitate the continuation of community television.

CC11.1.2 Support and facilitate the provision of communications infrastructure needed by high-tech and knowledge-based industries.

CC11.1.3 Leverage high-tech infrastructure/dark fiber at UCSC and other local educational institutions, and promote innovative partnerships to broaden access to that infrastructure.

CC11.1.4 Promote universal and competitive digital services to residences and businesses.

CC11.1.5 Encourage the development of advanced and redundant broadband infrastructure.

CC11.1.6 Ensure timely provision of leading edge technologies within the community.

CC11.2 Improve the efficiency and effectiveness of municipal services through the implementation of new technologies.

CC11.2.1 Collaborate with the County and other municipalities in developing consistent policies for developing communication and information technologies.

CC11.2.2 Develop and promote Internet-based platforms for citizens to request and receive municipal services. Examples include online bill paying, licensing, and permitting.

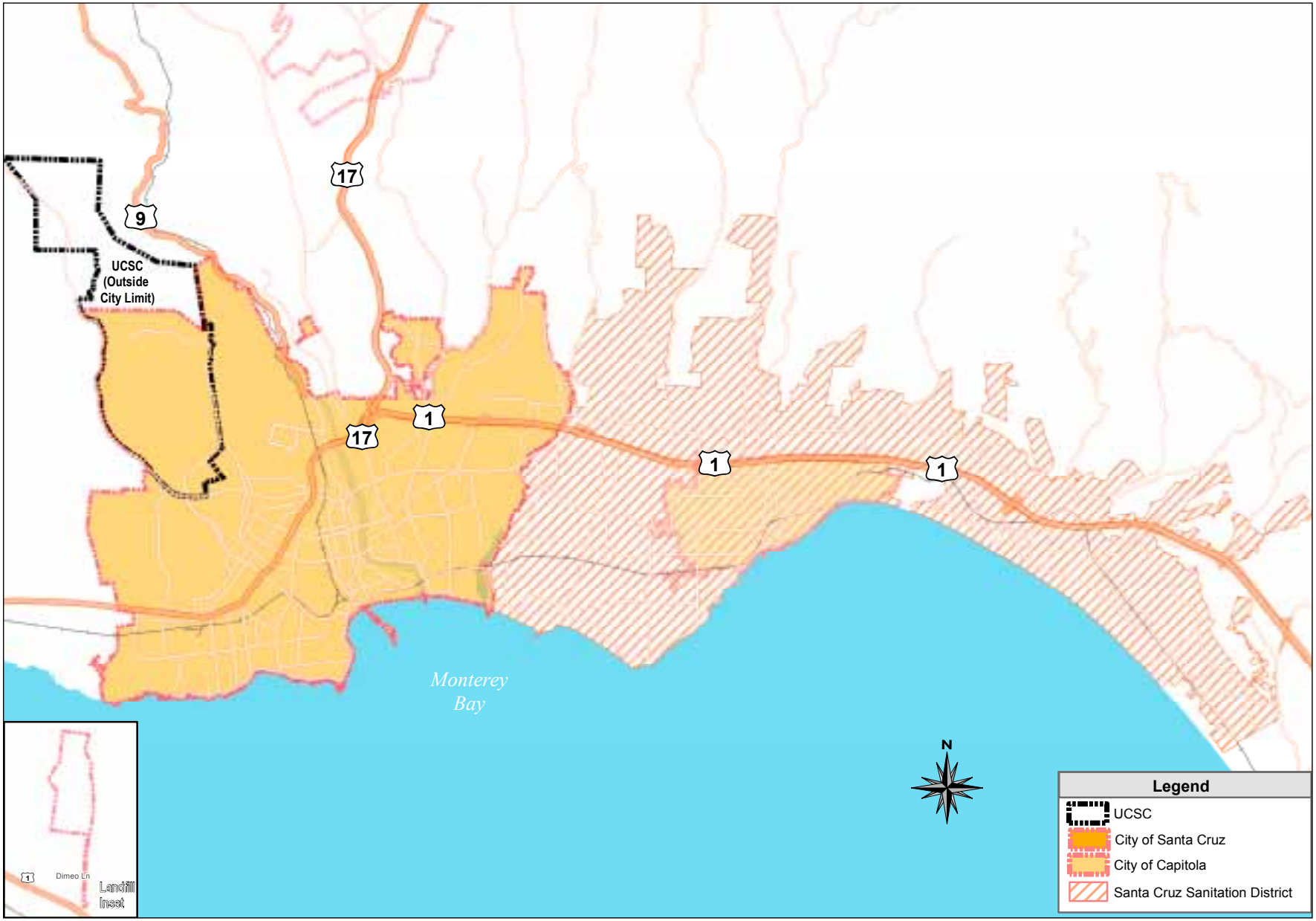
CC11.2.3 Leverage technology to automate routine services. Examples are wireless water and parking meters.

CC11.2.4 Improve visitor services with real-time technology. Examples are traffic cameras, parking availability, online reservations, rapidly updatable information signs, and GPS-based information systems. Cf. ED1.8.5.

CC11.3 Reduce the visual impacts and clutter of wires, antennas, and wireless facilities.

CC11.4 Regulate the placement of wireless facilities to the extent allowed by law. Cf. HZ1.2.8.

CC11.5 Facilitate the desirability of Santa Cruz as a location for technology demonstration projects, particularly those related to clean energy and sustainable transportation.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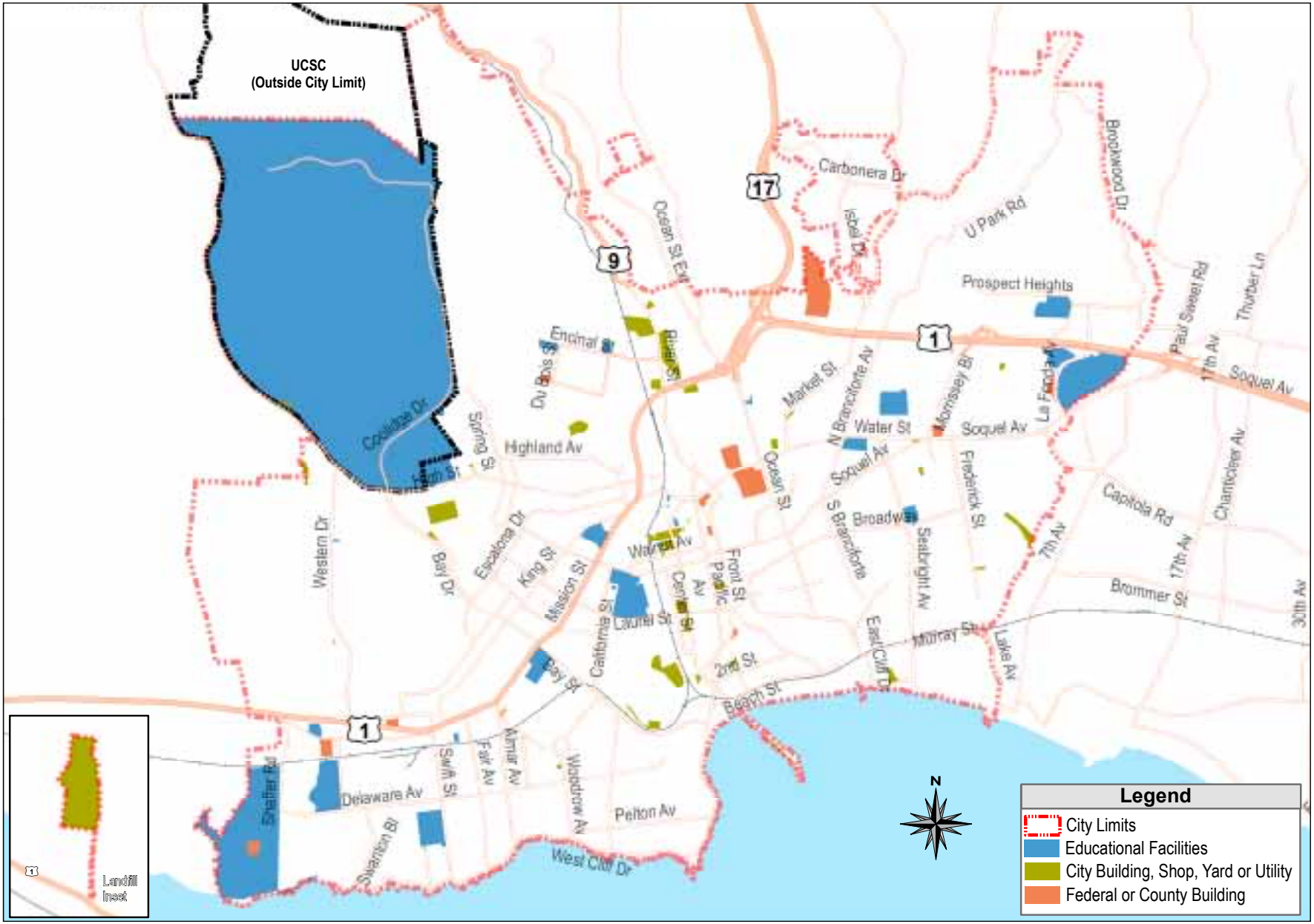
# Community Facilities



CHAPTER 8

# HAZARDS, SAFETY, AND NOISE

This chapter focuses on reducing human injury, loss of life, property damage, and the economic and social dislocation caused by natural and human-made hazards. The chapter covers emergency preparedness (including fire emergency), air quality, noise, hazardous materials, light pollution, and natural hazards (including geologic, seismic, and flooding).

This chapter is divided into two sections:

- **Hazards, safety, and noise background** examines the various hazards and safety issues in Santa Cruz, their characteristics, and how the City has responded as of 2008.
- **Goals, Policies, and Actions** provides City bodies with guidance in making long-term decisions in response to hazards and threats to public safety and in implementing the actions recommended in this chapter.

## Hazards, safety, and noise background

One of the Principles adopted to guide development of the City's General Plan relates directly to community safety and emergency preparedness:

> **Community facilities and services**. *We will offer excellent social services and will improve and maintain our infrastructure, community safety, and emergency preparedness.*

### EMERGENCY AND DISASTER READINESS

Every general plan in California must have a "safety element" that addresses natural and human-made hazards and dangers.

A range of hazards has the potential to affect Santa Cruz residents and workers. Some hazards are natural (e.g., earthquakes); some are created by human activity (e.g., hazardous wastes); and others are naturally present, but are exacerbated by the use of land, such as development within floodplains or near wild lands with high fuel loads.

The city has been affected at various times over the past century by flooding, earthquakes, and cliff retreat. Until 1989, flooding on the San Lorenzo River had caused the most severe damage. The Loma Prieta earthquake changed that; it certainly won't be the city's last major temblor.

**Emergency preparedness.** It is difficult to anticipate the scope or location of a disaster and the problems that will be encountered. That is why emergency preparedness —ensuring that personnel are well-trained and adequate supplies are on hand to respond to a disaster—is essential to reducing injuries, loss of life, and property damage. To facilitate well-coordinated and expedient action during an emergency, the City adopted an Emergency Operations Plan describing the role and operation of City departments and personnel during major emergencies from floods, storms, earthquakes, tsunamis, hazardous materials incidents, and other disasters. The City has also identified "critical facilities," major transporta-

tion routes, and utilities that may be affected in a disaster, and has devised strategies to protect them against damage and assure their usability.

"*Critical facilities*" include emergency operation centers, government buildings, hospitals, fire and police stations, schools, and emergency shelters. The survival of critical facilities (and the utilities serving them) during a disaster is of prime importance to an emergency response. These facilities are used to coordinate emergency relief operations and to give medical care and shelter to people directly affected by the emergency. Critical facilities and the utilities serving them are evaluated periodically to determine their ability to withstand damage during a disaster and to ensure that adequate facilities will exist to respond to emergencies.

Evacuations and the mobility of emergency personnel rely on passable and safe roads. Maintaining the usability of major transportation routes—including the San Lorenzo River bridges—will be essential. Nonetheless, alternative routes must be designated in the event that bridges fail.

Water, sewage, energy, and phone services also are vital in an emergency. While these services cannot be designed to withstand all disasters, maintaining them in good condition and ensuring availability of equipment necessary to make repairs during emergencies can help guarantee their availability when needed.

**Fire protection services.** The City Fire Department provides fire protection services for all areas within the city limits and works with the County fire districts, UCSC, and the California Department of Forestry (CDF) to provide fire protection to surrounding areas. The City Fire Department also sponsors education and prevention programs.

Growing residential and tourist populations have increased the demands on fire services. Maintaining well-trained firefighting staff and adequate equipment, response times, and fire flow (the ability to deliver a specific amount of water in a specific time) are essential for adequate fire protection and prevention.

The risk of structural fires within the city is minimal. Fire-fighting resources meet Cal OSHA minimum requirements. Development continues to comply with applicable building codes. Structures are relatively new and in good condition; and the fire department implements a building-inspection program. Emergency access is good in all areas.

**Wildfires.** Wildfires are large-scale brush and grass fires in undeveloped areas of the city. Wildfires are usually caused by human activities such as equipment use and smoking, and can result in loss of valuable wildlife habitat, soil erosion, and damage to life and property. Santa Cruz is surrounded by thousands of acres of undeveloped hillsides designated as open space. These areas pose potential fire hazards to adjacent development. The level of wildland fire risk is determined by a number of factors, including:

- Frequency of critical fire weather;
- Percentage of slope;
- Existing fuel (vegetation, ground cover, building materials);
- Adequacy of access to fire suppression services; and
- Water supply and water pressure.

The California Department of Forestry and Fire Protection (CDF) has mapped the relative wildfire risk in areas of significant population by intersecting residential housing density with proximate fire threat. The CDF map shows four risk levels: Moderate, High, Very High, and Extreme. While no part of the Planning Area faces an "extreme" threat, the resource maps show that much of the city is classified in a "very high" fire danger zone, principally because the wildland fire zones include a 1.5 mile buffer.

The fire department aims to reduce fire risk through its weed-abatement program, which covers all wildland areas within the city's jurisdiction. The department also works with the County, which has a State and locally approved fire management plan that coordinates among a number of State, regional, and county agencies.

## CREATED HAZARDS

**Air quality.** Atmospheric pollution is determined by the amount of pollutant emitted and the atmosphere's ability to transport and dilute it. In Santa Cruz County, coastal mountains exert strong influence on atmospheric circulation, creating a breezy coastal environment with generally good ambient air quality, except in some small inland valley areas.

Nevertheless, localized sources can cause odors or create dust or other air quality problems. Fuels and solvents used for vehicles, space and water heating, industrial processes, and commercial uses; and incinera-

tion processes, fires, and pesticides are typical pollutant sources. Autos are the largest source of pollutants.

Air Quality Management Plans are developed for regions throughout the state to meet the air quality requirements and standards for specific pollutants, including ozone, nitrogen oxide and dioxide, sulfur dioxide, carbon monoxide, and suspended particles, as outlined in the federal and State Clean Air Acts. The North Central Coast Air Basin (Monterey, Santa Cruz, and San Benito counties) has been designated as a moderate, transitional non-attainment area because it exceeds air quality standards for ozone and inhaled particulate matter. The region's Air Quality Management Plan prescribes methods for attaining ozone and particulate matter standards and for maintaining air quality in the region.

Attainment of air quality standards is achieved through measures to control emissions from stationary sources (factories, commercial activities, etc.) and mobile sources (cars and trucks). Transportation control measures (TCMs) and land use programs also contribute to improving air quality.

In addition to attaining air quality standards for ozone and particulate matter, the Monterey Bay Unified Air Pollution Control District, the County, and regional and local agencies are concerned with reducing stratospheric ozone depletion and regulating the emission of chlorofluorocarbons (CFCs), carbon dioxide, and other "greenhouse gases" (GHGs).

**Noise.** Noise is unwanted sound. Excessive noise can cause hearing loss and interfere with human activity. It can disrupt communication and affect a person's performance. Unlike many other environmental factors, noise is a subjective experience and difficult to quantify. Its effects often depend on the source, its loudness, and duration. Which sounds are considered noise varies from person to person and with the time of day and setting.

Higher noise levels have become increasingly common in everyday city life. Greater concentrations of people, increased mechanization, and greater numbers of motor vehicles produce noise levels with the potential to degrade quality of life. Noise associated with a pleasant experience (ocean waves or roller coaster) does not elicit the same reactions as does noise associated with a less pleasant experience (traffic or freight trains).

Loudness is measured in decibels (dB) and is typically expressed in dBA, which approximates human hearing. The human ear can generally perceive noise from 0 to 140 decibels. Sounds as faint as 0 decibels are barely audible, and then only when there are no other sounds. Ordinary conversation is about 60 dB. People can tolerate some noise, but brief exposure to intense sounds of 120 to 140 dB can threaten physical or psychological well-being.

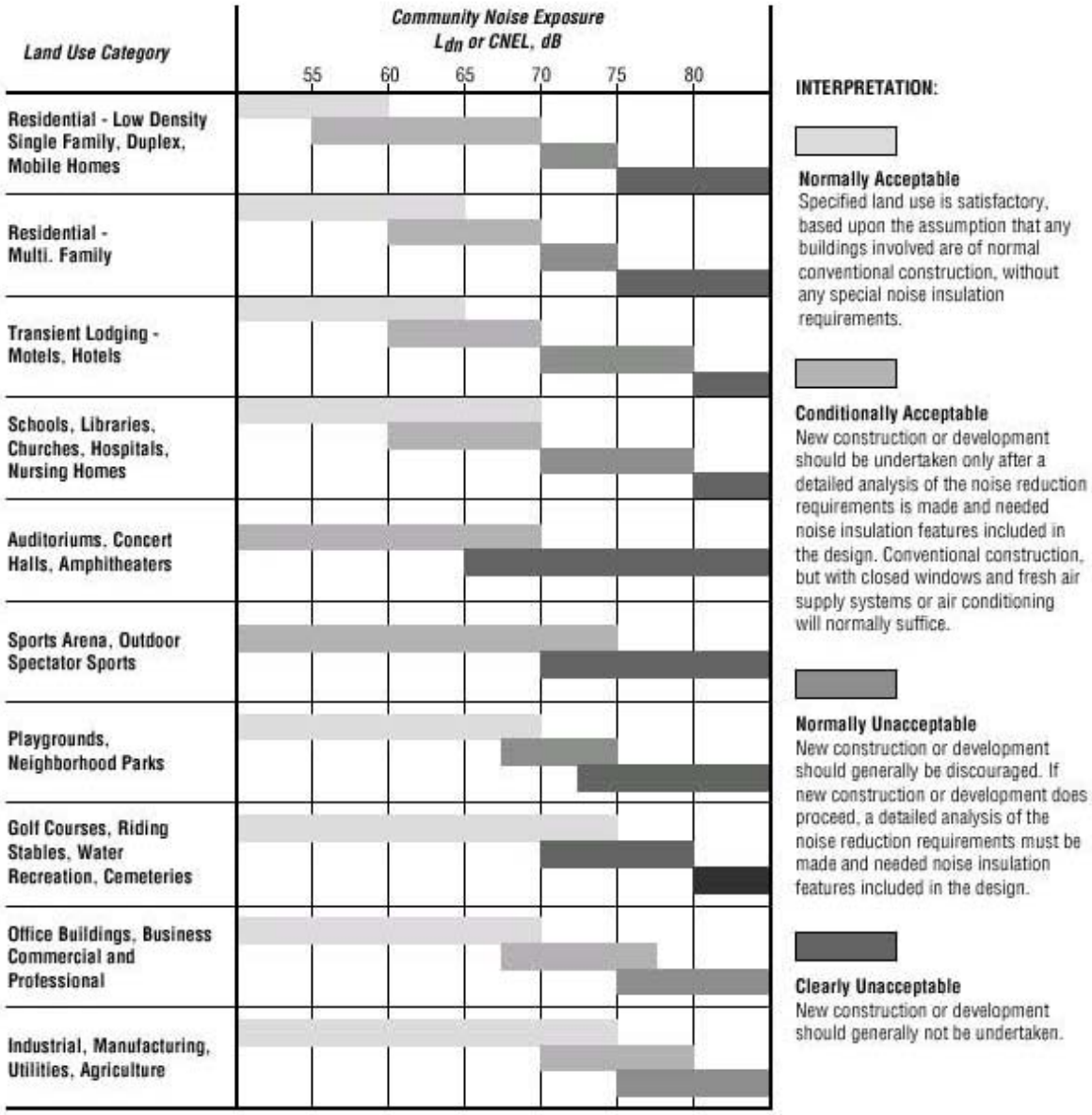
An increase of 3 decibels is normally not detectable; an increase of 5 dB is noticeable; and an increase of 10 dB is perceived as a doubling of sound. In addition to loudness, noise is often characterized by time. $L_{10}$ represents a noise level that is exceeded 10 percent of the time. $L_{50}$ represents a median noise level, and $L_{90}$ describes daytime background noise. $L_{dn}$ describes average day/night noise and includes an adjustment for nighttime noise which is normally perceived to be louder because of the quieter conditions.

Because sensitivity to noise increases in the evening and at night and excessive noise interferes with the ability to sleep, 24-hour descriptors were developed to add artificial noise penalties to quiet-time noise events. State law requires general plans to use the Community Noise Equivalent Level (CNEL) or $L_{dn}$ to describe the community noise environment and its effects on the population. (The two are essentially the same.) *General Plan 2030* uses $L_{dn}$. Standards included in Figure 2 (p. 90) have been established correlating noise and different land uses in terms of acceptable levels.

**Hazardous materials.** Hazardous materials include toxic metals, chemicals and gases, flammable and/or explosive liquids and solids, corrosive materials, infectious substances, and radioactive materials. They pose a variety of dangers to public health and welfare, and their transport, distribution, and storage is a concern for residents and workers. The City's Hazardous Materials Ordinance regulates and enforces the proper storage and handling of hazardous materials. The fire department works in conjunction with County Environmental Health in responding to hazardous materials spills and accidents and enforcing hazardous materials regulations.

**Light pollution.** Even when properly directed, night lighting can spill both upward and away from its intended target, and onto adjoining

Figure 2




Source: California Governor's Office of Planning and Research

properties. The City expects to study the impacts of light pollution and develop actions to reduce its effects on urban and open space lands. A number of local jurisdictions have adopted "dark sky ordinances" aimed at reducing light spillage.

## NATURAL HAZARDS

Geologic hazards are generally divided into two categories: seismically induced hazards and non-seismically induced. The former includes ground shaking, surface rupture, ground failure, settlement, landslides, and water waves. Non-seismically induced hazards include slope instability, cliff retreat, and non-seismic settlement and landslides.

**Unstable ground.** Soils, slopes, and cliffs are subject to erosion, weathering, groundwater withdrawal, and seismic processes that cause instability. The instability can damage buildings, threaten lives, and degrade environmental quality. The potential for instability and retreat are determined by soil composition, underlying geology, and existing vegetation.

*Cliff retreat* is the result of hillside or coastal headland erosion from weathering, physical disturbance and, in the case of ocean cliffs, the continuous and forceful actions of waves and tides. In the city, cliff retreat is prevalent along North Pacific Avenue, Chestnut Street, and ocean cliffs at West Cliff Drive and Seabright Beach. Surveys and past aerial photos indicate that ocean cliff retreat in the city varies from minimal to three or more inches per year. There also are occasional collapses of large portions of cliffs. Variations in cliff retreat are due to wave action and geologic formation.

**Dam failure.** Dam failure can occur as a result of earthquakes, seiches, structural instability, or intense rain in excess of the structure's design capacity. The risk of failure of the Newell Creek Dam is unlikely, except in the event of earthquakes or seiches. The reservoir is monitored monthly for hydrology deviation, and semi-annually for bending, twisting, and uplifting, in accordance with California Division of Safety of Dams requirements.

**Tsunamis.** Tsunamis are a secondary effect of earthquakes. They strike quickly and can leave an aftermath of extensive damage, injury, and death. Large, successional oceanic waves are generated by seismic events and travel at speeds up to 450 mph. The tsunami wave, barely perceptible at sea, increases in height as it moves into shallow water.

Tsunamis cannot be prevented and can cause massive destruction. Santa Cruz is susceptible to tsunami inundation primarily in coastal areas and along coastal watercourses at lower elevations. The National Oceanic and Atmospheric Administration operates a tsunami warning system that gives several hours notice to allow evacuation of threatened areas.

**Landslides.** Landslides are the rapid downward movement of rock, earth, or artificial fill on a slope. Factors causing landsliding include the rock strength and orientation of elements on the slope, erosion, weathering, high rainfall, steepness of slopes, and human activities such as the removal of vegetation and inappropriate grading. Although the city is not as susceptible to landslides as are the more hilly areas of the county, landslide deposits and soil creep are not uncommon on slopes near Moore Creek Preserve and the upper portions of Arana Gulch and DeLaveaga Park.

**Earthquakes.** Santa Cruz was one of the hardest hit communities in the 7.1 Richter magnitude Loma Prieta earthquake, October 17, 1989. Its epicenter was approximately 10 miles east of the city on the San Andreas fault. Although there were few fatalities, the city suffered substantial damage, especially in the downtown area. Thirty-four commercial buildings were demolished; many more were damaged; 206 businesses were dislocated; and 1,400 jobs were lost. Hundreds of residential units suffered chimney and other structural damage.

Although the Loma Prieta earthquake destroyed many of the city's seismically hazardous buildings, seismic events will recur and continue to pose a hazard to buildings, residents, and workers. While there are no formally recognized faults in Santa Cruz, the city lies within 15 miles of at least six major seismic faults and fault systems, placing it in an area of high seismic risk. Nearby faults include the San Andreas, Zayante, Ben Lomond, San Gregorio, Butano, and the Monterey Bay Fault Zone.

**Liquefaction.** Liquefaction is the transformation of loose water-saturated sand or silt from a solid into a liquid state. Liquefaction commonly, but not always, leads to ground failure. Within these areas, site-specific analysis is needed to accurately determine liquefaction potential. For

example, detailed geologic investigation of the Neary Lagoon area, designated as having high liquefaction potential, indicates a number of sites with moderate or low liquefaction potential.

**Flooding.** Flooding can result from intense rainfall, localized drainage problems, tsunamis and seiches, or failure of flood control or water supply structures such as levees, dams, or reservoirs. Floodwaters can carry large objects downstream with a force that can destroy stationary structures, cause drowning, break utility lines, and sufficiently saturate materials and earth to lead to structural instability, collapse, and damage.

Areas subject to natural flooding hazards are designated by the U.S. Corp of Army Engineers using 100-year floodplain boundaries. A 100-year flood has a 1 percent probability of occurring in any year and is considered to be a severe flood, but one with a reasonable possibility of occurrence for purposes of land use planning, property protection, and human safety.

Flooding in Santa Cruz has occurred primarily along the San Lorenzo River. The most damaging flood, in 1955, resulted in construction of levees, a floodwall, and channel work along the river and the Branciforte Creek tributary. After construction of the flood control project, aggradation of silt in the channel occurred more quickly than predicted. By the early 1970s, a large buildup of sediment threatened the area's flood protection.

Following heavy storms in the winter of 1981-82, the City improved flood protection, safety, appearance and environmental conditions, and the recreational value of the river by adopting River Design and Enhancement plans and conducting extensive hydrologic studies and work. During the 1982 floods, a portion of the Soquel Avenue Bridge collapsed.

The City, in conjunction with the Army Corps of Engineers, worked to improve the flood capacity of the San Lorenzo River. Major construction was completed on the levees and bridges along the river. The Federal Emergency Management Agency (FEMA) recognized the increased flood protection by granting an A-99 flood zone designation for most of the floodplain in the city. Flood insurance premiums in the A-99 flood zone are up to 50 percent lower than under the previous designation. New buildings and improvements to structures in the A-99 zone do not need to meet FEMA flood elevation construction requirements unless the property owner wishes to do so.

Flooding is a hazard on the lower reaches of Moore Creek, the lower portion of Arana Gulch north of the Santa Cruz Yacht Harbor, and along portions of Branciforte and Carbonera creeks. Development in these floodplains is strictly limited to reduce potential hazards to people or property.

## Goals, policies, and actions

### GOAL HZ1 Emergency and disaster readiness

HZ1.1 Ensure emergency preparedness.

- HZ1.1.1 Annually update the Emergency Operations Plan.
- HZ1.1.2 Train City staff in emergency preparedness.
- HZ1.1.3 Ensure that new development design, circulation, and access allows for maintaining minimum emergency response times. Cf. M3.2.3, HZ1.2.4, HZ1.2.8.
- HZ1.1.4 Ensure the completeness and availability of emergency supplies and equipment in cooperation with other agencies.
- HZ1.1.5 Promote the development of a new countywide Emergency Operations Center facility. Cf. CC2.1.1.
- HZ1.1.6 Ensure preparation for delivery of a safe, reliable water supply in an emergency.

HZ1.1.7 Maintain the physical and structural integrity of all existing emergency use facilities.

HZ1.1.8 Evaluate the geographic distribution of critical facilities and their ability to survive flood and seismic hazards.

HZ1.1.9 Ensure that water, gas, and sewage utilities serving critical facilities are in good condition and are engineered to withstand damage from disasters.

HZ1.1.10 Encourage utility and building retrofits as technologies improve.

HZ1.1.11 Continue to strengthen and maintain bridges to withstand flood and earthquake.

HZ1.2 Respond to emergencies rapidly. Cf. CC7.1.6 and HZ4.3.

HZ1.2.1 Annually review data on calls for service, response times, and changing risk probabilities.

HZ1.2.2 Make continuous operational improvements in an effort to arrive on emergency scenes within an average time of 4 minutes or less and within 5 minutes or less 90 percent of the time.

HZ1.2.3 Maintain a system of pre-fire surveys for selected buildings that will make critical information immediately available to emergency personnel responding.

HZ1.2.4 Ensure citywide access for emergency vehicles. Cf. M3.2.3, HZ1.1.3.

HZ1.2.5 Continue to ensure that new development design and circulation allow for adequate emergency access.

HZ1.2.6 Prohibit the placement of speed bumps on fire department primary response routes.

HZ1.2.7 Coordinate emergency planning efforts with the Santa Cruz County Office of Emergency Services.

HZ1.2.8 Assure cellular telephone services to critical facilities. Cf. CC11.4, HZ1.1.3.

HZ1.3 Provide public education about what to do in an emergency.

HZ1.3.1 Maintain and publicize a system of emergency and evacuation routes serving all areas of the city. Cf. HZ6.6.3.

HZ1.3.2 Educate the public regarding seismic, geologic, flood, fire, and other potential hazards.

HZ1.4 Continue to meet fire safety and firefighting needs.

HZ1.4.1 Ensure department readiness through ongoing equipment maintenance and personnel training.

HZ1.4.2 Continue to promote the installation, inspection, and testing of built-in fire extinguishing and early warning fire alarm systems.

HZ1.4.3 Ensure that water systems serving a new use or change in use are designed to meet fire flow requirements. Cf. CC3.4.1.

HZ1.4.4 Continue mutual fire protection services with participating agencies.

HZ1.4.5 Operate cooperative fire protection services with UCSC, the County fire districts, and the California Department of Forestry.

HZ1.5 Reduce potential fire hazards.

HZ1.5.1 Reduce wildfire hazards.

HZ1.5.2 Regulate development in and adjacent to areas with steep canyons, arroyos and fire-prone vegetation.

HZ1.5.3 Where preservation of fire-prone vegetation in undeveloped areas is desirable and appropriate, require development setbacks as determined by the fire department on a project-by-project basis.

HZ1.5.4 Require new development in areas susceptible to wildfires to be responsible for fire prevention activities (e.g., visible house numbering and use of fire-resistant and fire-retardant building and landscape materials) and to also provide a defensible zone to inhibit the spread of wildfires.

HZ1.5.5 Maintain all access roads and driveways so as to ensure the fire department safe and expedient passage at all times.

HZ1.5.6 Abate hazardous buildings and conditions. Cf. HZ2.2.3, Goal HZ4, CC6.1.8, NRC3.2.

HZ1.5.7 Discourage locating public structures and utilities in high or extreme fire hazard areas.

HZ1.5.8 Promote fire safety and prevention programs for high occupancy uses.

HZ1.6 Encourage the regular review of existing codes as they relate to life safety.

HZ1.6.1 Periodically update existing codes to address life safety issues.

## GOAL HZ2 Clean air

HZ2.1 Strive to achieve State and federal air quality standards for the region.

HZ2.1.1 Support and implement local actions and County, State and federal legislation promoting the reduced emission of carbon dioxide and other greenhouse gases.

HZ2.1.2 Investigate methods for developing a carbon dioxide budget for the City that limits carbon dioxide emissions.

HZ2.1.3 Implement chlorofluorocarbon (CFC) recycling and elimination regulations.

HZ2.1.4 Strive to eliminate the use of polystyrene foam (PSF) packaging products throughout the city.

HZ2.2 Address localized air quality issues, including indoor air quality.

HZ2.2.1 Require future development projects to implement applicable Monterey Bay Unified Air Pollution Control District (MBUAPCD) control measure and/or air quality mitigations in the design of new projects as set forth in the District's "CEQA Guidelines." Cf. M3.3.4.

HZ2.2.2 Permit major indirect sources of air pollution only if they provide transportation measures to reduce their impacts to a less-than-significant level, consistent with applicable MBUAPCD recommended mitigation and control measures as set forth in the District's "CEQA Guidelines." Cf. LU1.2.

HZ2.2.3 Locate air pollution-sensitive land uses away from major sources of air pollution or require mitigation measures to protect residential and sensitive land uses from freeways, arterials, point source polluters, and hazardous material locations. Cf. LU1.2, HZ1.5.6, Goal HZ4, CC6.1.8, NRC3.2.

HZ2.2.4 Encourage public education programs promoting reduced emissions from transportation-generated pollutants and area-wide sources.

HZ2.2.5 Implement and enforce the Smoking Pollution Control Ordinance.

HZ2.2.6 Support MBUAPCD air pollution control strategies, air quality monitoring and enforcement activities.

## GOAL HZ3 Noise levels compatible with occupancy and use

HZ3.1 Maintain or reduce existing noise levels and control excessive noise.

HZ3.1.1 Require land uses to operate at noise levels that do not significantly increase surrounding ambient noise.

HZ3.1.2 Use site planning and design approaches to minimize noise impacts from new development on surrounding land uses.

HZ3.1.3 Ensure that construction activities are managed to minimize overall noise impacts on surrounding land uses.

HZ3.1.4 Minimize the impacts of intermittent urban noise on residents.

HZ3.1.5 Develop a system to monitor construction noise impacts on surrounding land uses.

HZ3.1.6 Require evaluation of noise mitigation measures for projects that would substantially increase noise.

HZ3.1.7 Protect residential areas from excessive noise from traffic and from road projects. Cf. M3.3.4, M3.3.6.

HZ3.1.8 Require environmental review and mitigation of roadway projects that may significantly increase the average day/night noise levels.

HZ3.1.9 Limit truck traffic in residential and commercial areas to designated truck routes.

HZ3.1.10 Where noise reduction would be beneficial, consider installing quiet pavement surfaces as part of repaving projects.

HZ3.1.11 Require soundwalls, earth berms, setbacks, and other noise reduction techniques for new development, when appropriate and necessary, as conditions of approval.

HZ3.2 Ensure that noise standards are met in the siting of noise-sensitive uses. Cf. LU3.2.7.

HZ3.2.1 Apply noise and land use compatibility table and standards to all new residential, commercial, and mixed-use proposals, including condominium conversions in accordance with standards set forth in the Land Use-Noise Compatibility Standards Figure 2.

HZ3.2.2 Establish $L_{dn}$ noise level targets of 65 dBA for outdoor activity areas in new multifamily residential developments.

HZ3.2.3 Require that interior noise in all new multifamily housing not exceed an $L_{dn}$ of 45 dBA with the windows and doors closed (State of California Noise Insulation Standards) and extend the requirement to single-family homes.

## GOAL HZ4 Reduced danger and impacts from hazardous materials Cf. HZ1.5.6, HZ2.2.3, CC6.1.8, NRC3.2.

HZ4.1 Regulate hazardous wastes with respect to potential leakage, explosions, fires, escape of harmful gases, or formation of new hazardous substances.

HZ4.1.1 Work with the County's Environmental Health Services, the County, and other groups in adopting, implementing, and updating a countywide Hazardous Waste Management Plan and Joint County Hazardous Materials Ocean Response Plan.

HZ4.1.2 Establish guidelines for hours, methods, routes, and amounts of hazardous waste being transported through the city.

HZ4.1.3 Monitor the City-County agreement for administering and enforcing hazardous materials regulations, and recommend any needed changes.

HZ4.1.4 Reduce the use of toxic materials in the community and prevent their disposal into the air, water, or soil.

HZ4.1.5 Require Building Maintenance and other City staff to use nontoxic materials whenever possible.

HZ4.1.6 Emphasize the city's role as an organic agricultural center and work with appropriate agencies to develop demonstration projects on non-chemical pest control and soil management practices. Cf. CC6.1.8, NRC3.2.

HZ4.1.7 Work with the County's Environmental Health Services department and other agencies to establish an educational outreach program for businesses and residents regarding the safe use, recycling, and disposal of toxic materials; reducing the use of hazardous household wastes; and acceptable substitutes for toxic substances.

HZ4.2 Ensure proper handling and disposal of hazardous waste.

HZ4.2.1 Maintain the Hazardous Household Wastes facility for Santa Cruz residents to dispose hazardous materials safely and legally.

HZ4.2.2 Continue to offer a program for households and businesses to turn in unwanted Hazardous Household Wastes.

HZ4.2.3 Prevent illegal dumping of hazardous waste at the Resource Recovery Facility.

HZ4.2.4 Work with local pharmacies to provide citizens with safe and legal drop-off opportunities for unwanted and unused medications and sharps.

HZ4.3 Ensure that resources are available for quick and proper response to hazardous-waste emergencies. Cf. CC7.1.6 and HZ1.2.

HZ4.3.1 Train personnel and ensure that resources are available to quickly respond to hazardous-waste emergencies.

HZ4.4 Reduce the risk of exposure to hazardous materials from sites being developed or redeveloped.

HZ4.4.1 Regulate the siting and permitting of businesses that handle hazardous materials, and assure that safe handling and use information from those businesses is provided to fire protection and other safety agencies.

HZ4.4.2 Periodically review and update procedures for land uses that handle, store, or transport lead, mercury, vinyl chloride, benzene, asbestos, beryllium, or other hazardous materials.

HZ4.5 Maintain Santa Cruz as a nuclear free zone.

### GOAL HZ5 Minimal light pollution

HZ5.1 Reduce light pollution. Cf. CD3.6, M1.6.1, M3.2.10, NRC7.1.2.

HZ5.1.1 Investigate the merits of a "dark sky ordinance" and the standards and enforcement efforts required.

HZ5.1.2 Develop lighting design guidelines that reduce light spillage both upward and onto adjoining properties.

HZ5.1.3 Consider appropriateness of lighting when reviewing proposed development or renovation of parks and recreation facilities.

### GOAL HZ6 Protection from natural hazards

HZ6.1 Reduce erosion hazards.

HZ6.1.1 Minimize hazards posed by coastal cliff retreat.

HZ6.1.2 For development adjacent to cliffs, require setbacks for buildings equal to 50 years of anticipated cliff retreat.

HZ6.2 Discourage development on unstable slopes.

HZ6.2.1 Require engineering geology reports when, in the opinion of the City's planning director, excavation and grading have the potential for exposure to slope instability or the potential to create unstable slope or soil conditions.

HZ6.3 Reduce the potential for life loss, injury, and property and economic damage from earthquakes, liquefaction, and other seismic hazards.

HZ6.3.1 Adopt new State-approved California Building Codes (CBC) and require that all new construction conform with the latest edition of the CBC.

HZ6.3.2 Complete seismic retrofit of unreinforced masonry buildings within the city in accordance with the Uniform Code for the Abatement of Dangerous Buildings.

HZ6.3.3 Require earthquake retrofit in connection with repair or alterations, and use the City's Rehabilitation Program, where appropriate, to manage the work.

HZ6.3.4 When feasible, upgrade sewer, water, and other piping to withstand seismic shaking and differential settlement.

HZ6.3.5 Consider an automatic gas shutoff ordinance for buildings within the city to reduce fire hazards related to seismic shaking.

HZ6.3.6 Require site specific geologic investigation(s) by qualified professionals for proposed development in potential liquefaction areas shown on the Liquefaction Hazard Map to assess potential liquefaction hazards, and require developments to incorporate the design and other mitigation measures recommended by the investigation(s).

HZ6.4 Avoid or reduce the potential for life loss, injury, and property and economic damage from flooding.

HZ6.4.1 Address the effects of global warming through changes in land use and building codes for low-lying areas that may be flooded by increases in sea levels and storm violence.

HZ6.4.2 Increase public awareness of flood hazards.

HZ6.4.3 Ensure that flood information is made available to property owners, potential buyers, and residents living in floodplains and coastal inundation areas, and

encourage them to participate in the Federal Flood Insurance Program.

HZ6.4.4 Work with creekside property owners to reduce and mitigate flood hazards.

HZ6.4.5 Continue to reduce flooding hazards in areas with flood potential.

HZ6.4.6 Regulate and provide guidelines for construction and development in floodplains.

HZ6.4.7 Restrict or prohibit uses in undeveloped flood areas, and maintain floodplain and floodway regulations in developed flood areas.

HZ6.4.8 Minimize the alteration of natural floodplains, stream channels, and natural protective barriers that accommodate or channel floodwaters.

HZ6.4.9 Control filling, grading, dredging, and other development that may increase flood potential.

HZ6.4.10 Limit the amount of impervious surface in flood-prone areas.

HZ6.4.11 Identify and annually review areas subject to floods.

HZ6.5 Minimize dredging pursuant to appropriate management plans.

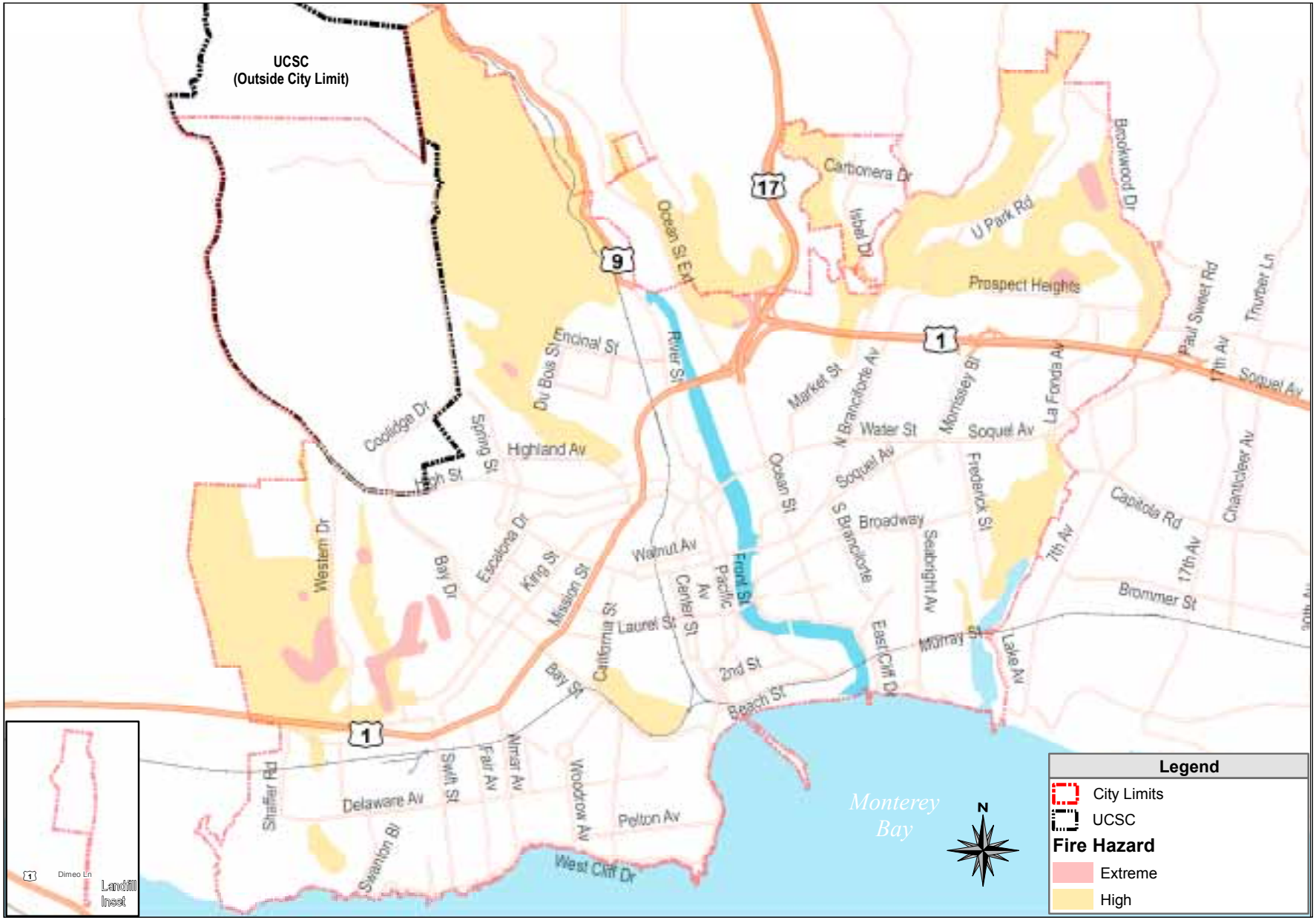
HZ6.6 Avoid or reduce the potential for life loss, injury, and property and economic damage to the city from tsunamis and dam failure.

HZ6.6.1 Continue to enhance emergency management systems and develop patrol activities to ensure early warning for evacuation of areas susceptible to natural flooding, tsunami inundation, seiches, or dam failure.

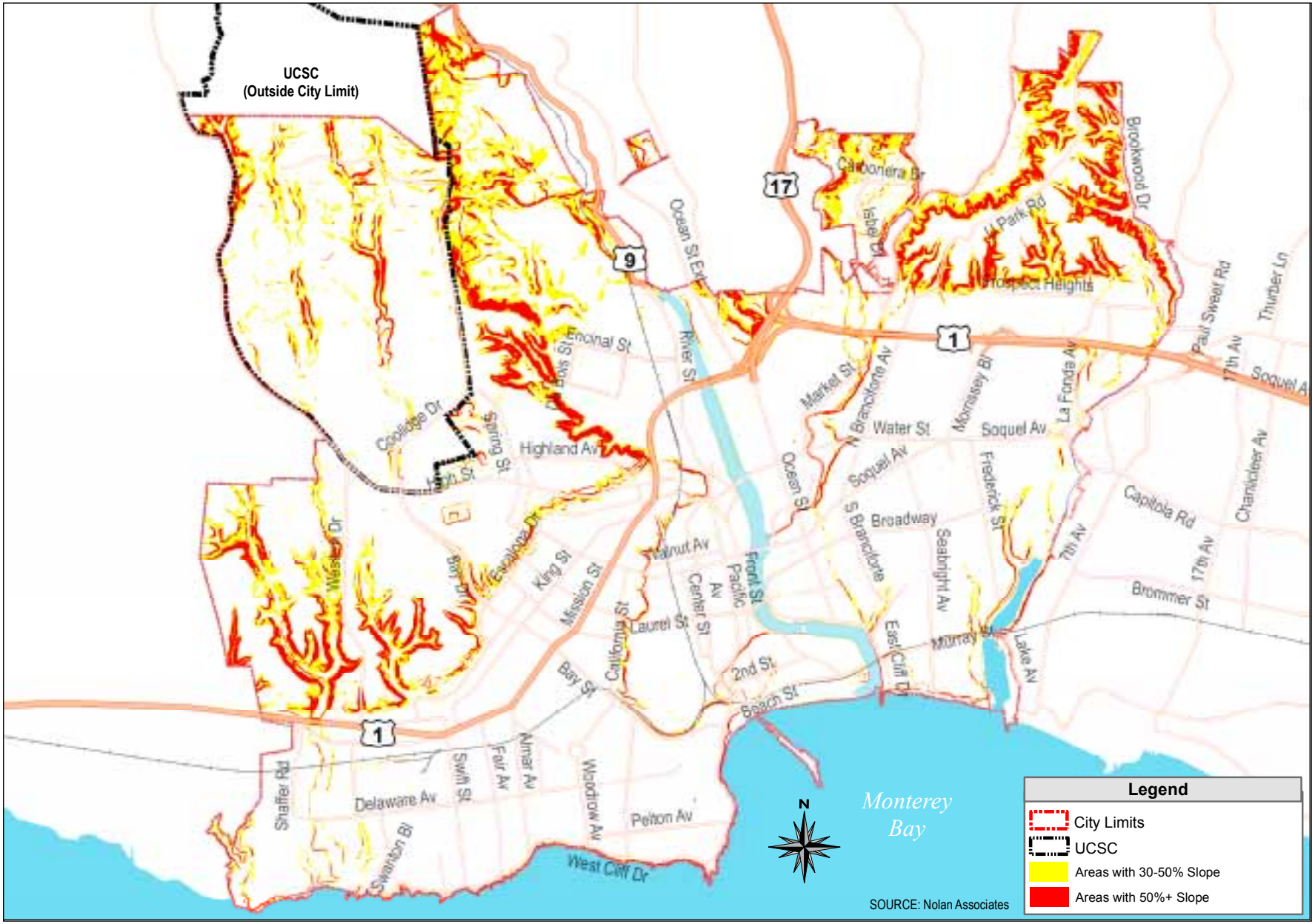
HZ6.6.2 Institute a flood warning system for developed areas in floodplains, tsunami inundation areas, and areas affected by Newell Creek dam failure.

HZ6.6.3 Periodically review evacuation plans for flooding, potential dam failures, and tsunami inundation areas. Cf. HZ1.3.1.

# Fire Hazard Area



# Slope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Thurber Ln
Soquel Av
Capitola Rd
Chanticleer Av
Frederick St
S Branciforte
Broadway
Seabright Av
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Brommer St
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Pacific Av
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Mission St
King St
Bay St
California St
Highland Av
Spring St
Escalona Dr
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Woodrow Av
Pelton Av
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Delaware Av
Swift St
Fair Av
Almar Av
Shaffer Rd
Swanton Bl
Prospect Heights
Brookwood Dr
Isabella Dr
Glenwood Dr
Emonal St
Sims Rd
Monterey Bay
N
SOURCE: Nolan Associates
Legend
City Limits
UCSC
Areas with 30-50% Slope
Areas with 50%+ Slope
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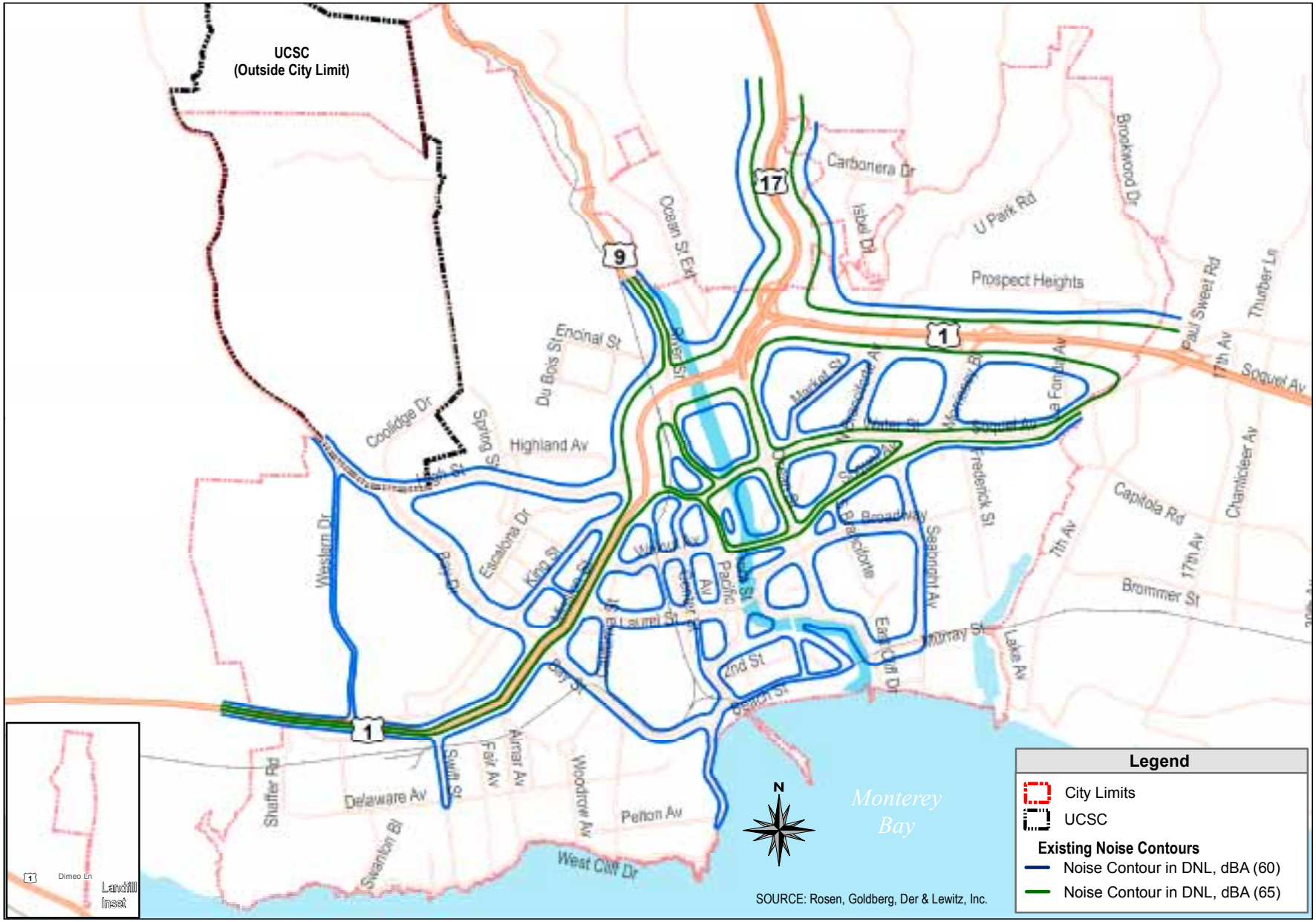
0.75
1.5 Miles

# Existing Noise Contours



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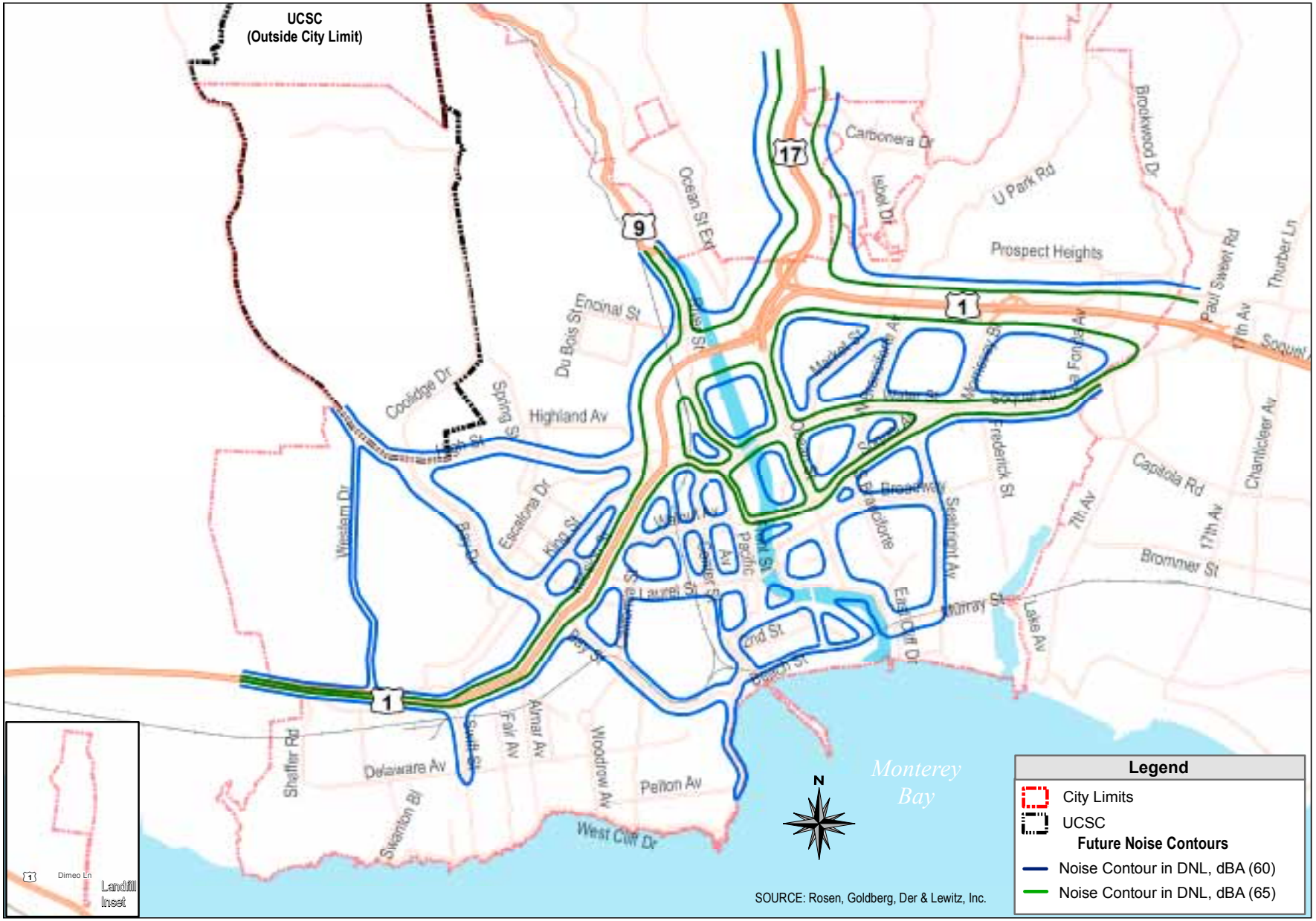
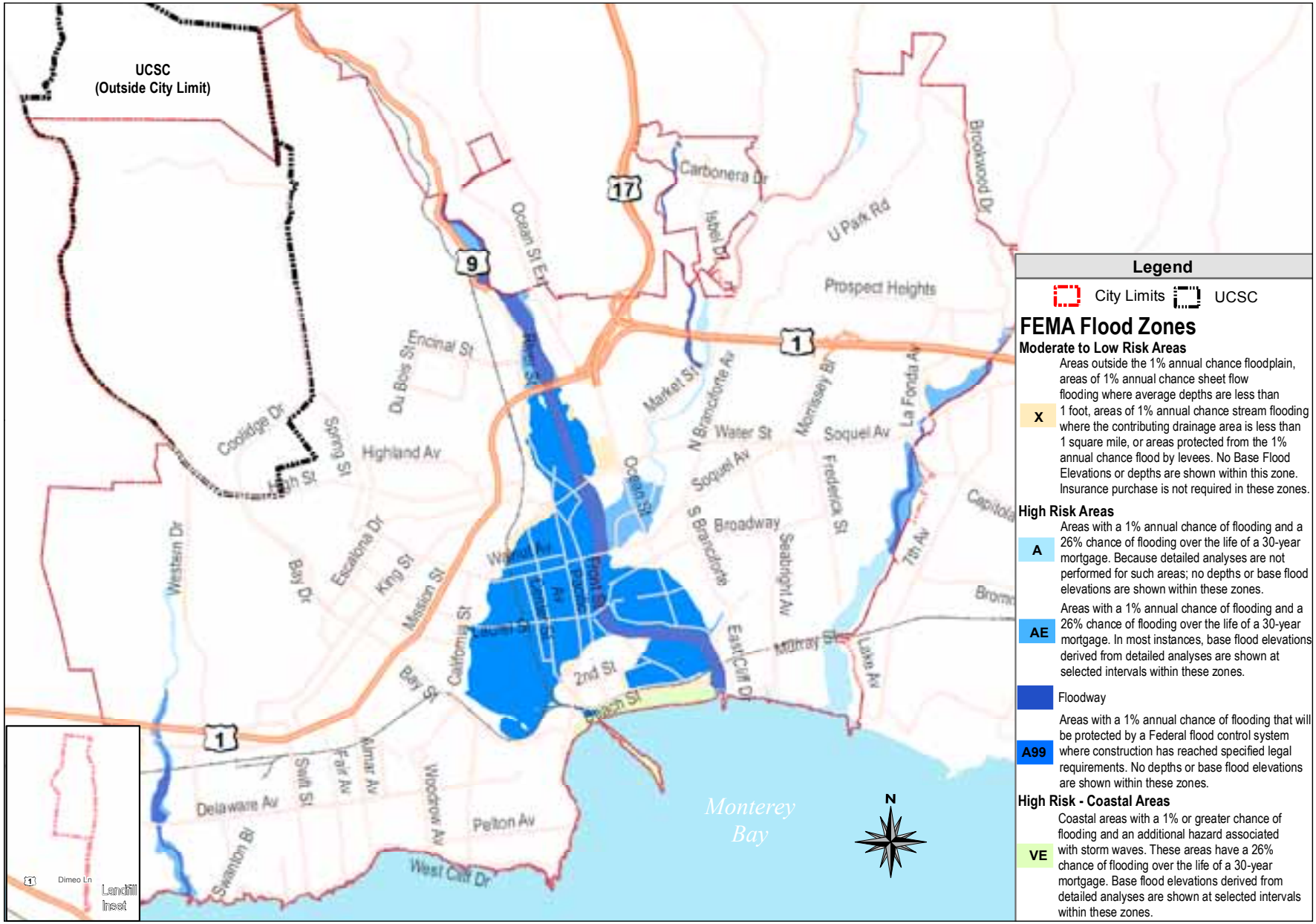
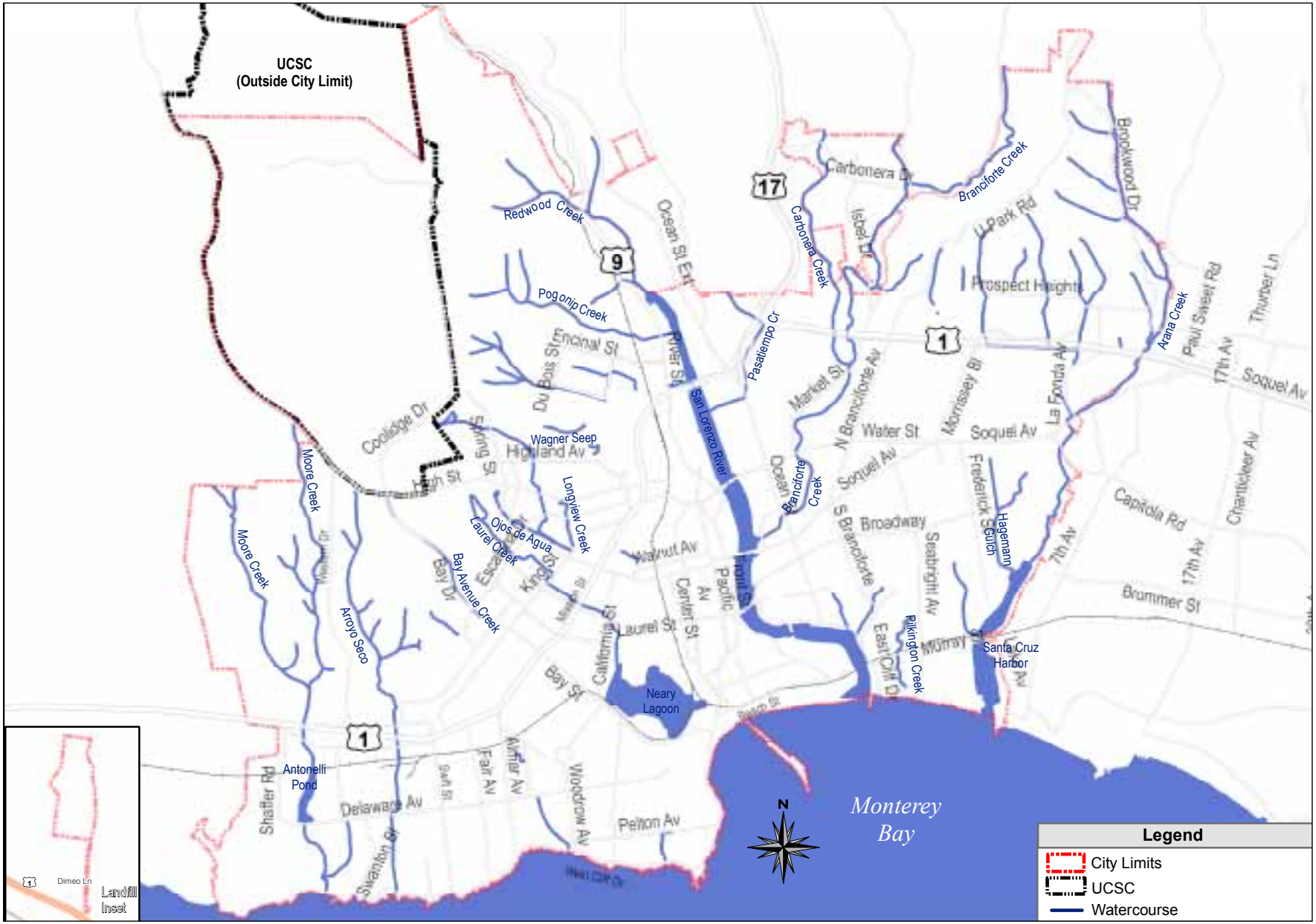


# FEMA Flood Zone



# Major Watercourses



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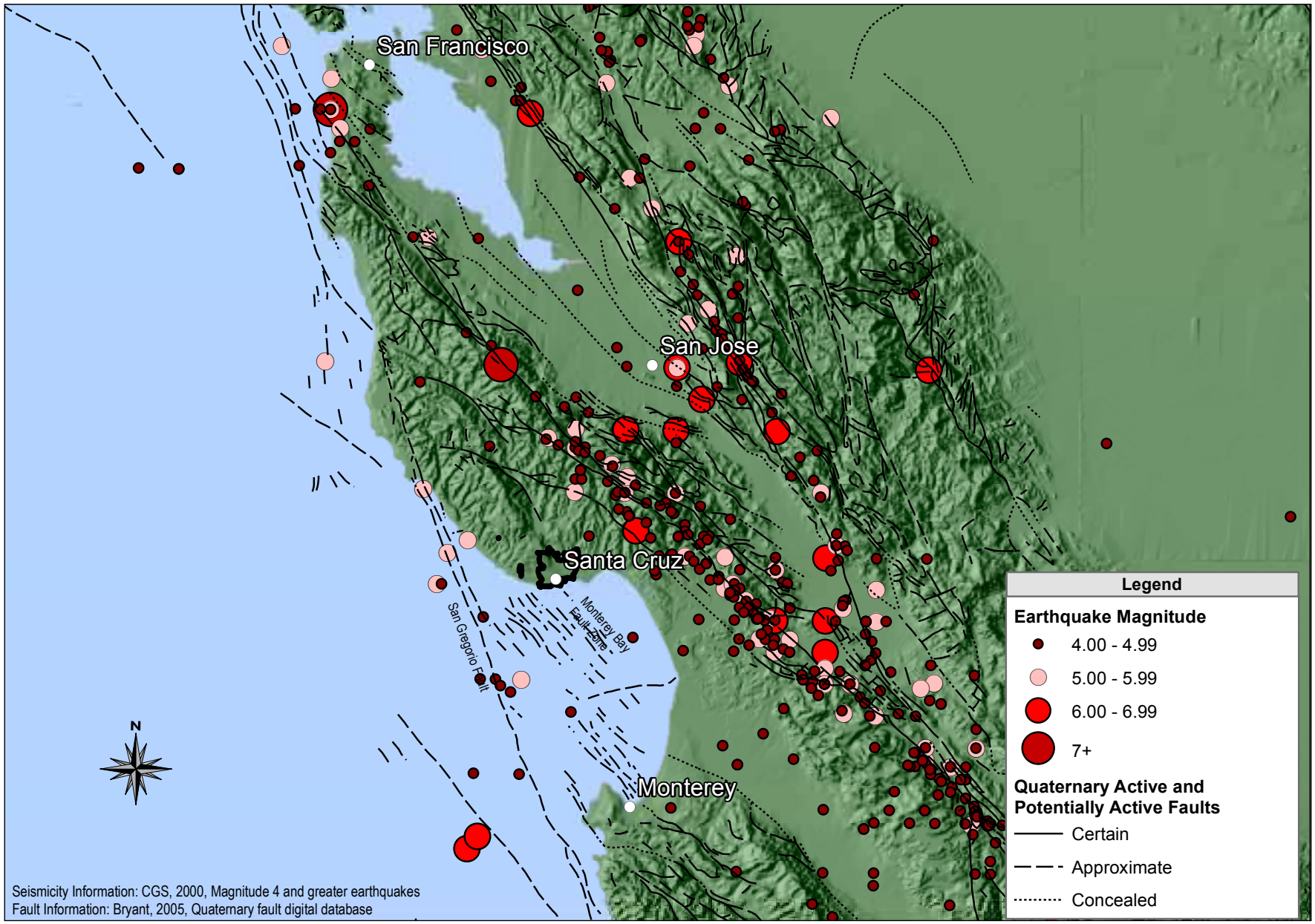
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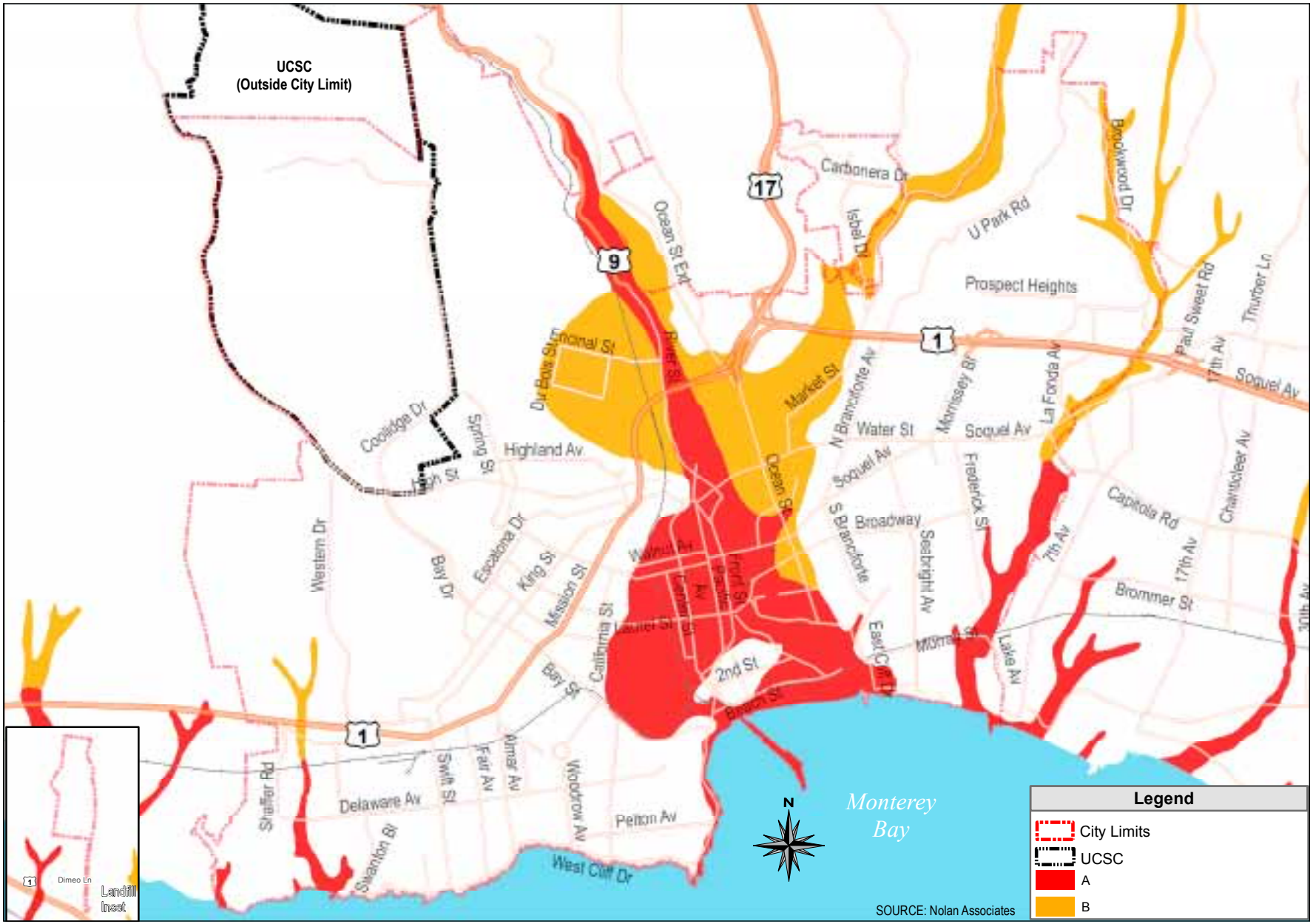
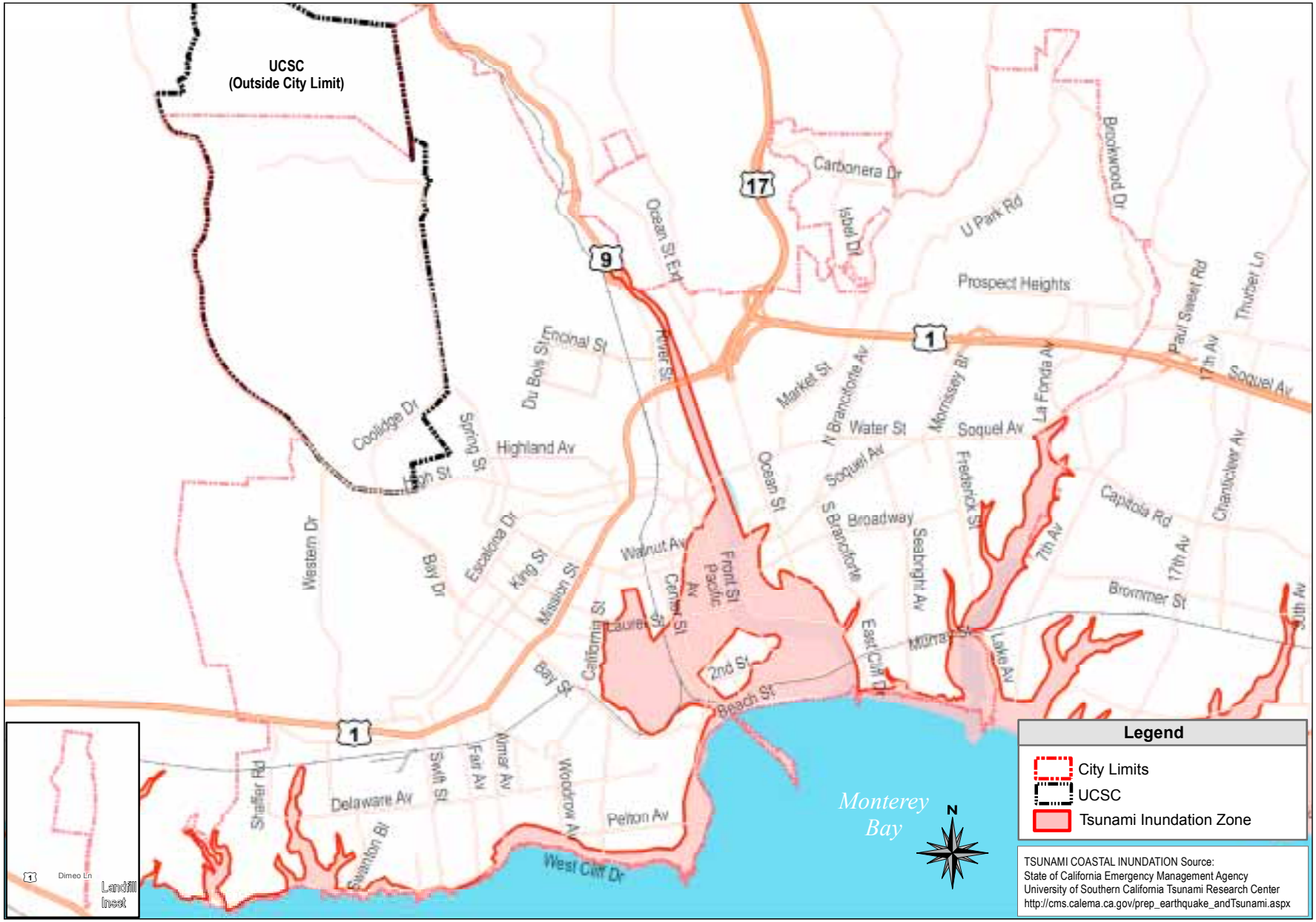
San Jose
Santa Cruz
Monterey
San Gregorio Fault
Monterey Bay Fault Zone
N
Legend
Earthquake Magnitude
4.00 - 4.99
5.00 - 5.99
6.00 - 6.99
7+
Quaternary Active and Potentially Active Faults
Certain
Approximate
Concealed
Seismicity Information: CGS, 2000, Magnitude 4 and greater earthquakes
Fault Information: Bryant, 2005, Quaternary fault digital database
0
10
20 Miles

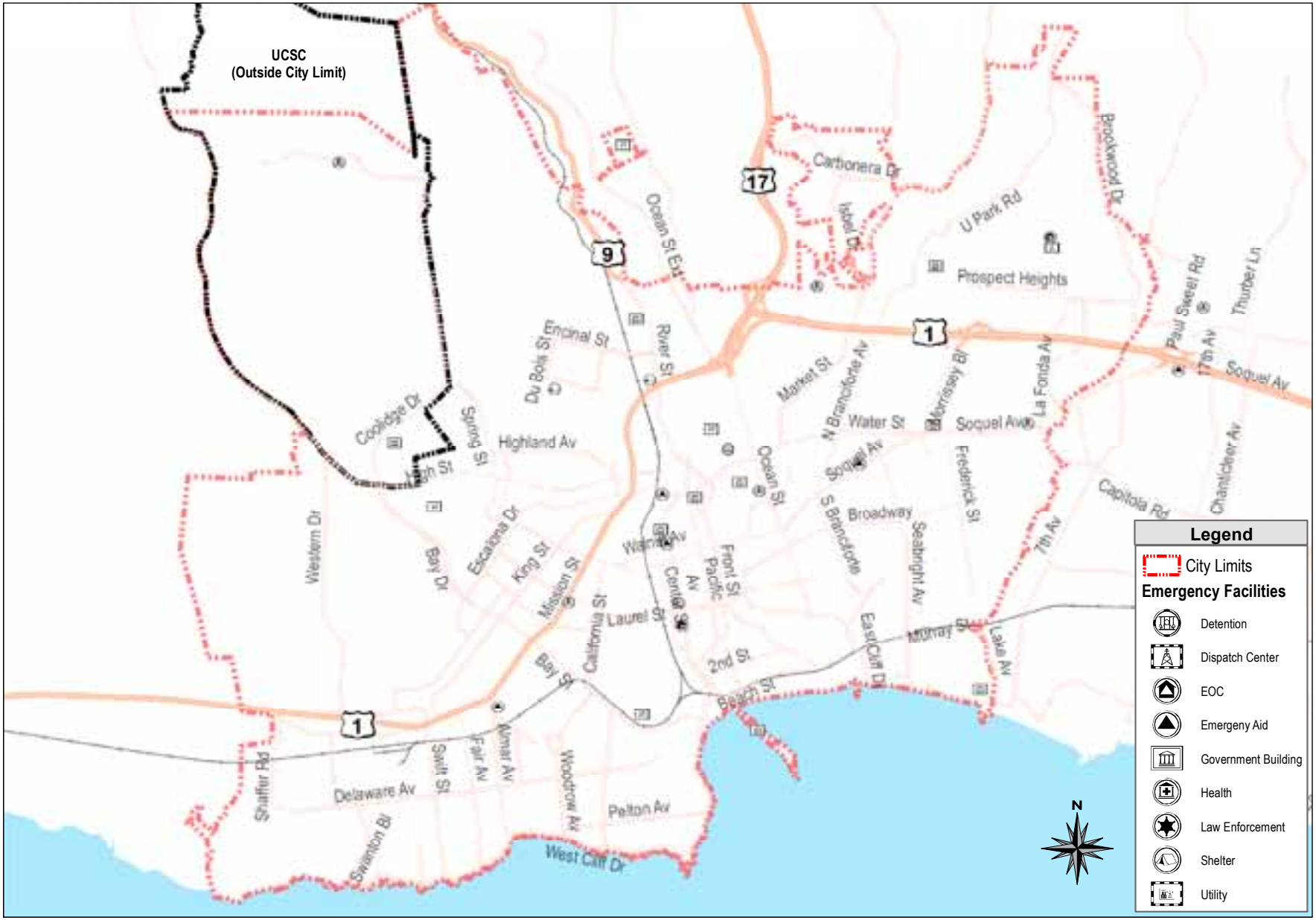
# Liquefaction



# Tsunami Inundation Zone



# Emergency Facilities



CHAPTER 9

# PARKS, RECREATION AND OPEN SPACE

The purpose of this chapter of *General Plan 2030* is to assure that future physical development in Santa Cruz will protect and sustain precious natural resources, honor and enhance the city's unique natural setting, and maintain and appropriately use the open space that encompasses and penetrates the city. The chapter is divided into the following sections:

- **Parks, recreation, and opens space background** describes the city's existing facilities and changing needs.
- **Goals, Policies, and Actions** provides City bodies with guidance in making land use decisions and implementing the actions recommended in this chapter.

## Parks, recreation, and open space background

The Vision and one of the Principles adopted to guide the development of the City's General Plan speak directly to preserving Santa Cruz's unique setting:

> *Surrounded by greenbelt lands and the Pacific Ocean, Santa Cruz is a compact, vibrant city that preserves the diversity and quality of its natural and built environments, creates a satisfying quality of life for its diverse population and workers, and attracts visitors from around the world.*

- **Natural resources.** We will highlight and protect our unique setting, our natural and established open space, and the sustainable use of our precious natural resources.

### PARKS AND RECREATIONAL FACILITIES

Santa Cruz offers its residents and visitors a wide range of public and private recreational opportunities. The City oversees, maintains, and manages the development and operation of recreational facilities and neighborhood, community, and regional parks.

**Parks** are fundamental to the city's recreational environment. Well designed parks are essential for the health of the community and contribute to its overall quality of life. The city's parks vary considerably, as each was developed to serve specific segments of the population.

**Recreational facilities** serve the specific recreational needs and interests of individuals, neighborhoods, groups, and the community. Some facilities (like the Civic Auditorium) are freestanding; others are located in parks or on school lands. Available recreational facilities include ball fields, basketball courts, tennis courts, children's play areas, swimming pools, golf courses, health clubs, dog parks, a roller skating rink, skateboard park, a bike park, a disc golf park, the Wharf, the Yacht Harbor, and the Boardwalk.

**Neighborhood parks** serve the recreational needs of those living or working within a service radius of one-half mile. They provide recreation in facilities such as children's play areas, picnic areas, athletic fields, and outdoor basketball courts. The City's standard is to provide neighborhood parks at a ratio of 2.0 acres per 1,000 people.

**Community parks** are designed to serve the entire community. They are generally larger than neighborhood parks and offer unique facilities such as larger picnic areas, swimming pools, ball fields, tennis courts, and recreation centers. The City's standard for community parks is 2.5 acres per 1,000 people, with a service radius of 1.5 miles.

**Regional parks** serve the recreational needs of a regional population and are 150 acres in size or larger. They offer active and passive recreation with activities and amenities not found in neighborhood and community parks, such as large areas of open space, large picnic facilities, golf courses, lake boating, ball fields, multi-use trails. An accepted national standard for regional parks is 20 acres per 1,000 people.

## OPEN SPACE

The city's natural areas provide valuable wildlife habitats, scenic and recreational enjoyment, and an escape from the built environment. The beauty of these areas compels resident and visitor use for passive recreational activities such as walking, jogging, hiking, picnicking, bird watching, and relaxing. City owned natural areas include Pogonip, Arana Gulch, Moore Creek Preserve, and undeveloped areas of Neary Lagoon Wildlife Refuge, the San Lorenzo River, DeLaveaga Park, Jessie Street Marsh, and Arroyo Seco. Other natural areas not owned by the City include Lighthouse Field State Beach, Natural Bridges State Beach, Antonelli's Pond, and undeveloped areas of the UC Santa Cruz campus.

Santa Cruz owes its uniqueness in large measure to the abundant surrounding open space. To the south, Monterey Bay provides scenic views and unparalleled recreation along 4.6 miles of coastline. Greenbelt lands—about 1,500 acres of woodlands and coastal prairie in total—border the city on the west, north, and east. Within the city, the San Lorenzo River offers tree-lined banks, habitat for fish and wildlife, and levee pathways. Other natural areas within the open space system include wetlands and creek corridors.

Management of natural resources and public use within the city's open space areas is guided by master or management plans. The plans provide a long-term vision for each open space area, plus guidelines for protecting and enhancing natural and historic resources and for developing trails and other recreational uses. Given the importance of open space to residents of the Santa Cruz region, public input is a key component of the planning process for each area.

## COMMUNITY GARDENS

Community gardens are public and privately owned lands used for small scale flower and vegetable gardens. These gardens—a specialized type of park—provide the community with food, greenery, and therapeutic and relaxing recreation. The gardens can be created on small, undevelopable parcels of land or as temporary uses on developable parcels. As the city's population grows and densities increase, the expansion and development of community gardens will prove important to accommodating some of the community's recreational needs.

Ways to expand the number of gardens and their acreage include retaining portions of lands formerly in agricultural use as community gardens, examining the feasibility of expanding interim community garden use of undeveloped land, and converting marginal lands into community gardens.

### RECREATION PROGRAMS

The City's recreational programs are designed to be affordable and available to residents and nonresidents of all ages and interests. Through them, the City strives to provide constructive opportunities for fitness, skill development, personal enrichment, education, and activities that encourage cultural expression. Activities vary with the season and include special and annual events, camps, trips, classes (in art, music, dance, fitness, and cooking), and a variety of sports programs including swimming, kayaking, tennis, golf, softball, lawn bowling, bocce ball, skateboarding, disc golf, biking, basketball, and volleyball.

The City also offers a variety of cultural festivities and events. Many are held seasonally or annually; others are impromptu and cater to a variety of interests in the community. In addition, many events are sponsored by private groups in parks and in public places such as the Civic Auditorium, Louden Nelson Center, and Downtown. Nonprofit youth leagues use City School facilities and City parks for practice and games.

Identifying and accommodating the community's recreation facility needs is a continual process. As the population grows and the demographics change, heavily-used facilities may need to be augmented to accommodate demand. Demographic and recreational trends, current facility usage, neighborhood and community needs assessment surveys, and recreational facility standards are reviewed to ensure that the type, number, quality, and distribution of recreation facilities reflect community needs, customs, traditions, and interests.

### TRAILS

The city's natural setting has made activities such as walking, jogging, hiking, bicycling, skating, and horseback riding extremely popular. These activities usually occur along walkways, bikeways, and trails.

The city and regional trail systems provide not only recreation, but access to and connections between various parks, recreation facilities, and natural and urban areas: Neighborhood sidewalks and bike lanes serve as play areas for children and provide links from neighborhoods to parks, schools, bus stops, local services, and businesses. Promenades and hiking trails (including those along the Beach/Boardwalk, San Lorenzo River Corridor, Downtown, and West Cliff Drive) provide opportunities to enjoy unique natural and historic areas. The network of walkways, bikeways, and trails will become increasingly important for recreation—and as alternatives to automobile travel—as the city's resident and tourist populations grow.

## Goals, policies, and actions

**GOAL PR1 Ample, accessible, safe, and well-maintained parks, open space, and active recreational facilities**

PR1.1 Provide and manage a system of parks and recreation related facilities that serve the needs of residents and visitors.

- PR1.1.1 Update and modify the park system and services to accommodate changes in the population and its recreational needs.
- PR1.1.2 Develop and maintain a citywide Parks Master Plan that sets service standards and strategic goals for the development and maintenance of parks and related facilities.
- PR1.1.3 Evaluate all lands, regardless of size, for their potential development as small parks, community gardens, or landscape lots. Cf. PR3.2.
- PR1.1.4 Plan parks and recreation facilities adequate for the city's recreational needs, activities, and programs. Cf. HA2.1, 2.2 and 3.3; ED1.1.4 and 6.9.2; CC8.3.8; PR 2.1 and 2.2.4
- PR1.1.5 Plan for expansion of concessions in parks and recreation facilities.
- PR1.1.6 Fund and staff regularly scheduled preventative maintenance.

PR1.2 Encourage private, public, and nonprofit partnerships in development and use of park and recreational facilities.

- PR1.2.1 Coordinate with local schools to expand parks and recreation opportunities for the community.
- PR1.2.2 Examine the feasibility of developing new (and/or expanding and refurbishing existing) athletic fields, including those on school sites.
- PR1.2.3 Expand joint-use agreements with UCSC and Santa Cruz Schools for use of recreation facilities for parks, recreation, and community activities. Cf. CC2.1.5.

PR1.3 Maintain level of service standards for park acquisition and development.

- PR1.3.1 Ensure that adequate park land is provided in conjunction with new development.
- PR1.3.2 Strive for a neighborhood parks ratio of 2.0 acres per 1,000 population.
- PR1.3.3 Strive for a community parks ratio of 2.5 acres per 1,000 population.
- PR1.3.4 Ensure that ongoing maintenance needs are addressed in the development and funding plans for any new or expanded parks, recreation facilities, or open space areas.

PR1.4 Encourage recreational activities in appropriate public spaces.

PR1.5 Provide a safe and secure environment in City parks, open space areas, and facilities. Cf. CC7.1, CC7.4.

- PR1.5.1 Maintain and staff the Parks Security program and unit.
- PR1.5.2 Work with the community to maintain and expand neighborhood/park watch programs.

PR1.6 Ensure that parks and recreation facilities are accessible to all.

- PR1.6.1 Maintain and enhance access for vehicles, transit, bicycles, and pedestrians.
- PR1.6.2 Develop a sign program for visitor access to coastal parks and recreation areas, for all modes of transportation.
- PR1.6.3 Ensure adequate access in public transit and shuttle programs, for fee and free parking and mass transit, and at park-and-ride lots. Cf. M1.4, M1.5, M1.6.1, M2.4.12, M3.3.2.
- PR1.6.4 Provide and encourage provision of adequate bike parking. Cf. M4.4.
- PR1.6.5 Coordinate with other public entities in assuring public access to unrestricted open space lands and coastline.

PR1.7 Require developers to mitigate the impacts of their property improvements on City parks, recreation facilities, and open space areas.

- PR1.7.1 Require park land dedications of suitable recreational land at a ratio of 4.5 acres/1,000 population generated by a development project, or payment of a corresponding in-lieu fee.
- PR1.7.2 Require that new park facilities generated by a development project be designed to serve the recreational needs of the anticipated population.
- PR1.7.3 Link annual cost adjustments of park dedication in-lieu fees to annual construction cost indexes to reflect existing needs and the cost of providing and maintaining park lands and recreational facilities. Cf. PR1.9.1.

PR1.8 Provide off-leash dog use areas, where appropriate.

PR1.9 Maintain a Parks and Recreation Facilities excise tax on new construction or improvement of residential housing.

- PR1.9.1 Link annual cost adjustments to the Parks and Recreation Facilities tax to annual construction indexes to reflect the cost of providing and maintaining park lands and recreational facilities. Cf. PR1.7.3.
- PR1.9.2 Explore setting aside a defined percentage of Parks and Recreation Facilities Tax for maintenance of existing parks and recreational facilities.

PR1.10 Explore and identify potential funding sources other than the General Fund for the maintenance of parks and recreational facilities.

PR1.11 Improve the scenic and recreational value of the Riverfront.

### GOAL PR2 High-quality, affordable recreational programs, activities, events, and services for all

PR2.1 Design programs to meet the diverse and changing recreational and educational needs of Santa Cruz residents and visitors. Cf. HA2.1, HA2.2, HA3.3, ED1.1.4, ED6.9.2; CC8.3.8, PR1.1.4, PR2.2.4.

- PR2.1.1 Solicit public input to determine community interests and needs.
- PR2.1.2 Provide and support cultural and recreational events, activities, and festivals that relate to diverse community needs.

PR2.2 Encourage cultural and community events and activities in parks and recreation facilities, Downtown, and in the Beach area.

PR2.2.1 Leverage private, public, and nonprofit resources toward providing recreational and cultural activities and events.

PR2.2.2 Encourage private sponsorship of special events and programs, historic events, joint projects, and cultural exchanges that involve and benefit the community.

PR2.2.3 Encourage and support year-round arts and cultural events through supportive City policies, procedures, and fees. Cf. HA4.5, HA4.5.2, ED1.1.3, ED1.8.

PR2.2.4 Promote the use of volunteers to help with recreational and cultural programs. Cf. HA2.1, 2.2, 3.3, and 4.5.3; ED1.1.4 and 6.9.2; CC8.3.8; and PR1.1.4, PR2.1.

PR 2.3 Use entrepreneurial strategies to identify and reach new markets for programs and services that generate revenue.

### GOAL PR3 Well managed, clean, and convenient public access to open space lands and coastline

PR3.1 Enhance the outdoor educational and recreational experience in appropriate open space lands and coastline.

PR3.1.1 Provide recreational and educational opportunities within the open space lands and coastline consistent with adopted master or management plans.

PR3.2 As opportunities arise and when economically feasible, consider acquiring undeveloped parcels that provide access to City-owned open space lands and coastline. Cf. PR1.1.3.

PR3.3 Protect, maintain, and enhance publicly accessible coastal and open space areas. Cf. CD1.4, LU3.11.

PR3.3.1 Protect coastal bluffs and beaches from intrusion by non-recreational structures and incompatible uses.

PR3.3.2 Ensure that development does not interfere with the public's right to access the ocean (where acquired through use or other legislative authorization).

PR3.3.3 Require new development and public works projects to provide public access from the nearest public roadway to the shoreline and along the coast, except where it is inconsistent with public safety or protection of fragile coastal resources, or where adequate access exists nearby.

PR3.3.4 Maximize public access and enjoyment of recreation areas along the coastline.

### GOAL PR4 An integrated system of citywide and regional trails

PR4.1 Provide and maintain an accessible citywide trail system within the city and connect it to regional trails.

PR4.1.1 Provide trails for a range of uses.

PR4.1.2 Update and maintain trails in accordance with the City's Bicycle and Pedestrian Master Plans. Cf. CD5.1, M4.1, M4.2, CC8.4.

PR4.1.3 Maintain and enhance the recreational value of the San Lorenzo River walkway and East and the West Cliff Drive pathways.

PR4.1.4 Create a continuous pathway along the coast by enhancing the physical links between West Cliff and East Cliff Drives and the Beach Promenade.

PR4.1.5 Determine the need for streetscape and safety improvements, or for facility rehabilitation.

PR4.1.6 For special events, examine the feasibility of periodically closing the street or limiting vehicular access along West Cliff Drive.

PR4.2 Provide and maintain trails within parks and appropriate open space areas. Cf. NRC1.1.2.

PR4.2.1 Use public or quasi-publicly-owned lands for trails.

PR4.2.2 Obtain trail easements through private donations and by public purchase, where required for critical links.

PR4.2.3 Require development projects located along planned trail routes to dedicate trails or trail easements.

PR4.2.4 Use roadside improvement funds to develop bicycle paths and pedestrian trails.

UCSC
(Outside City Limit)
Carbonera Dr
Brookwood Dr
U Park Rd
Prospect Heights
Ocean St Ext
River St
Encinal St
Coolidge Dr
Spring St
Highland Av
Market St
N Branciforte Av
Water St
Monterey St
La Fonda Av
Soquel Av
Paul Sweet Rd
17th Av
Thurber Ln
Ocean St
S Branciforte
Broadway
Frederick St
Capitola Rd
Chanticleer Av
Western Dr
Bay Dr
Escalona Dr
King St
Mission St
Walnut Av
Front St
Pacific Av
Center St
Laurel St
California St
Seabright Av
17th Av
Brommer St
30th Av
Murray St
Lake Av
East Cliff Dr
2nd St
Beach St
Bay St
Shaffer Rd
Delaware Av
Swift St
Fair Av
Woodrow Av
Pelton Av
Swanton Dr
West Cliff Dr
Monterey Bay
Dimeo Ln
Landfill Inset
N
Legend
City Limits
UCSC
Parks and Open Space
Parks
Open Space and Beaches
0
0.75
1.5 Miles

CHAPTER 10

# NATURAL RESOURCES AND CONSERVATION

This chapter corresponds to the State-mandated Open Space and Conservation elements. Its purpose is to identify the valuable natural assets that make Santa Cruz unique and to preserve and protect them in perpetuity.

## Background

To guide development of the General Plan, the City Council adopted the following key principles with regard to natural resources and conservation:

- **Natural resources**. We will highlight and protect our unique setting, our natural and established open space, and the sustainable use of our precious natural resources.
- **A balanced community**. We will maintain the community's long-standing commitment to shared social and environmental responsibility, fostering a balance between employment, housing affordable to persons of all income levels, transportation, and natural resources.

How these principles are implemented is discussed below and in the Goals, Policies and Actions at the end of the chapter.

This chapter is presented in three sections.

- **Background** describes existing conditions, their causes, and the basic approaches taken in the Plan with regard to seven subjects, each of which is the focus of a unique goal in this chapter: creeks, riparian corridors, and wetlands; plant and animal communities and habitat; resources; global warming; urban forest; open space and coastline; and energy.
- **Goals, Policies and Actions** provide City bodies with guidance in making decisions related to the city's natural resources systems and in implementing the actions recommended in this chapter.
- **Constraints**—a multi-page table that relates to **Goal NRC2**—sets forth the regulatory responsibility for protecting and managing sensitive biological and wetland resources. Much of the land within the city that supports sensitive habitats and special-status plants and wildlife is already protected and managed by the City.

### CREEKS, RIPARIAN CORRIDORS, AND WETLANDS

Within its city limits, Santa Cruz has 39 miles of watercourses, creeks, and wetlands, all of which convey storm water and protect water quality. They also are valuable natural assets that support diverse natural habitats and aquatic and terrestrial resources.

**Riparian area** (also called riparian corridors) is the interface between a waterway and surrounding upland habitats. Riparian environments encompass any defined stream channel including the plant community adjacent to a watercourse, the area up to the ordinary high water line, and the streamside vegetation in contiguous adjacent uplands. Tree species that typically occur in the Planning Area's riparian corridors include

willow, red alder, box elder, black cottonwood, big leaf maple, Western sycamore, and Coast live oak. Where surface water is present, riparian areas provide habitat for aquatic invertebrates, fish, amphibians, birds, and mammals.

**Wetlands** are transitional areas between upland and aquatic areas. They usually have a water table at or near the surface, and occur where there is perennially or seasonally saturated soil or open water, such as at lagoons and ponds. Planning Area wetlands include estuaries, lagoons, ponds, and seasonal wetlands that may occur as depressions within otherwise upland areas.

Wetland vegetation is often characterized as a marsh, such as the freshwater marsh at Neary Lagoon. Wetlands at the mouth of watercourses where there are tidal inflows from Monterey Bay are considered salt or brackish water marshes. Because wetlands offer nutrient-rich sediments and organic matter, they have a high diversity of species and are used by wildlife for foraging and nesting. The plant matter in wetlands entraps and filters urban runoff.

**Watersheds.** The city is divided into 13 primary watersheds. The size, shape, and topographic relief of a watershed relates directly to the size of the stream channel, expected magnitude of winter storm flows, and the overall biological value of the watercourse.

Human activity can disrupt a watershed directly or indirectly and lead to sedimentation, bank erosion, and reduction in streamflow. These disruptions can create barriers to upstream migration and alter the stream habitat.

Examples of direct impacts to watersheds include removal of vegetation (and thus, loss of habitat), discharge of pollutants that affect water quality, deposition of debris, and introduction of invasive, non-native plant species. Indirect impacts include increases in noise and night lighting affecting wildlife, change in stream dynamics resulting in increased bank erosion, increase in stream temperature from lack of vegetative cover, predation on native wildlife by domestic animals, and an increase in non-native animal species.

Some of the city's streams originate outside the city. The San Lorenzo River, Branciforte Creek, Carbonera Creek, Arana Gulch Creek, Pasatiempo Creek, and a portion of Moore Creek each have their upper watershed in the Santa Cruz Mountains within County jurisdiction. Portions of Carbonera Creek also traverse the city of Scotts Valley. The largest of these watercourses, the San Lorenzo River, drains 121 square miles of watershed including small, heavily urbanized watersheds, such as Pilkington Creek, that only flow during the wetter times of the year. The river flows through the San Lorenzo Valley and unincorporated communities including Felton, Ben Lomond, and Boulder Creek.

The remainder of the city's watercourses originate within city limits, including Moore Creek, Arroyo Seco, Laurel, Pogonip Creek, and several other small watercourses. Because the urban setting dominates the condition and function of the entire watershed of these small streams, the City can act directly and effectively to manage the nature and degree of human activity and impact. Lower Arroyo Seco Creek, Pogonip Creek, and Arroyo de San Pedro Regaldo have a significant portion of industrial land use within their watersheds.

Other Santa Cruz watercourses range from perennial, spring-fed streams on the west side to intermittent streams on the east side. Some provide significant habitat value and are relatively unaltered. Others were altered as the city developed, and have been incorporated into the urban landscape and storm water infrastructure.

Several coastal terraces in the westernmost and easternmost parts of the city support seasonal wetlands. Freshwater marsh habitat also occurs, most notably at Neary Lagoon in the central part of town. Salt and brackish water marsh habitat is limited to smaller areas, such as the Jessie Street Marsh, a tributary of the lower San Lorenzo River.

**Creeks and Wetlands Management Plan.** There is an adopted *City-wide Creeks and Wetlands Management Plan* which is incorporated in *General Plan 2030* by reference. Because lands adjacent to the riparian corridor and subject to development may also be critical linear habitats and link larger open spaces and resources, the Management Plan establishes buffers along riparian corridors to protect the creek environment and its functions as a corridor. The plan presents an overall, strategic approach to protecting, enhancing, and managing the city's riparian and wetland resources and water quality while providing a consistent and predictable City permitting process. The Management Plan:

- Identifies and maps the watercourses and known wetlands within the city limits, including those that would be subject to site-specific review for such requirements as setbacks;
- Identifies appropriate development setbacks;
- Recommends management actions to promote the preservation of riparian and wetland resources;
- Sets guidelines and standards for areas where development adjacent to watercourses may be appropriate;
- Provides a framework for permitting development adjacent to watercourses.

**Urban River Plan.** The San Lorenzo River originates in the Santa Cruz Mountains, traverses the center of the city, and forms a major physical feature of the region. The San Lorenzo Urban River Plan—a 20-year comprehensive plan for the areas of the San Lorenzo River, Branciforte Creek, and Jessie Street Marsh within city limits—promotes conserving the river as a wildlife area and enhancing it with complementary river-oriented development. This development (public access, river trail amenities, recreational use, public art, community programs, and the like) would promote the River as a Downtown amenity. The Urban River Plan offers recommendations, guidelines, and conceptual plans for areas adjacent to the river to stimulate potential design ideas and development applications.

## PLANT AND ANIMAL COMMUNITIES AND HABITATS

Natural (and some developed) areas provide habitat for plants and animals. Preserving the ecological integrity of these areas is essential to protecting biota and enhancing the quality of human life. Once ecosystems are degraded, they are difficult, if not impossible, to restore.

Santa Cruz's climate and geography support a diverse vegetation ranging from kelp beds to oak woodlands and redwood forests. Maintaining this vegetation has a significant, positive effect on reducing the potential for landslides and floods.

The vegetation and plant communities also provide habitat and food for a diverse array of wildlife. Plants provide protective cover for wildlife and modify local climatic conditions by providing shade and modifying the humidity. Vegetation also buffers noise, adds oxygen to the atmosphere, removes or neutralizes certain noxious air pollutants in the urban environment, and offsets to some small extent the emission of greenhouse gases into the atmosphere.

**Habitats.** A habitat is the natural home or environment of an animal, plant, or other organism and includes the ecological conditions that support the organism's biological population. Habitats are the result of a number of natural conditions such as climate and the abundance of wildlife species. A change in plant communities could affect wildlife or increase hazards from erosion and brush fires.

Twelve identified habitat types support various plant communities and wildlife within the Planning Area. They include: (1) Aquatic, (2) Salt Marsh, (3) Freshwater Wetland, (4) Riparian, (5) Coastal Scrub, (6) Redwood Forest, (7) Redwood Douglas Fir- Tanbark Oak Forest, (8) Mixed Evergreen Forest, (9) Mixed Evergreen Forest-Oak Woodland, (10) Grassland, (11) Sandy Beach; and (12) Coastal Cliff Habitat.

More than 50 species of mammals and 250 species of birds live in the vicinity of Santa Cruz. Protecting and preserving wildlife populations and diversity requires protecting their habitat. While wildlife is not usually restricted to dependence on one plant community or habitat, in some cases wildlife depends on a particular plant species within a plant community, and preserving a diverse array of plant communities and species becomes essential. It also is important to protect native and sensitive species from invasive species.

**Corridors and buffers.** Many species depend on the preservation of and linkages between natural areas for their survival. Preserving or establishing linkages between natural areas and reducing obstacles that prevent wildlife movement from one location to another will enlarge the usable habitat area.

**Tree groves and understory.** Protecting and preserving native wildlife depends, in part, on sustaining a predominance of native vegetation over non-natives. Native vegetation generally provides superior food for native wildlife. Non-native plants tend to have few natural enemies and as a result tend to displace native plants. To sustain sensitive species, it is essential to preserve important elements of their habitat—for example, eucalyptus wintering sites for the monarch butterfly and safe roosting sites for the black swift.

## RESOURCES

State law requires every general plan to provide direction regarding the conservation of resources. To the extent that any of the following issues are relevant, the Plan must address them with regard to the conservation, development, and utilization of natural resources: water and its hydraulic force; forests; soils; rivers and other waters; harbors; fisheries; wildlife; and minerals. Some of these topics are discussed in other chapters and sections of this Plan. See the cross-reference table, "Relation of General Plan Chapters to State-mandated Elements," at the end of Chapter 1, Introduction.

Population growth and development continually require the use of both renewable and nonrenewable resources. One role intended for the conservation element is to establish policies that reconcile conflicting demands on those resources. One of the 11 Guiding Principles adopted for *General Plan 2030* states the community's concern for and commitment to natural resources.

## GLOBAL WARMING

The California Chapter of the American Planning Association issued a policy statement in 2007 with recommendations for regional and local jurisdictions. The statement urges local governments to reduce greenhouse gas emissions by adopting land use and other plans that encourage—among other things—walking, bicycling, ridesharing and transit; mixed land use and higher densities; water and energy conservation; micro-generation of electricity; and use of low-carbon building materials. Many of these actions are addressed throughout this Plan. The City's Climate Action Program is tasked with establishing linkages among programs and providing strategic incentives to increase the success of City services necessary to meet climate change goals.

The City hopes to reduce its contribution to greenhouse gas emissions through land use planning, program development, investment in energy efficient infrastructure, and increased use of renewable energy. Benefits will include reduced facility life-cycle costs and the provision of healthier home and work environments. Green building policies and actions will incorporate energy efficiency measures, water stewardship, use of sustainable building materials derived from renewable resources, reduction of waste through recycling and reuse, and smart growth and sustainable development practices. In addition to defining shorter-term strategies to address likely impacts of climate change on city infrastructure and resources, the City must set planning goals to minimize future risks of sea level rise and climate change.

## URBAN FOREST

The tree is metaphor for sustainability. The urban forest is more than trees; it is the sum total of all vegetation growing in the urban area, a critical element of a livable urban environment, and a part of the urban ecosystem. Urban forestry manages trees, forests, and natural systems in and around urban areas for the health and well being of communities.

Although the urban ecosystem presents a less than optimal environment for tree growth, urban forests—and trees in particular—provide significant community benefits. Urban sprawl has contributed to the decline of urban forests and the development of additional problems associated with urban heat islands and stormwater runoff. To deal with these problems, communities have spent considerably to install, expand, and repair their "gray" infrastructures (sewers, utilities, buildings, roads, etc). More communities are recognizing that vegetation, especially trees, can make up a green infrastructure with the potential to ameliorate heat buildup and reduce stormwater runoff in a more cost effective manner than the "gray" infrastructure of streets and utilities.

## OPEN SPACE AND COASTLINE

State law requires the General Plan to include an open space element to guide the comprehensive and long-range preservation and conservation of open space lands. Open space lands are defined in statute as any parcel or area of land or water that is essentially unimproved for the purpose of (1) preservation of natural resources; (2) public health and safety; (3) managed production of resources; and (4) recreational and aesthetic purposes. Open Space land uses within and surrounding the city include agriculture/grazing lands, natural areas, coastal recreation areas, and park lands.

Next to *Land Use,* Open Space is the General Plan topic broadest in scope. Because of this breadth, open space issues overlap those covered in other sections of the Plan, and open space requirements are commonly found among other chapters. See the cross-reference table, "Relation of General Plan Chapters to State-mandated Elements," on pages 17-18, at the end of Chapter 1, Introduction.

**Monterey Bay National Marine Sanctuary**. A number of scientific and educational groups sponsor programs to retain ecological and scientific study areas in their natural state. The Monterey Bay National Marine Sanctuary is one such area. Designated by the federal government in 1992, the marine sanctuary off California's central coast stretches from Marin County to Cambria, encompasses 276 miles of shoreline, and extends seaward an average of 30 miles from shore—covering more than 5,000 square miles of ocean. The Sanctuary—administered by the National Oceanic and Atmospheric Administration—was established to promote resource protection, research, education, and public use. It boasts one of the most diverse marine ecosystems in the world, including the nation's largest kelp forest, one of North America's largest underwater canyons, and the closest-to-shore deep ocean environment in the continental United States.

**Greenbelt and open space.** The City's 2,000-acre open space greenbelt system originated in 1979 with the passage of Measure O, which called for preservation of greenbelt lands through 1990. Securing and permanently protecting the greenbelt became a primary focus of the 1990-2005 General Plan.

A Greenbelt Master Plan Feasibility Study was adopted in 1994 in response to General Plan policies calling for a publicly owned greenbelt

around the city. At the time, the City already owned several key properties in the greenbelt, and by the end of 1998, had purchased all of the Greenbelt properties with the exception of one 50-acre property on the Westside. The greenbelt properties include Arana Gulch, Moore Creek Preserve, Pogonip, and Delaveaga Park. The City also manages other open space areas such as Neary Lagoon, Jesse Street Marsh, and Arroyo Seco Canyon. The preservation and use of each Greenbelt property and open space area is guided by a City-prepared long term Park Master Plan or Interim Management Plan.

## ENERGY

Structures and land-use patterns in the community are generally wasteful of energy, stemming from an era of cheap, plentiful energy resources. Energy-inefficient buildings use over a third of the nation's energy, primarily in appliances and for space heating and cooling. Energy inefficient land-use patterns promote dependence on the auto. Yet fossil fuels are limited and pose significant environmental consequences such as ozone depletion and global warming.

Many aspects of the city's energy system are not sustainable over the long term—they depend on natural resources that, once consumed, are gone forever. The long term worth of these resources is undervalued—their relative scarcity is unrecognized, and their future environmental costs are overlooked, left to be borne by others.

In contrast, sustainable energy systems draw from the environment only the necessary resources that can be used and recycled perpetually, or returned to the environment in a form that nature can use to generate more resources.

The energy measures included in this chapter of the General Plan will guide Santa Cruz toward a sustainable energy future. Strategies that conserve existing energy resources and develop future renewable energy systems will help preserve nonrenewable resources for future generations, reduce long term energy costs, reduce the environmental impacts of burning fossil fuels, and help to reduce the nation's dependency on imported fuel.

## Goals, policies and actions

### GOAL NRC1 Protected, enhanced, and sustainably managed creek systems, riparian environments, and wetlands

NRC1.1 Protect the city's river and wetland areas while increasing and enhancing public access where appropriate.

NRC1.1.1 Require setbacks and implementation of standards and guidelines for development and improvements within the city and adjacent to creeks and wetlands as set forth in the *City-wide Creeks and Wetlands Management Plan*.

NRC1.1.2 Where consistent with riparian and wetland protection, provide actual or visual access of a low-impact nature. Cf. PR4.2. Examples include unpaved narrow trails, boardwalks, and vista points.

NRC1.1.3 Conduct landscape water audits for all parks, and incorporate results into budgetary decisions for upgrading systems and scheduling irrigation.

NRC1.1.4 Re-vegetate plants native to the specific habitat in buffer/setback areas adjacent to creeks and wetlands.

NRC1.1.5 Where appropriate, provide educational signs about water conservation practices and plantings.

NRC1.2 Encourage low impact uses and practices in watershed lands upstream of the city's riverine, stream, and riparian environments.

NRC1.2.1 Evaluate new uses for potential impacts to watershed, riverine, stream, and riparian environments.

NRC1.2.2 Work with local and regional agencies to implement strategies to reduce or mitigate impacts of uses and development within the City's watershed lands.

NRC1.3 Encourage the restoration and enhancement of existing riparian corridors, wetlands, and water resources.

NRC1.3.1 Conserve creek, riparian, and wetland resources in accordance with the adopted *City-wide Creeks and Wetlands Management Plan* and the San Lorenzo River Plan. Cf. NRC3.1, CC3.11.

### GOAL NRC2 Protected, enhanced, and sustainable native and natural plant and animal communities and habitats

NRC2.1 Protect, enhance, or restore habitat for special-status plant and animal species. Cf. CD4.3.3, CC3.3.6, and NRC2.2, 2.4, and 6.3.

NRC2.1.1 Maintain an up-to-date list and map of sensitive, rare, and endangered flora and fauna.

NRC2.1.2 Maintain, for public use, generalized maps showing locations of special-status species. Specific site information may be kept confidential to protect the resources.

NRC2.1.3 Evaluate development for impacts to special-status plant and animal species.

NRC2.1.4 Implement strategies to reduce or minimize impacts.

NRC2.1.5 Maintain an inventory of the region's threatened or extinct species.

NRC2.2 Protect sensitive habitat areas and important vegetation communities and wildlife habitat, to include riparian, wetland (salt marsh and freshwater wetland), coastal prairie, coastal bird habitat, and habitat that support special status species, as well as, sensitive and edge habitats ("ecotones"). Cf. CD4.3.3, CC3.3.6, and NRC2.1, 2.4, and 6.3.

NRC2.2.1 As part of the CEQA review process for development projects, evaluate and mitigate potential impacts to sensitive habitat (including special-status

species) for sites located within or adjacent to these areas.

NRC2.2.2 Protect coastal roosts and rookeries in the course of activities that could disturb or disrupt breeding or result in loss of habitat, such as construction activities, recreational activities, or special events.

NRC2.2.3 Encourage the planting and restoration of native rather than non-native vegetation throughout the city and in areas where plants or habitats are diseased or degraded.

NRC2.2.4 Minimize the impact of grading and filling on sensitive habitat areas.

NRC2.2.5 Encourage the eradication and control of non-native and invasive plant species.

NRC2.2.6 Amend Zoning Ordinance section 24.14.080 to provide an updated reference to the sensitive habitats identified in the *General Plan 2030*.

NRC2.3 Protect, enhance, and maintain significant dispersal corridors and buffers.

NRC2.3.1 Restrict the use of barriers that can hamper wildlife movement through corridors and buffers.

NRC2.4 Protect, manage, and enhance tree groves and understory that provide sensitive habitat features. Cf. CD4.3.3, CC3.3.6, and NRC2.1, 2.2, and 6.3.

NRC2.4.1 Maintain a Monarch Butterfly Management Plan. Table 1 at the end of this chapter summarizes assessment protocols to determine if a sensitive biological resource is present, and identifies general avoidance or management strategies to be employed when sensitive biological resources occur.

### GOAL NRC3 Conservation and stewardship of resources

NRC3.1 Lead the community in conserving resources. Cf. NRC1.3.1, CC3.11.

NRC3.1.1 Continue and expand school education and public information programs related to conservation.

NRC3.1.2 Preserve and manage woodland areas within open spaces.

NRC3.2 Discourage the use of environmentally harmful pesticides, herbicides, and chemical fertilizers. Cf. HZ1.5.6, HZ2.2.3, Goal HZ4, HZ4.1.4, HZ4.1.5, HZ4.1.7, HZ4.1.6, CC6.1.8.

NRC3.2.1 Reduce the sale and use of synthetic pesticides, herbicides, and fungicides.

NRC3.3 Require resource conservation and environmental sensitivity in project design and construction.

NRC3.4 Conserve agricultural and known mineral resources in the Planning Area. Cf. LU1.2, LU2.3, LU2.3.5.

NRC3.5 Oppose offshore oil development.

NRC3.6 Support expansion of national marine sanctuaries along the California coast.

### GOAL NRC4 Effective leadership and action in reducing and responding to global warming

NRC4.1 Reduce communitywide greenhouse gas emissions (GHG) 30 percent by 2020 and 80 percent by 2050 (compared to 1990 levels).

NRC4.1.1 By 2030, require that all new development be carbon neutral.

NRC4.1.2 Revise the Climate Action Plan to include projected *General Plan 2030* growth to the year 2030, and implement municipal, community, and business sections of the Climate Action Plan on energy efficiency and expanded use of renewable energy.

NRC4.1.3 Implement sections of the Climate Action Plan that reduce vehicle emissions 30 percent by 2020, identify metrics for tracking success, and address objectives not met.

NRC4.1.4 Continue to expand municipal energy efficiency programs to reduce building energy use to a defined level. Provide incentives for departments to meet efficiency goals.

NRC4.1.5 Complete solar analysis and implement a five year plan to increase solar generation significantly on municipal buildings.

NRC4.1.6 Establish an Energy Conservation team responsible for defining and achieving building efficiency goals.

NRC4.1.7 Work with the Santa Cruz Regional Compact on Climate Change to draft a countywide strategy to meet greenhouse gas (GHG) reduction goals of 80 percent by 2050.

NRC4.1.8 Implement tracking and reporting procedures that meet AB32 requirements and public interest.

NRC4.1.9 Promote efficiency upgrades and renewable energy projects over the use of carbon offsets to meet climate reduction goals.

NRC4.2 Support initiatives, legislation, and actions for reducing and responding to climate change.

NRC4.2.1 Continue to support the Santa Cruz Regional Compact on Climate Change and encourage participation from other cities in the County.

NRC4.2.2 Adopt and implement key programs developed by the Regional Compacton on Climate Change that meet city greenhouse gas reduction goals.

NRC4.3 Encourage community involvement and public-private partnerships to reduce and respond to global warming.

NRC4.3.1 Expand public outreach campaigns (e.g., climate action teams, green business programs) to city residents and businesses aimed at reducing energy use 30 percent by 2020.

NRC4.3.2 Involve the public to identify additional City incentives necessary to improve community energy efficiency upgrades.

NRC4.3.3 Adopt City renewable energy objectives as defined within the Climate Action Plan.

NRC4.3.4 Draft and implement a Santa Cruz Solar Plan that provides incentives and coordinates financing for city residences and businesses to invest in solar energy.

NRC4.3.5 Evaluate mechanisms to expand the use of solar energy by Downtown businesses and property owners. Cf. NRC4.3.1 – NRC4.3.5.

NRC4.4 Take early action on significant and probable global warming land use and development issues, including those that might arise after 2030.

NRC4.4.1 Draft policies to address future development in areas defined as High Risk within the Climate Change Risk Assessment.

NRC4.4.2 Establish an Alternative Sustainable Transportation and Land Use Team to produce a transportation plan that defines alternative transportation options (not associated with autos, busses or carpools) to address the Santa Cruz mobile emission reduction goals of 30 percent by 2020 and 80 percent by 2050.

NRC4.5 Minimize impacts of future sea level rise.

NRC4.5.1 Complete the City Vulnerability Study and the Climate Change Risk Assessment.

### GOAL NRC5 An enhanced and sustainable urban forest

NRC5.1 Protect and manage tree resources in the urban environment, with emphasis on significant and heritage trees.

NRC5.1.1 Continue and enhance educational programs and opportunities to promote the Urban Forest. Examples include communitywide Arbor Day activities and neighborhood street tree plantings.

NRC5.1.2 Maintain and add to the city's urban tree canopy and increase tree diversity within urbanized areas using native and non-invasive tree species.

NRC5.2 Increase the percent of tree canopy by promoting street tree planting.

NRC5.2.1 Provide and maintain a list for the public identifying species appropriate for street trees.

### GOAL NRC 6 Protected open space lands and coastline

NRC6.1 Manage and enhance open space and the coastline. Cf. CD1.1.1.

NRC6.2 Support protection of the Monterey Bay National Marine Sanctuary and its environs. Cf. CD1.1.2, LU3.11.1, ED6.1.2.

NRC6.3 Enhance and protect native habitat areas within the Greenbelt and open spaces. Cf. CD4.3.3, CC3.3.6, and NRC2.1, 2.2, and 2.4.

## GOAL NRC7 Reduction in energy use, and significant production and use of renewable energy

NRC7.1 Improve local energy efficiency and conservation.

- NRC7.1.1 Reduce electricity and natural gas consumption in public facilities by at least 20 percent compared to usage in 2000, by the year 2015.
- NRC7.1.2 Adopt or adapt the Model Lighting Ordinance and Design Guidelines jointly developed by the International Dark Sky Association and the Illuminating Engineering Society of North America. Cf. CD3.6, M1.6.1, M3.2.10, HZ5.1.
- NRC7.1.3 Implement energy strategies to increase the local use and production of renewable energy.
- NRC7.1.4 Require new development to provide for passive and natural heating and cooling opportunities, including beneficial site orientation and dedication of solar easements. Cf. ED6.2.2.
- NRC7.1.5 Require City facilities to annually increase the percentage of green electricity used until the 2020 goal of 100 percent is met.
- NRC7.1.6 Increase local energy awareness.
- NRC7.1.7 Establish an outreach program and cooperate with other agencies that encourage energy conservation and renewable energy programs.
- NRC7.1.8 Educate the public about energy resources, conservation, and renewable energy through public information and outreach efforts, and offer educational programs for use in school classrooms.
- NRC7.1.9 Support State and federal legislation promoting research on renewable energy and other technologies.
- NRC7.1.10 Improve energy conservation and efficiency in existing parks and recreational facilities.
- NRC7.1.11 Continue to install energy efficient systems in existing park and recreational facilities.

NRC7.2 Promote energy efficiency and innovation as an integral part of economic development. Cf. ED1.1.1, LU3.2.1.

- NRC7.2.1 Recruit industries that use energy efficiently and which offer renewable energy systems and energy efficient production methods. Cf. ED6.2.

NRC7.3 Promote energy-efficient local transportation.

- NRC7.3.1 Promote the implementation of circulation system improvements that can reduce local consumption of fossil fuels.
- NRC7.3.2 Purchase City vehicles with fuel efficient or alternative fuel systems including hybrid, compressed natural gas (CNG), and bio-diesel.
- NRC7.3.3 Establish telecommuting technologies and alternative work schedules for City employees.
- NRC7.3.4 Conduct a fleet efficiency study to identify where smaller, more efficient, electric or hybrid vehicles can be used by the City to meet a 30 percent reduction in greenhouse gas emissions by 2020.
- NRC7.3.5 Investigate partnerships with UCSC to improve electric vehicle use in the community.

NRC7.4 Promote energy-efficiency in the provision and use of water.

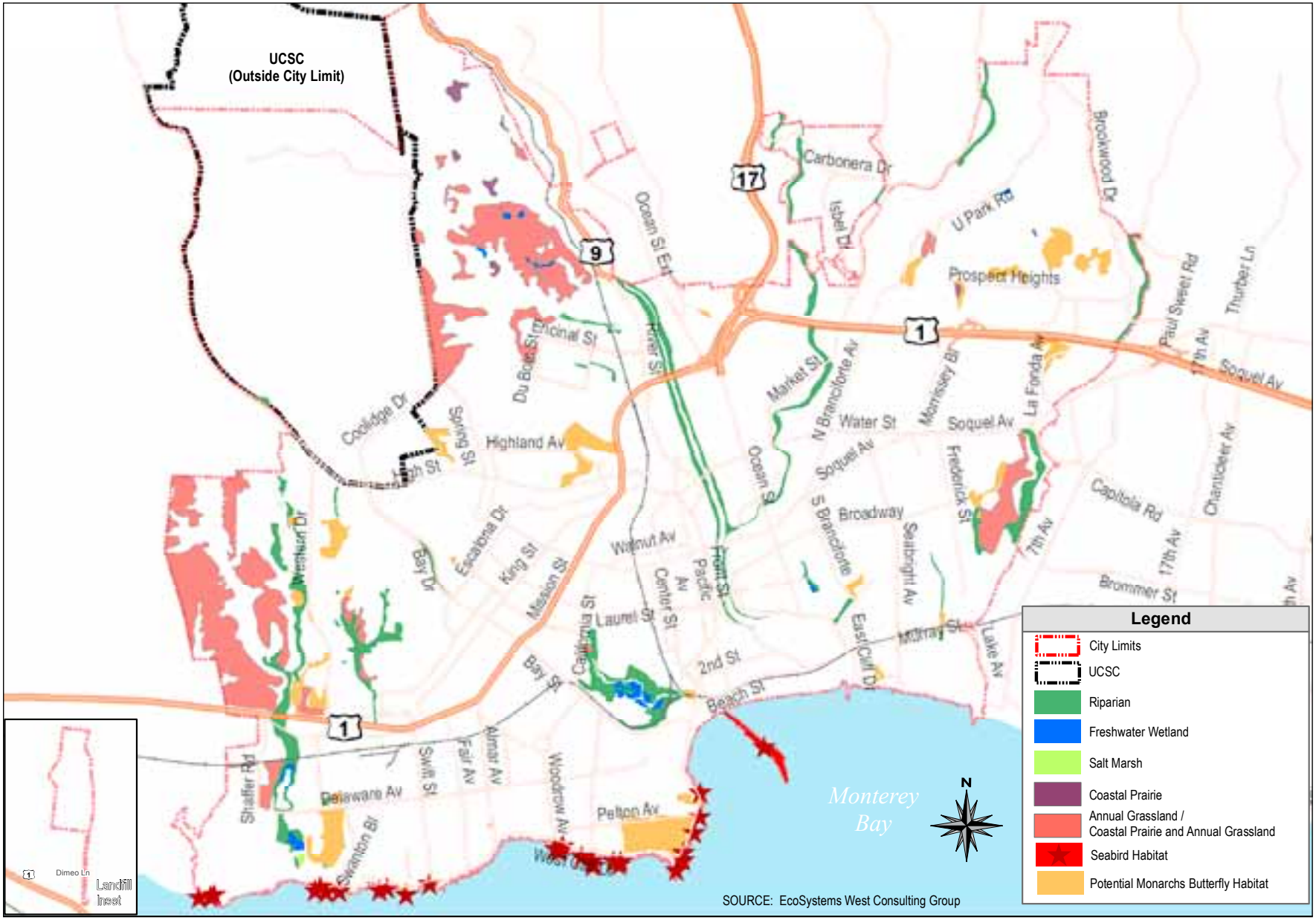
- NRC7.4.1 Provide the public with information on the benefits of replacing or installing new energy and water efficiency fixtures and appliances. Examples include faucet aerators, low-flow showerheads, high-efficiency clothes washers and dishwashers, and high-efficiency water heaters.
- NRC7.4.2 Require that new construction and major remodeling projects in City facilities use high-efficiency or zero-waste fixtures.
- NRC7.4.3 Support gray water collection and reuse within residential and business closed water systems (toilets), and support further study of appropriate use of gray water within landscaped areas.

Table 1. Assessment and Management Protocols for Sensitive Species and Habitat

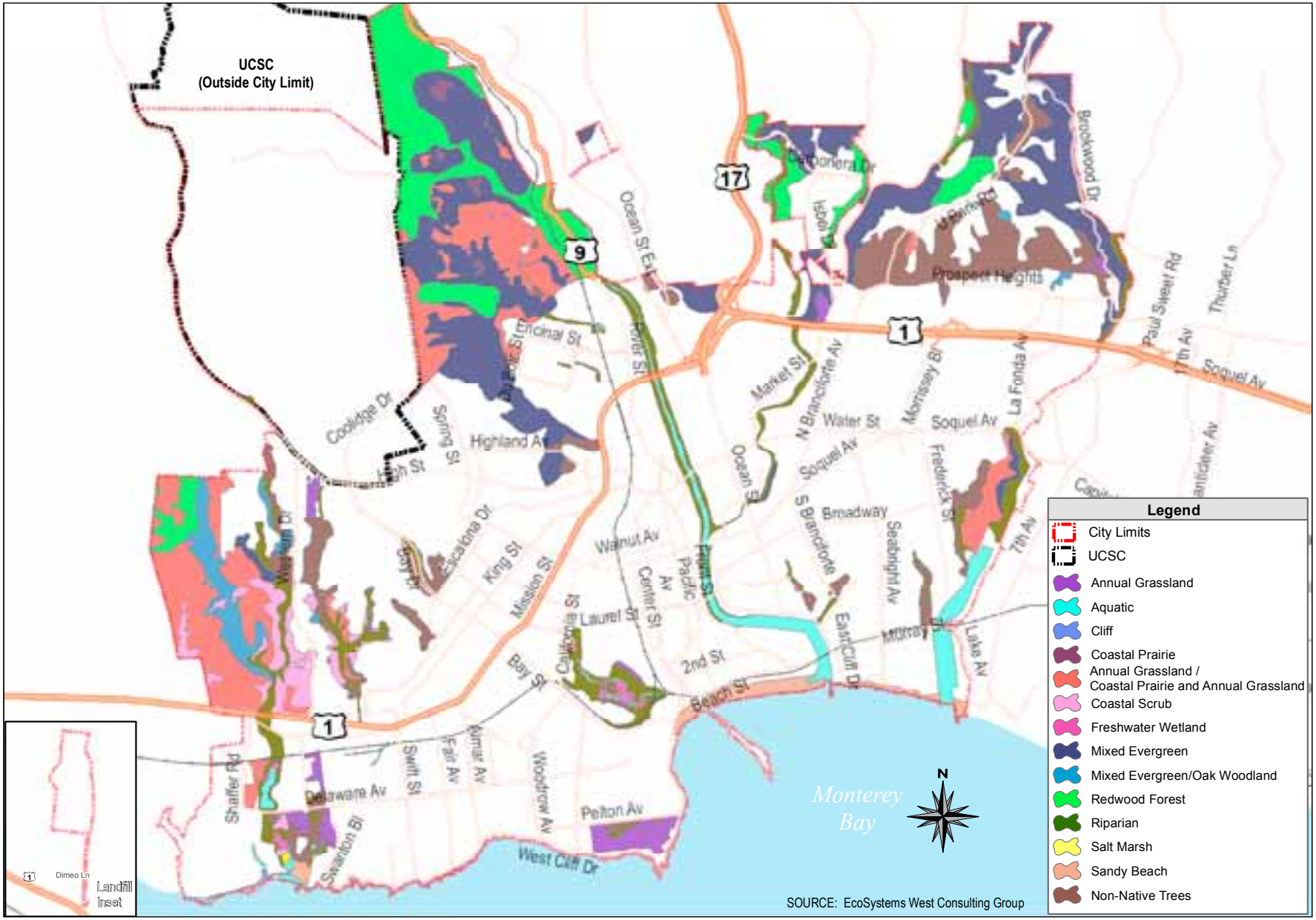
| Resource | Regulatory Authority | Assessment (to determine presence) | Mitigation/Management* (if resource is present) |
|---|---|---|---|
| **SENSITIVE HABITATS** | | | |
| Freshwater Wetland & Salt Marsh | City Ordinance & Plans<br>CDFG Wetlands Resources Policy<br>U.S. Army Corps of Engineers | Wetland Delineation | Permit from Corps (for fill)<br>Avoidance and/or Mitigation, such as buffers, restoration or enhancement, and water quality protection |
| Riparian Habitat | City Ordinance & Plans<br>CEQA Review | Citywide Creeks & Wetlands Management Plan or Habitat Assessment | Comply with Creek Plan setback requirements & development standards and guidelines<br>Streambed Alteration Agreement from CDFG, if required |
| Coastal Prairie | CEQA Review | Habitat Characterization | Avoid direct impacts and buffer<br>Mitigation for indirect impacts |
| Coastal Bird Rookeries | CEQA Review<br>Division of Migratory Birds-MBTA (USFWS) | Habitat Characterization<br>Breeding bird surveys | Avoid direct impacts<br>Conduct construction activities outside of nesting season and/or establish appropriate buffers |
| **SPECIAL-STATUS SPECIES** | | | |
| **Listed Special-Status Plant**<br>Species Robust spineflower<br>Santa Cruz tarplant<br>San Francisco popcornflower | CEQA Review<br>CESA and NPPA (CFGC) | Botanical survey during flowering period | Avoidance – design to avoid removal of individuals and habitat<br>Provide appropriate buffers to protect from indirect impacts<br>Mitigation and/or Management to protect from indirect impacts and maintain long-term viability of species<br>Consultation with and MOU from CDFG |
| **Other Special-Status Plant Species**<br>Santa Cruz manzanita<br>Gardner's yampah<br>Cloris' popcornflower<br>Santa Cruz clover<br>Hickman's popcorn flower | CEQA Review | Botanical survey during flowering period | Avoidance and/or Mitigation – see above. |
| **Listed Special-Status Wildlife Species**<br>Ohlone tiger beetle | ESA (USFWS) | Survey during emergence season | Avoidance – design plans to avoid take of individuals and habitat<br>Mitigation and Management to protect from indirect impacts<br>USFWS Take permit through HCP process (no federal nexus) or Section 7 (federal nexus) |
| Coho Salmon (Central CA ESU) | ESA (NOAA NMFS)<br>CESA (CDFG) | Habitat assessment | Consultation with NMFS<br>Avoidance of instream construction during migration period<br>Mitigation for indirect impacts |
| Steelhead (Central CA ESU) | ESA (NOAA NMFS) | Habitat assessment | Consultation with NMFS<br>Avoidance of instream construction during migration period<br>Mitigation for indirect impacts |
| Tidewater goby | ESA (USFWS) | Habitat assessment<br>Protocol level survey during sandbar formation (permit required) | Consultation with USFWS<br>Avoidance and/or Mitigation |

| Resource | Regulatory Authority | Assessment (to determine presence) | Mitigation/Management* (if resource is present) |
|---|---|---|---|
| California red-legged frog | ESA (USFWS) | Habitat Assessment<br>Protocol Level Survey (USFWS 2005b)<br>Pre-construction Survey | Avoid take of individuals and impacts to aquatic habitat<br>USFWS Take permit through HCP process (no federal nexus) or Section 7 (federal nexus)<br>Mitigation to protect from indirect impacts |
| Brown pelican (communal roosts and rookeries) | ESA (USFWS)<br>CESA (CDFG) | Habitat assessment<br>Communal roosting/ breeding bird survey | Avoid take of individuals and impacts to roosting and nesting habitat<br>Consultation with USFWS through HCP process (no federal nexus) or Section 7 (federal nexus)<br>Conduct construction activities outside of nesting season |
| **Other Special-Status Wildlife Species**<br>Monarch butterfly (wintering sites) | City Ordinance<br>CEQA Review | Habitat Assessment<br>Multi-year surveys during winter roosting season | Avoidance – design plans to avoid take of individuals and habitat<br>Buffers to maintain suitable habitat conditions<br>Conduct construction activities outside of winter roosting season or develop appropriate mitigation such as buffers to avoid disturbance such as smoke and fumes<br>Management to protect from indirect impacts |
| Western pond turtle | CEQA Review (CDFG) | Habitat assessment<br>Focused Surveys | Avoid take of individuals in aquatic and upland habitat.<br>Mitigation to protect from indirect impacts such as barrier to movement |
| **Breeding Birds**<br>Double-crested cormorant (rookeries)<br>Black-crowned night heron (rookeries)<br>Sharp-shinned hawk<br>Cooper's hawk<br>Golden eagle (nesting and/or wintering)<br>Ferruginous hawk<br>White-tailed kite (nesting)<br>Merlin<br>Black oystercatcher<br>Long-eared owl<br>Burrowing owl<br>Vaux' swift<br>Black swift<br>Loggerhead shrike<br>California horned lark<br>Oak titmouse<br>Yellow warbler<br>Hermit warbler<br>Saltmarsh common yellowthroat<br>Yellow-breasted chat<br>Chipping sparrow<br>Tricolored blackbird | CEQA Review (CDFG) | Habitat assessment<br>Breeding bird survey<br>Wintering survey for golden eagle, ferruginous hawk, white-tailed kite, merlin, burrowing owl, saltmarsh common yellowthroat, grasshopper sparrow | Avoid direct impacts to nesting birds, occupied nests, eggs and young<br>Conduct construction activities outside of nesting season or develop appropriate mitigation, such as buffers<br>Consultation with USFWS (golden eagle-unoccupied nest) |

| Resource | Regulatory Authority | Assessment (to determine presence) | Mitigation/Management* (if resource is present) |
|---|---|---|---|
| Special-status bats | CEQA Review (CDFG) | Habitat Assessment<br>Emergence and nighttime acoustic surveys | Avoidance and/or Mitigation |
| San Francisco dusky-footed woodrat | CEQA Review (CDFG) | Habitat Assessment<br>Nest survey | Avoidance and/or Mitigation |
| American badger | CEQA Review (CDFG) | Habitat Assessment<br>Focused survey (burrow, sign, and prey base) | Avoidance and/or Mitigation |
| Nesting raptors and birds | Division of Migratory Birds-MBTA (USFWS)<br>Fish and Game Codes (CDFG) | Habitat assessment<br>Breeding bird survey | Avoidance during nesting season and/or Buffer Mitigation |
| Dispersal corridors | City of Santa Cruz<br>CEQA Review | Wildlife movement study.<br>Determine buffer width for corridor utility. | Comply with Creeks Plan setback requirements and development standards and guidelines<br>Buffer from disturbances such as noise land light. |


UCSC
(Outside City Limit)
Carbonera Dr
Brookwood Dr
U Park Rd
Prospect Heights
Paul Sweet Rd
Thurber Ln
Soquel Av
Ocean St Ext
River St
Market St
N Branciforte Av
Water St
Morrissey Blvd
La Fonda Av
Frederick St
Capitola Rd
Chanticleer Av
Broadway
S Branciforte
Seabright Av
Brommer St
Walnut Av
Pacific Av
Center St
Front St
Laurel St
California St
Bay St
Beach St
2nd St
Lake Av
East Cliff Dr
Murray St
Escalona Dr
King St
Mission St
Bay Dr
Western Dr
Coolidge Dr
High St
Spring St
Highland Av
Du Bois St
Chanticleer St
Shaffer Rd
Delaware Av
Swift St
Fair Av
Almar Av
Swanton Bl
Woodrow Av
Pelton Av
West Cliff Dr
Monterey Bay
N
Legend
City Limits
UCSC
Riparian
Freshwater Wetland
Salt Marsh
Coastal Prairie
Annual Grassland / Coastal Prairie and Annual Grassland
Seabird Habitat
Potential Monarchs Butterfly Habitat
SOURCE: EcoSystems West Consulting Group
Dimeo Ln
Landfill Inset
0
0.75
1.5 Miles

# Vegetation Types



CHAPTER 11

# IMPLEMENTATION

Government Code 65400 requires the City, after adopting a new general plan, to (1) investigate and make recommendations to the city council regarding reasonable and practical means for implementing the general plan, so that it will serve as an effective guide for orderly growth, development, preservation and conservation, and the efficient expenditure of public funds relating to the subjects addressed in the plan and (2) provide an annual report to the city council, the State Office of Planning and Research and the State Department of Housing and Community Development on the status of the plan and progress in its implementation.

So that the progress of the implementation may be measured in terms of quality and adequacy, and then reported, this chapter assembles all the actions in the table below, and indicates the department or agency responsible for implementing each action, and the time frame during which the action is expected.

## CHAPTER 2 Historic Preservation, Arts and Culture

**TIME FRAMES:** **Ongoing = currently and continuously implement, Short-term by 2018, Mid-term by 2022, Long-term by 2028**

**DEPARTMENTS:** **CC= City Clerk, PL = Planning, PW= Public Works, PR = Parks, ED = Economic Development, PO= Police, F= Fire, W= Water, L=Library, SD=School District, CCC=California Coastal Commission, N=Non-City Agency, ASA=Administrative Services Department, ALL=All Departments**

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| HA1.1.1 | Maintain and regularly update the City's Zoning Ordinance regulating and protecting archaeological and paleontological sites. | PL | Short-term |
| HA1.1.2 | Every five years, update the City's archaeological and paleontological sensitivity maps and site information lists. | PL | Short-term |
| HA1.2.1 | Prepare informational materials for property owners regarding the potential for cultural resources and early development planning strategies. | PL | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| HA1.2.2 | Require preparation of archaeological investigations on sites proposed for development within areas identified as "Highly Sensitive" or "Sensitive" on the "Areas of Archaeological Sensitivity" and "Historical Archaeology Sensitivity" maps, except for exempt uses within "Sensitive" areas as described below, prior to approval of development permits. The investigation shall include archival research, site surveys and necessary supplemental testing as may be required, conducted by a qualified archaeologist. The significance of identified resources shall be ascertained in accordance with CEQA definitions, and impacts and mitigation measures outlined if significant impacts are identified, including, but not limited to recovery options and onsite monitoring by an archaeologist during excavation activities. A written report describing the archeological findings of the research or survey shall be provided to the City.<br>Allow minor projects with little excavation to be exempt from this requirement for preparation of an archaeological assessment within the "High Sensitivity" areas. Minor projects generally involve spot excavation to a depth of 12 inches or less below existing grade, or uses that have virtually no potential of resulting in significant impacts to archeological deposits. Exempt projects may include: building additions, outdoor decks, or excavation in soil that can be documented as previously disturbed. | PL | Short-term |
| HA1.2.3 | The City shall notify applicants within paleontological sensitive areas of the potential for encountering such resources during construction and condition approvals that work will be halted and resources examined in the event of encountering paleontological resources during construction. If the find is significant, the City should require the treatment of the find in accordance with the recommendations of the evaluating paleontologist. Treatment may include, but is not limited to, specimen recovery and curation or thorough documentation. | PL | Ongoing |
| HA1.3.1 | Formalize meetings with descendent communities and historical organizations to gather input on the protection of cultural and historic resources. | PL, N | Ongoing |
| HA1.4.1 | Update the City's Zoning Ordinance to reflect current local, State and federal requirements for the discovery of human remains. | PL | Short-term |
| HA1.4.2 | Support training for relevant City staff on protocol for the discovery of human remains. | PL, PR, PW, W | Ongoing |
| HA1.5.1 | Develop and implement an internal review process for the review of archaeological and historical work. | PL | Short-term |
| HA1.5.2 | Create clear guidelines for the content of archaeological and historic reports. | PL | Short-term |
| HA1.6.1 | Develop an intra-departmental program for the interpretive display of City paleontological and prehistoric and historical archaeology resources. | PL, PR, PW, W | Short-term |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| HA1.7.1 | Determine traditional cultural property significance in accordance with California Register criteria. | PL | Ongoing |
| HA1.7.2 | Consider the designation of traditional cultural properties for protection through an amendment to the Zoning Ordinance. | PL | Short-term |
| HA1.8.1 | Update the City's Historic Building Survey as directed by the Historic Context Statement (2000). | PL | Short-term |
| HA1.8.2 | Maintain, expand and create the City's Historic Districts and use of its Historic Preservation Overlay Zoning District. | PL | Short-term |
| HA1.8.3 | Every 10 years, update the Zoning Ordinance to reflect current trends in historic and cultural preservation. | PL | Short-term |
| HA1.8.4 | Provide consultation to property owners on the repair, restoration, and rehabilitation of historic structures. | PL | Ongoing |
| HA1.8.5 | Give local landmark status to structures, sites or landmark listed on the National Register and State Landmark and Register Program. | PL, PR, PW | Ongoing |
| HA1.8.6 | Develop and intra-departmental program for the interpretive display of city history. | PL, N | Short-term |
| HA1.8.7 | Maintain the City's Certified Local Government (CLG) status. | PL | Ongoing |
| HA1.9.1 | Strongly encourage the preservation of the exterior features of historic buildings through clear Zoning Ordinance regulations. | PL | Ongoing |
| HA1.9.2 | Utilize the Secretary of Interior's Standards and Rehabilitation Guidelines for development within historic districts. | PL | Ongoing |
| HA1.9.3 | Encourage the restoration, retention, and incorporation of historic features in public right-of-ways and on publicly owned property. | PL, PR, PW, W | Ongoing |
| HA1.10.1 | Develop and distribute public relations material on the city's historic, cultural and architectural resources. | PL | Ongoing |
| HA1.11.1 | Update the Zoning Ordinance to include incentives for the listing and maintenance of historic buildings, sites, and landmarks and cultural properties. | PL | Ongoing |
| HA1.11.2 | Update the Zoning Ordinance to simplify and streamline the review process for an Historic Alteration Permit. | PL | Short-term |
| HA1.11.3 | Encourage and assist property owners with the submittal of applications for the National Register of Historic Places, and the State Landmark Program, or other regional, State, or federal listings when appropriate. | PL | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| HA1.11.4 | Actively seek outside funding sources for the preservation of historic buildings, sites, or landmarks. | PL, PR, PW, W | Ongoing |
| HA1.11.5 | Work with property owners to develop City code modifications or other methods for the preservation, repair, and maintenance of historic structures within the city. | PL | Ongoing |
| HA1.11.6 | Consider historic preservation in the development and enforcement of City regulations. | PL | Ongoing |
| HA2.1.1 | Actively seek funding for improvements to City facilities that can support arts and cultural programs. | PL, ED, PR, PW, W | Ongoing |
| HA2.1.2 | Encourage the use of City facilities by arts and cultural programs | PL, ED, PR, PW, W | Ongoing |
| HA2.2.1 | Revise the Zoning Ordinance to encourage the development of mixed public and private facilities that will meet the needs of artists and cultural organizations. | PL | Short-term |
| HA2.2.2 | Encourage and facilitate performances and events in nontraditional settings. | PL, ED, PR | Short-term |
| HA2.2.3 | Support the development of the Tannery Arts Center and other public/private partnerships that meet a variety of cultural needs. | PL, ED | Ongoing |
| HA2.2.4 | Amend the Zoning Ordinance to encourage and allow the development of arts and cultural facilities in a wide variety of zoning designations. | PL | Short-term |
| HA2.2.5 | Study the feasibility and funding sources of a downtown performing arts center, including the reuse or expansion of the Civic Auditorium. | PL, ED, PR | Short-term |
| HA3.1.1 | Work with the City's Arts Commission and Planning Commission to develop and adopt city Arts and Entertainment Districts. | PL, ED, PR | Short-term |
| HA3.1.2 | Amend the Zoning Ordinance to create incentives for art based uses in the city Arts and Entertainment Districts. | PL, ED, PR | Short-term |
| HA3.2.1 | Maintain reduced rent for the use of City exhibition, performance, and instructional space for nonprofit organizations. | PR, ED | Ongoing |
| HA3.2.2 | Work with local groups to provide and promote awareness of arts programs, events, and exhibitions throughout the community. | ED | Ongoing |
| HA3.2.3 | Incorporate the arts into special events presented by the City. | PR, ED | Ongoing |
| HA3.2.4 | Encourage and support year-round events through supportive City policies, procedures, and fees. | PR, ED | Ongoing |
| HA3.3.1 | Provide arts and cultural programs for both city and regional residents. | PR | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| HA3.3.2 | Encourage artist education and performances for children. | PR | Ongoing |
| HA3.4.1 | Prepare and adopt a citywide Arts Master Plan. | ED | Ongoing |
| HA3.4.2 | Update the Arts Master Plan every 5 years. | ED | Short-term |
| HA4.1.1 | Encourage public art projects that involve the community in design and implementation. | PR, PW, ED, W | Ongoing |
| HA4.1.2 | Facilitate the placement of works of art for public display. | PR, PW, ED, W | Ongoing |
| HA4.2.1 | Include public art in capital improvement programs when feasible, and contingent on available funding. | PW, W, PR | Ongoing |
| HA4.2.2 | Maintain and enhance the Public Arts Program. | ED, PR | Ongoing |
| HA4.3.1 | Integrate art into a variety of publicly accessible settings | ED, PR | Ongoing |
| HA4.3.2 | Explore alternative funding sources to support publicly viewable art in both private and public developments. | PL, PR, ED, W, PW | Ongoing |
| HA4.3.3 | Amend the Zoning Ordinance to require publicly viewable art in private development that meets a defined threshold. | PL | Short-term |
| HA4.5.1 | Encourage individual and corporate philanthropic support of the Arts and culture. | ED, PR | Ongoing |
| HA4.5.2 | Work with the hospitality industry to promote Santa Cruz as a year-round arts destination. C | ED, PR | Ongoing |
| HA4.5.3 | Participate in the development of county-wide arts and culture website and other outreach programs. | ED, PR | Ongoing |
| HA4.5.4 | Recognize, document, and publicize the economic value of Santa Cruz's art and cultural resources. | ED | Ongoing |

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| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CD1.1.1 | Update and maintain Zoning Ordinance standards that minimize the impact of grading and development on important natural features such as coastal terraces and bluffs. | PL | Ongoing |
| CD1.1.2 | Protect the Monterey Bay National Marine Sanctuary and the shoreline and views to and along the ocean, recognizing their value as natural and recreational resources. | PL | Ongoing |
| CD1.1.3 | Protect and enhance unique natural areas citywide through the development and maintenance of management plans. | PL | Short-term |
| CD1.1.4 | Identify and emphasize distinguishing natural features that strengthen Santa Cruz's visual image (i.e., open space, Monterey Bay) | PL | Ongoing |
| CD1.2.1 | Develop complimentary siting, scale, landscaping, and other design guidelines to protect important public views and ensure that development is compatible with the character of the area. | PL | Mid-term |
| CD1.2.2 | Develop minimum standards and guidelines for residential, commercial, and industrial development that reflect the character and needs of the districts. | PL | Mid-term |
| CD1.3.1 | Encourage UCSC development to blend with the natural landscape and maintain natural ridgelines as seen from the city. | PL | Ongoing |
| CD1.3.2 | Update the Zoning Ordinance to address new construction techniques and "best management practices" related to construction on slopes. | PL | Short-term |
| CD1.3.3 | Review the slope development provisions of the Zoning Ordinance and update them as deemed necessary. | PL | Short-term |
| CD1.4.1 | Use planned development and other clustering techniques to protect resources and views and allow for siting that is sensitive to adjacent uses. | PL | Ongoing |
| CD1.4.2 | Consider visual access to nearby natural areas as part of developmental review. | PL | Ongoing |
| CD1.4.3 | Require or maintain an appropriate buffer to agricultural fields where appropriate. | PL | Ongoing |
| CD1.4.4 | Work with local and state fire agencies to maintain and update urban wild land interface zones that preserve the character of the natural environment while providing wild land fire safety. | PL, PR | Mid-term |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CD1.5.1 | Enhance the prominence of the San Lorenzo River as a natural feature that provides structure, orientation, and recreational enjoyment by including it in surrounding area and management plans. | PL | Short-term |
| CD1.5.2 | Provide incentives for new development adjacent to the San Lorenzo River that includes patios overlooking the river, enhanced connections to the levee trails, and other design features that connect the built environment to the river. | ED, PL | Ongoing |
| CD2.1.1 | Update City Area Plans as necessary in order to reflect new development, improvements, and potential opportunities. | PL | Long-term |
| CD2.1.2 | Establish citywide design principles for areas not covered by an area or specific plan. | PL | Mid-term |
| CD2.1.3 | Develop design guidelines as needed to address the visual transition between areas of higher density and/or intensified development (i.e., along corridors such as Water and Soquel Streets) and adjacent existing developed neighborhoods with less intense development. | PL | Short-term |
| CD2.1.4 | As part of the Zoning Ordinance amendment to establish mixed use districts, establish development standards to ensure that siting, massing, height, and scale of infill and intensified development are sensitive to existing neighborhood and business districts. | PL | Short-term |
| CD2.1.5 | Develop an Ocean Street Area Plan. | PL | Short-term |
| CD2.1.6 | Update the Seabright Area Plan to address historic development patterns and future infill and intensification impacts, including visitor parking. | PL | Short-term |
| CD2.1.7 | Update the Downtown Recovery Plan to reflect Santa Cruz's successful recovery from the 1989 Loma Prieta earthquake, and to respond to current opportunities and challenges. | PL | Short-term |
| CD2.1.8 | Develop plans for the Harvey West and Westside Industrial districts that define the appropriate character for new development, including its relationship to neighborhoods surrounding those areas. | PL | Short-term |
| CD2.1.9 | Ensure that new commercial development and lodging contributes positively to the overall aesthetic character of Ocean Street and communicates the unique qualities and character of the city. | PL | Short-term |
| CD2.2.1 | Develop a protocol for involving local neighborhood groups in planning significant neighborhood improvements. | PL | Short-term |
| CD2.2.2 | Engage the public in long range planning projects including Area Plans and General Plan updates. | PL | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CD2.3.1 | Develop a citywide signage plan that identifies and defines neighborhoods and relates to Area Plan requirements, where appropriate. | PL | Short-term |
| CD2.3.2 | Update the City's landmark maps and the related Zoning Ordinances to further the identification and preservation of landmarks. | PL | Mid-term |
| CD2.4.1 | Update and implement the sign ordinance to address nonconforming and illegal signs. | PL | Short-term |
| CD2.4.2 | Refine the zoning regulations regarding property maintenance as a means of improving neighborhood quality. | PL | Short-term |
| CD2.4.3 | Seek grants and other funding for additional City code enforcement. | ED, PL | Ongoing |
| CD2.4.4 | Educate the public on available home rehabilitation programs. | ED, PL | Ongoing |
| CD3.1.1 | Strengthen the linkage between Downtown, the Beach Area, and San Lorenzo River through amendments to corresponding Area Plans and the Zoning Ordinance. | PL | Short-term |
| CD3.1.2 | Maintain, update, and implement the City's San Lorenzo Urban River Plan. | PL | Mid-term |
| CD3.1.3 | Create a new link between Ocean Street and the Downtown through an Ocean Street Area Plan and corresponding Zoning Ordinance amendments. | PL | Mid-term |
| CD3.1.4 | Revise the Zoning Ordinance to require that the design of public and private development promote connectivity between neighborhoods and districts. | PL | Short-term |
| CD3.2.1 | Update the City Landmark Map, as necessary, to include new and restored landmarks. | PL | Mid-term |
| CD3.2.2 | Revise the Zoning Ordinance to include design guidelines for the protection of existing landmarks and for the development of new landmarks. | PL | Mid-term |
| CD3.3.1 | Develop incentives to encourage the assembly of small parcels through Area Plan amendments and Zoning Ordinance changes. | PL | Short-term |
| CD3.3.2 | Revise the Zoning Ordinance to limit development possibilities for small parcels. | PL | Short-term |
| CD3.4.1 | Assist the public with the design of accessible homes. | PL | Ongoing |
| CD3.4.2 | Ensure that development is designed and constructed to allow for easy accessibility conversion. | PL | Ongoing |
| CD3.5.1 | Require superior quality design for existing or proposed landmark buildings. | PL | Ongoing |
| CD4.1.1 | Develop a citywide Gateway Plan that identifies and defines neighborhoods and relates to Area Plan requirements. | PL | Mid-term |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CD4.1.2 | Develop a citywide Directional Sign Program that specifically addresses the downtown, the beach, and Ocean Street. | ED, PL, PW | Short-term |
| CD4.1.3 | Identify and establish design concepts that make visitor-serving corridors attractive and interesting through landscaping, banners, flags, art, and displays. | ED, PL, PW | Ongoing |
| CD4.1.4 | Protect and enhance historic street patterns, rail lines, walls, and pedestrian walkways to emphasize historic routes and help define districts and neighborhoods. | PL | Mid-term |
| CD4.1.5 | Maintain the visual prominence of important city landmarks and destinations as viewed from major circulation routes and public viewpoints when possible. | PL | Ongoing |
| CD4.1.6 | Encourage rehabilitation and adaptive reuse of architecturally significant buildings rather than demolition. | PL | Ongoing |
| CD4.2.1 | Where possible, site buildings at the street frontage and place parking areas away from street corners and to the rear of buildings. | PL | Ongoing |
| CD4.2.2 | Review landscaping requirements for parking lots. | PL | Short-term |
| CD4.2.3 | Underground utilities when major road improvement or reconstruction is proposed, if possible. | PW, PL | Ongoing |
| CD4.2.4 | Develop guidelines that ensure sound walls, retaining walls, or fences are visually interesting and well landscaped. | PL | Ongoing |
| CD4.3.1 | Update the Zoning Ordinance to provide functional and appropriate landscape options (for a variety of developments) that reflect a commitment to conservation and aesthetics and provide amenities that will encourage pedestrians. | PL | Short-term |
| CD4.3.2 | Maintain high quality landscaping on City-owned lands, parking lots, and parks. | PW, PR | Ongoing |
| CD4.3.3 | Protect existing significant vegetation and landscaping that provides scenic value along with wildlife habitat and forage. | PL, PR | Ongoing |
| CD4.3.4 | Maintain an ordinance requiring replacement and maintenance when heritage tree removal is necessary for new development. | PL, PR | Ongoing |
| CD4.3.5 | Develop a Street Tree Master Plan and landscaping theme for city streets and entrances. | PR | Mid-term |
| CD4.3.6 | Implement streetscape and other landscaping plans in the City's Area and Specific Plans. | PR, PW | Mid-term |
| CD4.3.7 | Compose a list of recommended landscaping species that are appropriate, drought tolerant, and have forage value for wildlife. | PL | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
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| CD4.3.8 | Maintain a list of noxious and invasive species and educate the public about their disadvantages. | PR | Ongoing |
| CD4.4.1 | Prepare an Ocean Street Area Plan that identifies design standards and guidelines for new development as well as proposed streetscape enhancements. | PL | Short-term |
| CD5.1.1 | Implement the Master Transportation Study's recommendations for improving the city's pedestrian network. | PW, PL | Ongoing |
| CD5.2.1 | Encourage buildings to be oriented towards sidewalks, public plazas, walkways, or rivers and to include features such as public benches and natural seating areas. | PL | Ongoing |
| CD5.2.2 | Encourage the incorporation of public benches and natural seating areas along public walkways and in public plazas and parks. | PR | Ongoing |
| CD5.2.3 | Design parking strategies at a district or neighborhood-wide level to foster a pedestrian-oriented environment. | PL | Short-term |
| CD5.2.4 | Ensure that new and revised design guidelines encourage the use of pedestrian-scaled fenestration, awnings, entrances, landscaping, and other amenities. | PL | Ongoing |
| CD5.3.1 | Work with Santa Cruz City Schools to identify school facilities that could accommodate greater public access. | PR, PL, SD | Ongoing |

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| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| LU1.1.1 | Review the Zoning Ordinance for opportunities to allow for creative development such as lowering the minimum net lot area required for a Planned Development Permit. | PL | Short-term |
| LU 1.1.2 | Create incentives for the consolidation of underdeveloped parcels relative to development potential. | PL | Short-term |
| LU1.1.3 | Develop design strategies for combined parking facilities in strategic locations throughout the city. | PL, PW, ED | Short-term |
| LU1.1.4 | Obtain Local Coastal Plan certification for the 11-acre Swenson parcel pursuant to the following:<br>• Require a specific plan for the property (with a landuse designated as Low Medium Density Residential/ Neighborhood Commercial/Office).<br>• The environmental review process shall guide the location and intensity of all uses. The height, scale, and bulk of development shall take into consideration the rural transition at the city's edge.<br>• Neighborhood Commercial and Office land uses shall be at least 10 percent but no more than 20 percent of the total net developable area.<br>• The extent of open space buffers/setbacks to wetland areas on and adjoining the site will ultimately be determined by the California Coastal Commission. Based upon the Coastal Commission's buffer/setback determination, neighborhood park land shall be considered on the site.<br>• The specific plan shall prioritize away from the pond, any required uncovered off-street parking for residential uses. Except for parking for the disabled, off street uncovered parking and driveways near Antonelli Pond and residential uses is discouraged.<br>• The circulation system of the specific plan shall provide access from Shaffer Road.<br>• Public access to Antonelli Pond shall be preserved. | PL | Short-term |
| LU 1.1.5 | Any future land divisions within the Golf Club Drive Area shall be limited to three lots and a remainder per existing parcel.<br>These limited land divisions may be approved prior to adoption of an Area Plan. Proposed parcels shall be clustered and the area of the parcels shall be in the higher range (R-1-7) of the Low Density Residential designation (1.1-10 DU/acre) with a remainder that may be | PL | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
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| | larger than the minimum parcel area allowed by the Low Density Residential designation. Any land division application processed prior to adoption of an Area Plan shall not impede or detract from the future development potential of the remainder property.<br>• Prior to allowing any subdivision for the creation of lots less than 7,000 square feet in area, an Area Plan for the 20-acre Golf Club Drive Area shall be approved by the City. All new construction proposed prior to the adoption of the Area Plan shall be subject to a design permit.<br>• The Area Plan shall provide housing within developable areas of the site at 10.1-20 DU/acre. Upon adoption of the Area Plan the Golf Club Drive Area shall be designated Low Medium Density Residential on the General Plan Land Use Map.<br>• The Area Plan shall preserve up to five acres of open space. Urban wildlife interface zones, community gardens and riparian corridor areas could be included in the open space requirement.<br>• Pedestrian and bicycle access to Pogonip and nearby employment areas are to be incorporated into the plan.<br>• The evaluation of a future rail transit stop is to be included in the Area Plan analysis. | PL | Ongoing |
| LU1.2.1 | Environmental review for specific projects shall be accompanied by sufficient technical data and reviewed by appropriate departments. | ALL | Ongoing |
| LU1.2.2 | Work with the County to ensure that lands within the City's Planning Area are developed with appropriate uses. | PL | Ongoing |
| LU1.3.1 | Conduct a study to determine if City facilities and services are lacking to allow for appropriate development citywide. | ALL | Ongoing |
| LU1.3.2 | Report annually on the state of City facilities and services. | ALL | Ongoing |
| LU1.3.3 | Consider assessment districts for appropriate facilities and for services when necessary. | ALL | Ongoing |
| LU1.4.1 | Review the City's impact fee requirements periodically, and revise them as necessary to reflect current costs. | ALL | Ongoing |
| LU2.2.1 | Consider consolidating the city limits in the Carbonera Area. | PL | Short-term |
| LU2.2.2 | Pursuant to the UCSC/City Comprehensive Settlement Agreement amend the City's Sphere of Influence to add approximately 374 acres of the north campus area. | PL | Short-term |
| LU2.2.3 | Annex the 5.5 acre Humphrey Property (APN 056-121-07) south of and adjacent to the City's Landfill and Resource Recovery Center located on Dimeo Lane. | PL, PW | Short-term |
| LU2.3.1 | Protect, maintain, and enhance publicly accessible coastal and open space areas. | PL, PR, PW | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| LU2.3.2 | Work with the County to maintain in open space the lands between Moore Creek Preserve (west branch), the city's western boundary above and below Highway 1, Younger Lagoon, and Wilder Ranch State Park. | PR | Ongoing |
| LU2.3.3 | Develop and maintain a master or similar plan for the long-term preservation and maintenance of each of the city's greenbelt lands. | PR, PL | Ongoing |
| LLU2.3.4 | Encourage the continued preservation of the portions of the UCSC campus in open space uses pursuant to the UCSC Long Range Development Plan. | PL | Ongoing |
| LU2.3.5 | Support County policies and programs aimed at preserving agricultural and grazing uses within the Planning Area and on the North Coast. | PL | Ongoing |
| LU2.3.6 | Prohibit land divisions that could degrade natural features. | PL | Ongoing |
| LU3.1.1 | Encourage through incentives and expedited permit processing a variety of housing types, when appropriate. | PL | Ongoing |
| LU3.1.2 | Work with representatives from regional, State, and federal agencies to include Santa Cruz in any incentives programs that link housing to transportation and jobs. | PL, PW | Ongoing |
| LU3.1.3 | Work with the County and other agencies to develop strategies for improving the region's jobs/housing balance and matching employment opportunities with housing costs. | PL, ED | Ongoing |
| LU3.2.1 | Pursue the expansion of employment-intensive uses that have long-term economic viability. | ED | Ongoing |
| LU3.2.2 | Develop land use and economic plans for the Westside Industrial and Harvey West areas. | PL, ED | Short-term |
| LU3.2.3 | Encourage light industrial uses and creative industry to locate in the Harvey West Area. | PL, ED | Short-term |
| LU3.2.4 | Allow incubator uses in employment-intensive areas such as the Westside Industrial Area. | PL | Short-term |
| LU3.2.5 | In considering new types of uses for the Westside Industrial Area, give priority to those that deliver long-term job creation and retention. | PL | Short-term |
| LU3.2.6 | Amend the Zoning Ordinance to increase the number of stories allowed in the Westside Industrial Area within the existing height limitations. | PL | Ongoing |
| LU3.2.7 | Amend the Zoning Ordinance to provide for employment generation in the city's industrial areas, and to restrict uses that are incompatible with industrial uses. | PL, ED | Ongoing |
| LU3.2.8 | Direct large regional retail uses to, and locate remote parking in, a portion of Harvey West. | PL, ED | Ongoing |
| LU3.3.1 | Amend the Zoning Ordinance to discourage strip commercial development in favor of clustered commercial and mixed-use development along transit corridors. | PL | Short-term |
| LU3.3.2 | Revise the Zoning Ordinance to include mixed use zoning and to define appropriate uses. | PL | Short-term |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| LU3.3.3 | Limit the number, density, and placement of fast food outlets. | PL | Short-term |
| LU3.4.1 | Revise the Zoning Ordinance to allow for appropriate neighborhood uses in strategic locations. | PL | Short-term |
| LU3.5.1 | Amend the Downtown Recovery Plan and the Beach and South of Laurel Plan to encourage and allow additional public and commercial uses along Lower Pacific Avenue and Front Street. | PL | Short-term |
| LU3.5.2 | Further develop Depot Park as a multi-modal center. | PR, PW, PL | Ongoing |
| LU3.5.3 | Foster improved recreational and economic opportunities at the Municipal Wharf. | PR, ED | Ongoing |
| LU3.6.1 | Amend the Downtown Recovery Plan to expand the area of the High Density Overlay (HD-O) to include Front Street south of Highway 1 and portions of Lower Pacific Avenue. | PL | Short-term |
| LU3.7.1 | Allow and encourage development that meets the high end of the General Plan Land Use designation density unless constraints associated with site characteristics and zoning development standards require a lower density. | PL | Short-term |
| LU3.9.1 | Update the Seabright Area Plan through a community process that will consider design, density, intensity, and parking needs for the area. | PL | Short-term |
| LU3.9.2 | Apply the Neighborhood Conservation Overlay District when necessary to preserve and maintain the area's housing stock. | PL | Ongoing |
| LU3.9.3 | Develop a citywide rental inspection program. | PL | Ongoing |
| LU3.9.4 | Maintain and expand City Historic Districts. | PL | Ongoing |
| LU3.11.1 | Continue to recognize and protect the Pacific Ocean, Monterey Bay, and the Monterey Bay National Marine Sanctuary as natural resources and valuable open space. | PR, PW, PL, ED | Ongoing |
| LU3.11.2 | Ensure appropriate land uses and development standards that do not adversely impact adjacent open spaces. | PL | Ongoing |
| LU3.11.3 | Maintain and protect existing open space through management plans. | PL, PR | Ongoing |
| LU4.1.1 | Support compact mixed-use development Downtown, along primary transportation corridors, and in employment centers. | PL | Ongoing |
| LU4.1.2 | Amend the Zoning Ordinance to ensure that infill and intensified development is sensitive to existing neighborhood and business districts. | PL | Short-term |

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|---|---|---|---|
| LU4.1.3 | On major corridors, encourage mixed-use development, especially projects with priority for commercial uses that can provide services to the adjacent community. | PL | Short-term |
| LU4.1.4 | Revise the Zoning Ordinance to allow live-work units. | PL | Short-term |
| LU4.2.1 | Amend the Zoning Ordinance to allow for increased development in the areas designated on the Land Use Map as Mixed Use High Density (MXHD), Mixed Use Medium Density (MXMD), and Mixed Use Visitor Commercial (MXVC). | PL | Short-term |
| LU4.2.2 | Establish criteria for and amend the Zoning Ordinance to allow infill parcels near or adjacent to the areas designated on the Land Use Map as Mixed Use High Density (MXHD), Mixed Use Medium Density (MXMD), and Mixed Use Visitor Commercial (MXVC) to be re-designated to the same or a similar category, where appropriate. | PL | Short-term |
| LU4.2.3 | Prepare a Rail Transit Land Use Plan and recommend land use changes at and near proposed transit stops in anticipation of local rail service. | PL | Mid-term |
| LU4.2.4 | Encourage the location of University-serving shopping and services on University lands. | PL | Ongoing |
| LU4.3.1 | Identify parcels or areas to allow or to expand existing neighborhood facilities within easy walking distance of residential areas or areas well-served by transit. | PL | Mid-term |
| LU4.3.2 | Develop and implement a citywide Childcare Plan to ensure that childcare facilities are encouraged and provided. | PL | Mid-term |
| LU4.4.1 | Review and revise the Home Occupation Permit requirements to allow for increased numbers of telecommuting and home occupation workers. | PL | Short-term |
| LU4.5.1 | Consult with the Regional Transportation Commission on land dedications or land use changes related to future transit centers. | PL, PW | Ongoing |
| LU4.5.2 | Condition projects located along rail lines for potential rail stops. | PL, PW | Ongoing |

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|---|---|---|---|
| M1.1.1 | Create walkable, transit-oriented activity centers throughout the city. | PL, PW | Ongoing |
| M1.1.2 | Connect activity centers with pedestrian and bicycle paths. | PL, PW | Ongoing |
| M1.1.3 | Implement pedestrian and bicycle improvements that support transit ridership. | PL, PW | Ongoing |
| M1.1.4 | Amend the Zoning Ordinance to create an activity-center-oriented urban form. | PL, PW | Mid-term |
| M1.1.5 | Support consolidating employment centers. | PL, PW | Ongoing |
| M1.2.1 | Facilitate implementation of livable street design guidelines for key street types as defined in the City's Master Transportation Study. | PL, PW | Ongoing |
| M1.2.2 | Maintain street access to neighborhoods through the Capital Improvements Program. | PL, PW | Ongoing |
| M1.3.1 | Amend the Zoning Ordinance to require pedestrian improvements appropriate to development type and design. | PL, PW | Mid-term |
| M1.4.1 | Assure that right-of-way acquisition and street design will support pedestrian and bike improvements and transit. | PL, PW | Ongoing |
| M1.4.2 | Allow for future multi-modal use of future rights-of-way by protecting them from development. | PL, PW | Ongoing |
| M1.5.1 | Increase land use efficiency and the walkability of activity centers. | PL, PW | Ongoing |
| M1.5.2 | Encourage innovative solutions that provide adequate parking while maximizing living and working space. | PL, PW | Ongoing |
| M1.5.3 | Manage nonresidential parking in residential areas. | PW | Ongoing |
| M1.5.4 | Develop a City employee parking strategy. | PW | Ongoing |
| M1.5.5 | Amend the Zoning Ordinance to encourage shared parking for uses that are compatible in terms of hours of operation or seasonality. | PL, PW | Ongoing |
| M1.5.6 | Develop a strategy for new public off-street parking along major corridors to accommodate infill and intensification. | PL, PW | Long-term |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| M1.6.1 | Design parking areas with adequate lighting, safe pedestrian circulation, adequate landscaping, a minimum amount of pavement, and adequate numbers of accessible spaces reserved for the physically disabled. | PL, PW | Ongoing |
| M1.6.2 | Amend the Zoning Ordinance to address landscaping, lighting, and access in parking lots. | PL, PW | Short-term |
| M2.1.1 | Encourage diverse local and regional transit options. | PL, PW | Ongoing |
| M2.1.2 | Encourage use of alternative modes of transportation. | PL, PW | Ongoing |
| M2.1.3 | Implement pedestrian, bike, mass transit, and road system improvements through the Capital Improvements Program. | PL, PW | Ongoing |
| M2.1.4 | Support regional funding and implementation of key regional projects that can significantly benefit Santa Cruz and further the City's mobility policies. | PL, PW | Ongoing |
| M2.1.5 | Do not adopt, approve, or construct and Easter Access to the university without a vote of the people in a citywide general election. | PL, PW, PR | Ongoing |
| M2.2.1 | Protect existing and potential railroad lines and rights-of-way, and other potential rights-of-way, from land uses that would prevent the development of rail or fixed-guideway services or other transportation-related uses in the future. | PL, PW | Ongoing |
| M2.2.2 | Encourage the continued transport of goods by rail. | N | Ongoing |
| M2.3.1 | Design for and accommodate multiple transportation modes. | PL, PW | Ongoing |
| M2.3.2 | Promote alternative transportation improvements with transportation system management (TSM) strategies, road improvements, and widening/expansion projects that can achieve an acceptable level of service. | PW | Ongoing |
| M2.3.3 | Incorporate pedestrian, bicycle, and mass transit facilities in the design of bridges and road projects. | PW | Ongoing |
| M2.3.4 | Encourage visitor-serving developments, such as hotels, to make bicycles and shuttle programs available to patrons. | PL, PW | Ongoing |
| M2.4.1 | Encourage a Downtown/Beach bus shuttle along the route of the trolley proposed in the Downtown Recovery Plan. | PL, PW, ED | Ongoing |
| M2.4.2 | Encourage high occupancy, high frequency transit that connects city activity centers and provides service to major local and regional destinations. | PW | Ongoing |
| M2.4.3 | Establish an employee parking strategy that includes remote parking and shuttle services for the downtown area and other major employment centers. | PW | Long-term |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| M2.4.4 | Work with the University to develop and implement strategies to reduce congestion along city-to-university travel corridors. | PW | Ongoing |
| M2.4.5 | Consider giving priorities to transit service on city transportation corridors. | PL, PW | Ongoing |
| M2.4.6 | Encourage increased transit service capacity. | N | Ongoing |
| M2.4.7 | Maintain and expand bus service along major commute corridors and to major destination and to any future fixed-guideway systems. | N | Ongoing |
| M2.4.8 | Encourage commuter bus travel to and from major destinations. Favor express bus systems along major commute corridors with a minimum number of stops. | N | Ongoing |
| M2.4.9 | Increase local and regional transit ridership by encouraging the implementation of new, innovative technologies. | N | Ongoing |
| M2.4.10 | Encourage the maintenance and upgrading of transit infrastructure. | N | Ongoing |
| M2.4.11 | Provide safe and secure links to transit. | PW | Ongoing |
| M2.4.12 | In coordination with the transit district, require development along arterial streets to provide adequate and accessible bus shelters, with curb cuts leading to the shelter and to destination and loading platforms. | PW | Ongoing |
| M2.5.1 | Promote the use of new technologies for transportation of other community services. | PW | Ongoing |
| M2.5.2 | Utilize TSM planning, implementation, and monitoring to improve transportation efficiency and safety. | PW | Ongoing |
| M3.1.1 | Seek ways to reduce vehicle trip demand and reduce the number of peak hour vehicle trips. | PW | Ongoing |
| M3.1.2 | Encourage high occupant vehicle travel. | PL, PW | Ongoing |
| M3.1.3 | Strive to maintain the established “level of serve” D or better at signalized intersections. | PW | Ongoing |
| M3.1.4 | Accept a lower level of service and higher congestion at major regional intersections if necessary improvements would be prohibitively costly or result in significant, unacceptable environmental impacts. | PW | Ongoing |
| M3.1.5 | Maintain and update the Transportation Impact Fee to ensure that developers pay a proportional share of circulation system improvements. | PW | Ongoing |
| M3.1.6 | Finance circulation system improvements by using local revenues as a match to leverage federal and State funds. | PW | Ongoing |
| M3.1.7 | Encourage businesses and employees to participate in ridesharing, bus pass, and shuttle programs. | PW, PL, N | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| M3.1.8 | Encourage variable work hours including the institution of staggered hours, flextime, telecommuting, or compressed work weeks. | PW, PL, E, N | Ongoing |
| M3.1.9 | Consider reducing parking requirements for employers, developments, businesses, and major destination centers that implement effective alternative transportation programs. | PW, PL | Short-term |
| M3.1.10 | Utilize up-to-date multi-modal transportation studies and reports to identify areas where major deficiencies are projected. | PW | Ongoing |
| M3.1.11 | Minimize disruption of newly paved or resurfaced streets by ensuring that road projects are coordinated with utility work. | PW | Ongoing |
| M3.1.12 | Update and maintain coordinated signal timing of traffic corridors. | PW | Ongoing |
| M3.1.13 | Improve access to and from Harvey West, including a possible new approach to Highway 1 and a better connection to the downtown. | PW | Long-term |
| M3.2.1 | Maintain the condition of the existing road system. | PW | Ongoing |
| M3.2.2 | Ensure safe and efficient arterial operations. | PW | Ongoing |
| M3.2.3 | Ensure that street widths are adequate to safely serve emergency vehicles and freight trucks. | PW | Ongoing |
| M3.2.4 | Improve traffic safety and flow. Ways to do this include installing and maintaining traffic signs, pavement markings, and median improvements. | PW | Ongoing |
| M3.2.5 | Improve traffic safety at high collision locations, in residential areas, and in congested areas through speed enforcement programs, improved street design, improvements needed to reduce accidents, and by offering traffic safety educational programs in coordination with other local agencies. | PW | Ongoing |
| M3.2.6 | Regularly inspect streets and maintain pavement in a condition that keeps maintenance costs at a minimum, encourages bicycling, and ensures that repairs are acceptable and long-lasting. | PW | Ongoing |
| M3.2.7 | Regularly inspect bridges to determine if load restrictions are adequate and to evaluate maintenance needs; safety; the effects of accident damage, environmental damage, capacity, and usage; and the need for seismic retrofitting. | PW | Ongoing |
| M3.2.8 | Prohibit contractors from tracking or dropping excavated material, construction material, and other debris onto city streets. | PW | Ongoing |
| M3.2.9 | Where possible, underground the utilities along city roads, especially on streets scheduled for reconstruction. | PW | Ongoing |
| M3.2.10 | Install energy-efficient and adequate street lighting in traffic hazard, public gathering, and pedestrian areas. | PW | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| M3.2.11 | Improve traffic flow and safety and reduce impacts on arterial streets by limiting driveways, mid-block access points, and intersections; removing on-street parking; clustering facilities around interconnected parking areas; providing access from side streets; and other similar measures. | PW | Ongoing |
| M3.3.1 | Enhance neighborhood livability through the design of road and transit improvements. | PW | Ongoing |
| M3.3.2 | Improve access along the Visitor/Beach Area travel corridors through coordinated signs and street naming, protected turn lanes, remote parking/shuttle programs, and other strategies. | PW | Ongoing |
| M3.3.3 | Update the Beach and South of Laurel Area Plan to reflect needed improvements along the Visitor/Beach Area travel corridors. | PW, PL | Short-term |
| M3.3.4 | Mitigate safety, noise, and air quality impacts from roadways on adjacent land uses through setbacks, landscaping, and other measures. | PW, PL | Ongoing |
| M3.3.5 | Require new development to be designed to discourage through traffic in adjacent neighborhoods and to encourage bicycle or pedestrian connections. | PW, PL | Ongoing |
| M3.3.6 | Reduce traffic in residential neighborhoods by improving arterial and collector streets and providing appropriate signs along arterial and collector routes. | PW | Ongoing |
| M3.3.7 | Develop neighborhood traffic control plans where necessary to minimize traffic impacts on local streets. | PW | Ongoing |
| M4.1.1 | Update and implement the Pedestrian Master Plan for development of a complete, continuous, and structurally adequate system of pedestrian paths and walkways. | PW | Ongoing |
| M4.1.2 | Include and address sidewalk improvements in the Capital Improvements Program. | PW | Ongoing |
| M4.1.3 | Encourage pedestrian travel by providing pedestrian pathways on cul-de-sac and loop streets. | PW | Ongoing |
| M4.1.4 | Encourage walking in Santa Cruz through educational outreach and promotional programs. | PW | Ongoing |
| M4.1.5 | Where there are proposed or existing plan lines, require developments to dedicate land for rights-of-way, and require that sidewalks be added or repaired within, and in the area adjacent to, new developments. | PW | Ongoing |
| M4.1.6 | Enhance the pedestrian orientation of the Downtown Central Business District. | PW, PL | Ongoing |
| M4.1.7 | Require the site and building design facilitate pedestrian activity. | PL | Ongoing |
| M4.1.8 | Remove or reduce obstructions and sidewalk tripping hazards, ensure accessibility to the physically disabled and elderly, and improve amenities along existing and potential pedestrian paths and walkways. | PW | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| M4.1.9 | Require landscaping in the development, replacement, and repair of sidewalks, including the placement of trees on private property and/or in tree wells on sidewalks. | PW, PL, PR | Ongoing |
| M4.2.1 | Maintain and update as necessary the City's Bicycle Transportation Plan. | PW | Ongoing |
| M4.2.2 | Work with appropriate agencies to seek funding for pedestrian and bicycle projects. | PW | Ongoing |
| M4.2.3 | Facilitate bicycling connections to all travel modes. | PW | Ongoing |
| M4.2.4 | Implement bicycle safety programs and cooperate with other agencies in the enforcement of bicycle safety. | PW | Ongoing |
| M4.2.5 | Study the development of parking alternatives (such as removal of parking from one side of the street) and off-street parking facilities prior to the removal of any on-street parking. | PW | Ongoing |
| M4.2.6 | Provide regular sweeping, pavement repairs, striping, and signs along bike routes. | PW | Ongoing |
| M4.3.1 | Promote development of bike lanes on arterial and collector streets and in proposed and already-adopted City plans. | PW | Ongoing |
| M4.3.2 | Develop bike commute routes along railroad rights-of-way (while ensuring the ability to develop rail transit) and along West Cliff Drive, Broadway, King, and other streets. | PW | Ongoing |
| M4.4.1 | Maintain Zoning Ordinance and parking district requirements that require secure, covered bicycle parking and/or storage lockers at private and public facilities. | PW | Ongoing |
| M4.4.2 | Provide design guidelines for safe and secure bicycle parking, and promote bicycle access for special events. | ASA | Ongoing |
| M4.4.3 | Increase the supply of bicycle parking throughout the city. | PW | Ongoing |
| M4.4.4 | Consider ways to require existing development to upgrade and/or retrofit on-site bicycle user amenities. | PW | Ongoing |
| M4.5.1 | Design and also modify intersections using striping, pedestrian crossing signs, pedestrian islands, and pedestrian friendly signal phasing. | PW | Ongoing |
| M4.5.2 | Design driveway access ramps to not interfere with the safe use of sidewalks. | | Ongoing |
| M4.5.3 | Develop a schedule and comprehensive funding program for proposed bike system improvements within the Capital Improvements Program. | ASA | Ongoing |
| M4.5.4 | Consider counter-flow bike lanes on one-way streets where significant bicycle traffic is expected and where safety measures are in place. | PW | Ongoing |

# CHAPTER 6 Economic Development

**TIME FRAMES:** Ongoing = currently and continuously implement, Short-term by 2018, Mid-term by 2022, Long-term by 2028

**DEPARTMENTS:** CC= City Clerk, PL = Planning, PW= Public Works, PR = Parks, ED = Economic Development, PO= Police, F= Fire, W= Water, L=Library, SD=School District, CCC=California Coastal Commission, N=Non-City Agency, ASA=Administrative Services Department, ALL=All Departments

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| ED1.1.1 | Encourage the development of diverse, innovative, and sustainable business enterprises that reinforce Santa Cruz's position as a regional employment, cultural, visitor, and shopping center. | PL, PW | Ongoing |
| ED1.1.2 | Support the development and expansion of businesses that make a balanced contribution to the cultural, environmental, and economic health of the city. | PL, ED | Ongoing |
| ED1.1.3 | Encourage the development of year-round businesses and visitor activities, resources, and destinations that can also attract and engage local residents. | PL, ED | Ongoing |
| ED1.1.4 | Encourage, sponsor, and increase the number and quality of special events and recreational programs attractive to both visitors and residents. | PL, ED, PR, PW, PO | Ongoing |
| ED1.1.5 | Encourage additional commercial businesses that support and enhance creative industries and lifestyles, such as marine, retail, visitor, and recreational activities and services. | PL, ED | Ongoing |
| ED1.1.6 | Revitalize the RiverFront area. | PL, ED, PW | Ongoing |
| ED1.1.7 | Continue and expand Beach Area marketing efforts. | ED | Ongoing |
| ED1.2.1 | Encourage transportation improvements and pedestrian activity along Ocean Street to stimulate economic vitality. | PW | Short-term |
| ED1.3.1 | Promote the development of ecotourism programs that are or could become associated with environmentally focused activities such as the Monterey Bay National Marine Sanctuary, Long Marine Lab, whale watching, the UCSC Farm and Arboretum, and others. | PL, PW | Ongoing |
| ED1.4.1 | Support the development of a new conference center, evaluate the contribution it would make in attracting visitors, and consider opportunities to link such a facility to a performing arts center. | PL, ED | Ongoing |
| ED1.5.1 | Encourage the development of facilities that would accommodate conferences and conference-goers in conjunction with existing or new hotel development. | PL, ED | Ongoing |
| ED1.5.2 | Attract a top-end, full-service hotel to expand and improve the year-round conference segment of the tourism market. | ED | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| ED1.5.3 | Develop and implement a comprehensive Beach Area quality lodging strategy. The study should examine the growth in visitor demand and the needs and opportunities (including funding) for lodging, conference facilities, other visitor services, parcel assembly, and associated public improvements (including streetscape, parking, transit, and directional signs). | ED | Ongoing |
| ED1.6.1 | Assess the impacts of an oversupply of inferior hotel/motel rooms, and develop incentives to encourage owners to upgrade existing hotel/motel facilities while ensuring the retention of moderately priced accommodations. | ED | Ongoing |
| ED1.7.1 | Provide continuing support for cultural events and festivals, especially during the off-season. | PR, ED, PO | Ongoing |
| ED1.7.2 | Diversify the range of visitor attractions in Santa Cruz, particularly those that draw on the city's unique natural and cultural assets. | PR, ED, PL | Ongoing |
| ED1.7.3 | Encourage the growth of local performing arts, visual arts retail, artistic co-ops, and historic and cultural events. | ED, PL | Ongoing |
| ED1.8.1 | Coordinate scheduling, promotion, and administration of special events at City facilities among City departments, the County Visitors Center, hotel and business associations, and other appropriate groups. | PR, ED | Ongoing |
| ED1.8.2 | Improve the visual appearance of visitor routes and entrances to the city. | ED, PW | Short-term |
| ED1.8.3 | Implement a comprehensive sign program to facilitate visitor orientation to the city and its complete range of attractions. | ED, PL, PW | Short-term |
| ED1.8.4 | Improve access to and routes between tourist and visitor designations and lodging facilities. | ED, PW | Short-term |
| ED1.8.5 | Consider the use of new technology along the city's principal entry roads to inform visitors about and guide them to beach shuttle services, parking areas, and retail business areas. | ED, PW | Short-term |
| ED1.8.6 | Consider the development of regular tourism programming on radio and local cable television to provide information about cultural activities and other community events. | ED | Ongoing |
| ED1.8.7 | Enhance and manage a citywide banner program to promote arts and cultural activities and events. | ED, PW, PR | Ongoing |
| ED1.8.8 | Encourage the participation of smaller lodging facilities in serving the conference and other markets. | ED | Ongoing |
| ED1.8.9 | Work to retain the city's core visitor attractions. | ED | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| ED1.8.10 | Work with local owners to ensure a continuing high quality visitor experience for their patrons. | ED | Ongoing |
| ED1.8.11 | Work to develop tour bus trips to local attractions throughout Santa Cruz County such as the Boardwalk. | ED | Short-term |
| ED1.8.12 | Encourage the Santa Cruz and Big Trees Railroad and other operators using historic rail cars to provide tours of Santa Cruz. | ED | Ongoing |
| ED1.8.13 | Promote Seabright area beaches and the harbor to play a more significant role as Santa Cruz visitor attractions. | ED | Ongoing |
| ED1.8.14 | Provide convenient shopping and services for Seabright residents and visitors to the harbor and Seabright Beach. | ED, PL | Ongoing |
| ED1.9.1 | Promote and develop clean, visually inviting, and safe shopping environments. | ED, PO, PW, PL | Ongoing |
| ED1.9.2 | Implement transportation, parking, and alternative transportation improvements consistent with circulation planning. | PW | Ongoing |
| ED1.9.3 | Provide a variety of parking resources to support a diverse retail base. | PW | Ongoing |
| ED1.9.4 | Encourage creative and flexible approaches to parking supply along Ocean Street. | PW | Short-term |
| ED2.1.1 | Recruit new and support existing businesses that generate substantial municipal revenue. | ED | Ongoing |
| ED2.1.2 | Maintain and expand retail sales tax opportunities within the city. | ED | Ongoing |
| ED2.1.3 | Educate the public about the need for a strong economic tax base. | ED | Ongoing |
| ED2.1.4 | Encourage public/private partnerships that stimulate economic growth. | ED | Ongoing |
| ED2.2.1 | Promote the purchase of locally-produced, recycled, and environmentally sound products and packaging. | ED | Ongoing |
| ED2.2.2 | Identify businesses that purchase goods and services outside the county and match them with businesses that can locally provide the same or better goods and services. | ED | Ongoing |
| ED2.2.3 | Support local and environmentally sound vendors. | ED | Ongoing |
| ED2.2.4 | Encourage businesses to provide for easy consumer identification of locally produced and environmentally sound goods. | ED | Ongoing |
| ED2.2.5 | Retain and strengthen the clusters of medical office and professional office businesses south of Soquel Avenue in the Eastside. | ED | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| ED2.3.1 | Ensure that new developments pay their proportional share of infrastructure costs. | ED, PL | Ongoing |
| ED2.3.2 | Ensure sufficient tax revenue growth to reduce reliance on privatization of public ways and services in new developments. | ED | Ongoing |
| ED3.1.1 | Support positive relations and open dialog with UCSC. | ED, PL | Ongoing |
| ED3.1.2 | Partner with UCSC and other public and private entities to promote scientific and technological partnerships, and cultural, commercial, and visitor-serving development. | ED | Ongoing |
| ED3.1.3 | Work with UCSC to bring to Santa Cruz new companies growing out of the university's academic enterprises. | ED | Ongoing |
| ED3.1.4 | Encourage and facilitate entrepreneurial business efforts by UCSC graduates and others. | ED | Ongoing |
| ED4.1.1 | Improve the match between emerging job opportunities and training programs. | ED | Ongoing |
| ED4.1.2 | Ensure that educational institutions address the business community's needs for worker training and continuing education in digital arts and media, alternative health care and computer-based professions. | ED | Ongoing |
| ED4.1.3 | Promote local educational agencies' vocational program to the business community. | ED | Ongoing |
| ED4.1.4 | Market public and private employment training programs and business assistance services. | ED | Ongoing |
| ED4.1.5 | Cooperate regionally in the development of a day laborer program. | ED, PL | Ongoing |
| ED4.2.1 | Encourage the expansion and selective attraction of commercial businesses and industries that create diverse opportunities for employment at wages adequate to buy or rent decent housing in Santa Cruz. | ED | Ongoing |
| ED4.2.2 | Preserve existing and seek new industries and businesses at the cutting edge of science and technology. | ED | Ongoing |
| ED4.2.3 | Market Santa Cruz to employers; emphasize the area's highly educated workforce and linkage with the University. | ED | Ongoing |
| ED4.3.1 | Encourage businesses that provide part-time and seasonal job opportunities for people of all ages, skills, and experience levels. | ED | Ongoing |
| ED 4.3.2 | Encourage flexible work arrangements (such as split shifts, job sharing, or reduced work week) that will promote broader employment opportunities. | ED | Ongoing |
| ED4.3.3 | Encourage the expansion and attraction of commercial businesses and industries that create stable, year-round, livable wage jobs with maximum health benefits. | ED | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| ED4.3.4 | Seek ways to smooth out seasonal fluctuations in local unemployment. | ED | Ongoing |
| ED4.3.5 | Encourage and support small home-based businesses while respecting issues of neighborhood character and compatibility. | ED, PL | Ongoing |
| ED4.4.1 | Provide support to businesses with strong minority outreach and hiring programs and to those operated by historically excluded groups. | ED | Ongoing |
| ED5.1.1 | Provide for the development of supporting land uses adjacent to retail shopping areas, while assuring protection of existing residential neighborhoods. | ED, PL | Ongoing |
| ED5.1.2 | Coordinate and expand Beach Area services and employment. | ED | Ongoing |
| ED5.2.1 | Encourage neighborhood shopping in nodes of commercial development that serve residential areas and have adequate transit, pedestrian, and bicycle access. | ED, PL | Ongoing |
| ED5.2.2 | Support the development of neighborhood gathering places in conjunction with local-serving neighborhood commercial. | ED, PL, PW, PR | Ongoing |
| ED5.2.3 | Encourage new neighborhood commercial/convenience retail businesses that can provide for the daily shopping needs of Prospect Heights residents. | ED, PL | Ongoing |
| ED5.3.1 | Provide for attractive commercial development (including more intensive and higher quality ground floor retail) along commercial corridors, provided the uses are compatible with or transition easily to adjacent residential areas. | ED, PL | Ongoing |
| ED5.3.2 | Support redevelopment of the light industrial properties on Murray Street in Seabright, including more land intensive commercial and/or mixed use development, provided that the uses are compatible with existing residential. | ED, PL | Ongoing |
| ED5.4.1 | Pursue multi-story development of surface parking lots for parking and other uses. | ED, PL, PW | Ongoing |
| ED5.4.2 | Develop a parking strategy and parking solutions for the Beach Area. | ED, PW | Short-term |
| ED5.5.1 | Enhance Downtown as a welcoming and inviting destination for residents, visitors, and businesses. | ED | Ongoing |
| ED5.5.2 | Support the creative reuse of buildings for commercial and office uses complementary to the Downtown. | ED, PL | Ongoing |
| ED5.5.3 | Retain existing businesses and attract new ones to downtown Santa Cruz. | ED | Ongoing |
| ED5.5.4 | Create a distinctive and active pedestrian environment downtown. | ED, PW, PR | Ongoing |
| ED5.5.5 | Allow for the extension of café and retail uses within the public right-of-way, subject to design standards and management guidelines. | ED, PL | Short-term |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| ED5.5.6 | Require continuity of active ground-level uses (retail, restaurant, cultural, etc.) along Pacific Avenue. | ED, PL | Ongoing |
| ED5.5.7 | Revitalize the Lower Pacific area (Pacific Avenue south of Cathcart Street). | ED, PL | Mid-term |
| ED6.1.1 | Support the establishment of industries and "lifestyle businesses" that draw on Santa Cruz's natural assets and environment. | ED | Ongoing |
| ED6.1.2 | Recognize the importance of and promote the Monterey Bay National Marine Sanctuary in support of the city's tourism, recreation, fishing, and aquaculture industries. | ED | Ongoing |
| ED6.2.1 | Support commercial projects that demonstrate a public benefit. | ED, PL | Ongoing |
| ED6.2.2 | Require commercial and industrial construction and facilities to incorporate green and sustainable building features and operating practices. | ED, PL | Ongoing |
| ED6.2.3 | Encourage businesses that: are socially beneficial, provide jobs to local residents, don't pollute or deplete natural resources, and use locally-reclaimed resources. | ED, PL | Ongoing |
| ED6.3.1 | Assist small businesses and small-scale, low-impact, start-up uses in navigating the City's permit processes, and expedite project review. | ED | Ongoing |
| ED6.3.2 | Market existing financial assistance programs to small businesses. | ED | Ongoing |
| ED6.4.1 | Work with stakeholders to initiate and implement economic development, municipal tax revenue, and investment strategies. | ED | Ongoing |
| ED6.4.2 | Seek economic development projects for Santa Cruz and establish incentives and methods for realizing those projects. | ED | Ongoing |
| ED6.4.3 | Consider the impacts of taxes, fees, and incentives on economic growth. | ED | Ongoing |
| ED6.4.4 | Increase the competitiveness of Santa Cruz relative to other jurisdictions with regard to development permits and fees. | ED, PL, PW | Ongoing |
| ED6.5.1 | Encourage innovative commercial and industrial facility and site designs. | ED, PL, PW | Ongoing |
| ED6.5.2 | Work to establish "incubator" space and facilities. | ED, PL | Ongoing |
| ED6.5.3 | Consider the development of new, regional-serving services. | ED, PL | Ongoing |
| ED6.6.1 | Carefully weigh the effect on regional and local jobs/housing balance when considering any reduction in the amount of industrial-zoned land. | ED, PL | Ongoing |
| ED6.6.2 | Seek ways to retain or convert at-risk industries and/or businesses to economically viable activities. | ED | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| ED6.7.1 | Promote development of new and retrofitted industrial and office space that meets the need of technology-based businesses. | ED, PL | Ongoing |
| ED6.7.2 | Work toward expanding the City's technology infrastructure. . | ED, PW | Ongoing |
| ED6.8.1 | Support the development of a design center and the growth of related industry. | ED | Ongoing |
| ED6.8.2 | Provide a cultural and natural environment attractive to a creative workforce. | ED | Ongoing |
| ED6.8.3 | Encourage creative and design-based employment to locate in Santa Cruz. | ED | Ongoing |
| ED6.9.1 | Utilize and market the area's arts and cultural resources as a vital tool for economic development. | ED | Ongoing |
| ED6.9.2 | Continue to support parks and recreation programs and the arts as contributors to the economy. | ED, PR | Ongoing |
| ED6.9.3 | Promote and support local historic and cultural enterprises. | ED, PR, PL | Ongoing |
| ED6.9.4 | Support efforts to increase film production activities in the county. | ED | Ongoing |

**TIME FRAMES:** Ongoing = currently and continuously implement, Short-term by 2018, Mid-term by 2022, Long-term by 2028

**DEPARTMENTS:** CC= City Clerk, PL = Planning, PW= Public Works, PR = Parks, ED = Economic Development, PO= Police, F= Fire, W= Water, L=Library, SD=School District, CCC=California Coastal Commission, N=Non-City Agency, ASA=Administrative Services Department, ALL=All Departments

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CC1.1.1 | Develop new forums to discuss controversial issues in advance of formal public hearings. | ALL | Ongoing |
| CC1.1.2 | Use public access television, radio, newspapers, and mailings to publicize public meetings and announce agendas, public hearing dates, and City-sponsored events (with Spanish language noticing where appropriate). | ALL | Ongoing |
| CC1.1.3 | Develop information centers at the City library and other departments for public viewing and comment. | CC, L | Ongoing |
| CC1.1.4 | Facilitate the network of community organizations. | ALL | Ongoing |
| CC1.1.5 | Maintain the General Plan and City Master and Area Plans as functioning documents that implement the community's goals and policies. | PL | Ongoing |
| CC1.1.6 | Use the required annual review of the General Plan to monitor consistency among General Plan goals, policies, and actions and the Capital Improvements Program. | PL | Ongoing |
| CC1.1.7 | Develop an annual work program for implementing proposals in the General Plan. | PL | Ongoing |
| CC1.2.1 | Improve the efficiency and effectiveness of municipal services through the implementation of new technologies. | ALL | Ongoing |
| CC1.2.2 | Increase public access to information and involvement in City land-use decision-making. | PL | Ongoing |
| CC1.2.3 | Maintain an up-to-date land-use information system, community profile, and facts book. | PL | Ongoing |
| CC1.2.4 | Improve online access to City information including agendas, minutes, public hearing dates, and land-use data. | ALL | Ongoing |
| CC1.2.5 | Video-record public workshops and meetings, and maintain the video records at the City Clerk's office or public library for viewing or borrowing. | ALL | Ongoing |
| CC2.1.1 | As appropriate, update and replace facilities consistent with the General Plan. | PW, PR, PR, W | Ongoing |
| CC2.1.2 | Provide leadership in the development of a performing arts center in the Downtown area. | PL, ED, PR | Short-term |
| CC2.1.3 | Facilitate efforts of private and nonprofit public service and facility providers. | ALL | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CC2.1.4 | Locate community facilities within easy walking distance of residential areas or in areas well-served by transit. | PL, PW, PR, L | Ongoing |
| CC2.1.5 | Work with UCSC in planning for community facilities and services on and off campus. | PL, ED, PW, W | Ongoing |
| CC2.1.6 | Utilize faculty, staff, and student expertise in the areas of resource protection, enhancement, and restoration. | ALL | Ongoing |
| CC3.1.1 | Implement the City's Long-Term Water Conservation Plan to reduce average daily water demand and maximize the use of existing water resources. | W | Ongoing |
| CC3.1.2 | Periodically update the City's Water Shortage Contingency Plan to prepare for responding to future water shortages. | W | Ongoing |
| CC3.1.3 | Develop a desalination plant of 2.5 mgd for drought protection, with the potential for incremental expansion to 4.5 mgd, if it is environmentally acceptable and financially feasible | W | Short-term |
| CC3.2.1 | Regularly and comprehensively evaluate the water system relative to federal and State water quality regulations and standards, and develop recommendations and an action plan to address findings. | W | Ongoing |
| CC3.2.2 | Develop, maintain, and update sampling and analysis programs, and laboratory procedures for the treated water distribution system and storage facilities. | W | Ongoing |
| CC3.2.3 | Maintain required federal and State laboratory certification. | W | Ongoing |
| CC3.2.4 | Prepare and submit compliance reports to all regulatory agencies. | W | Ongoing |
| CC3.2.5 | Regularly sample and analyze finished water in accordance with approved methods and parameters identified by the State, U.S. Environmental Protection Agency, and the City. | W | Ongoing |
| CC3.2.6 | Monitor the quality of water from all sources. | W | Ongoing |
| CC3.2.7 | Provide annual drinking water quality reports to all consumers of city water. | W | Ongoing |
| CC3.3.1 | Manage City watershed lands relative to protecting the sources of drinking water. | W | Ongoing |
| CC3.3.2 | Maintain compliance with all applicable drinking water source protection-related regulations. | W | Ongoing |
| CC3.3.3 | Secure and maintain all City water rights to existing and future water supplies to provide certainty and operational flexibility for the water system. | W | Ongoing |
| CC3.3.4 | Review and comment on new State Water Resources Control Board water rights applications and timber harvest plans on City drinking water source watersheds. | W | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CC3.3.5 | Pursue appropriate regulatory enforcement of environmental violations committed by other watershed stakeholders. | W | Ongoing |
| CC3.3.6 | Conduct hydrologic and biotic monitoring throughout drinking water source watersheds to protect water supplies and habitat. | W | Ongoing |
| CC3.3.7 | Ensure that fisheries conservation strategies address and protect water storage, drinking water source quality, and water system flexibility, as well as protect the environmental resource. | W | Ongoing |
| CC3.3.8 | Monitor groundwater levels and quality. | W | Ongoing |
| CC3.3.9 | Participate with the Soquel-Aptos Groundwater Management Alliance in cooperative efforts to assure the quality and production of groundwater resources. | W | Ongoing |
| CC3.3.10 | Explore and implement, when feasible, replenishing existing aquifers in the County and entering into transfer agreements with other agencies. | W | Ongoing |
| CC3.3.11 | Provide adequate pumping, treatment, and distribution facilities for the reliable production of groundwater, consistent with pumping rates/volumes identified in the City's Urban Water Management Plan. | W | Ongoing |
| CC3.4.1 | Maintain and improve water facilities to meet pressure and fire flow requirements and ensure customer delivery. | W | Ongoing |
| CC3.4.2 | Modernize City water treatment plants. | W | Ongoing |
| CC3.4.3 | Optimize storage, transmission, and distribution capacities and efficiencies. | W | Ongoing |
| CC3.4.4 | Evaluate and improve the water system so as to minimize water outages due to emergencies and disasters. | W | Ongoing |
| CC3.5.1 | Implement 14 urban water conservation "best management practices" and meet reporting requirements in the *Memorandum of Understanding Regarding Urban Water Conservation in California.* | W | Ongoing |
| CC3.5.2 | Promote public education and awareness about the City's water resources and the importance of water conservation. | W | Ongoing |
| CC3.5.3 | Offer water audit programs and technical assistance for homes, businesses, and large landscapes to help customers reduce their average daily water use and control their utility bills. | W | Ongoing |
| CC3.5.4 | Provide financial incentives to City water customers for installing high efficiency plumbing fixtures, appliances, and equipment. | W | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CC3.5.5 | Provide public information regarding onsite water catchment systems. | W | Ongoing |
| CC3.5.6 | Administer and enforce water waste regulations, plumbing fixture retrofit requirements, and water efficient landscape standards for new development. | W | Ongoing |
| CC3.5.7 | Explore and consider promoting or requiring new opportunities and technologies for more efficient use of water and energy. | W | Ongoing |
| CC3.5.8 | Evaluate water use by residential, commercial, industrial and other customer categories and trends per capita. | W | Ongoing |
| CC3.5.9 | Regularly audit the water distribution system and implement programs to minimize system losses and underground leaks. | W | Ongoing |
| CC3.5.10 | Participate in regional water conservation partnerships, events, and opportunities. | W | Ongoing |
| CC3.5.11 | Play a leadership role in supporting research, policy development, standards, and legislation aimed at furthering water use efficiency across the state. | W | Ongoing |
| CC3.5.12 | Implement additional water conservation programs that provide a reliable gain in supply and can be justified in terms of their cost. | W | Ongoing |
| CC3.6.1 | Implement the City's Urban Water Management Plan and update it periodically as required by State law. | W | Ongoing |
| CC3.6.2 | Provide annual updates to the city council on the status of remaining water supply. | W | Ongoing |
| CC3.6.3 | Confirm or adjust the estimate of remaining supply to avoid oversubscribing the water system. | W | Ongoing |
| CC3.6.4 | Consider developing criteria for determining significance of environmental impacts of development projects on the City water system to streamline the environmental review process. | PL,W | Short-term |
| CC3.9.1 | Maintain a rate schedule based on cost of service and designed to provide an economic incentive for conservation. | W | Ongoing |
| CC3.9.2 | Collect sufficient revenues to assure adequate maintenance of the water system infrastructure. | W | Ongoing |
| CC3.9.3 | Maintain a Water Rate Stabilization Fund to protect against unanticipated emergencies, and Operating Reserves as needed for cash flow. | W | Ongoing |
| CC3.9.4 | Confine long-term borrowing to major capital improvements. | PW,W | Ongoing |
| CC3.9.5 | Develop and implement a long-term Capital Improvements Plan for prioritizing and financing major projects. | PW, W | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CC3.10.1 | Explore opportunities to use recycled water for future water supply. | W | Ongoing |
| CC3.11.1 | Promote water conservation. | W | Ongoing |
| CC3.11.2 | Regularly update guidelines and standards for new landscaping that emphasizes xeriscaping, climate-appropriate landscape design, and other water-conserving practices. | PL,W | Ongoing |
| CC3.11.3 | Conduct a landscape irrigation audit program and target large water consumers to reduce consumption. Examples of large consumers are large turf customers, large commercial and industrial customers, and property management firms. | W | Ongoing |
| CC4.1.1 | Regularly maintain the sewer system. | PW | Ongoing |
| CC4.1.2. | Identify pipeline deficiencies | PW | Ongoing |
| CC4.1.3 | Maintain and upgrade the wastewater collection and treatment system. | PW | Ongoing |
| CC4.1.4 | Provide wastewater treatment services for the County of Santa Cruz and the City of Scotts Valley in accordance with Memoranda of Understanding. | PW | Ongoing |
| CC4.1.5 | Periodically update wastewater master plans and rates. | PW | Ongoing |
| CC4.1.6 | Identify capital and operational funding needs. | PW | Ongoing |
| CC4.1.7 | Establish reporting procedures required by regulatory agencies. | PW | Ongoing |
| CC4.1.8 | Monitor wastewater treatment plant capacity and develop a plan to address future needs. | PW | Ongoing |
| CC5.1.1 | Implement the City's stormwater quality program. | PW | Ongoing |
| CC5.1.2 | Maintain clear flow of the storm drain system. | PW | Ongoing |
| CC5.1.3 | Develop and maintain a Storm Drain Master Plan. (See the Creeks and Wetlands Management Plan discussion on page 131 in relation to storm drain issues.) | PW | Ongoing |
| CC5.1.4 | Conduct annual maintenance each fall. | PW | Ongoing |
| CC5.1.5 | Strive to contain drainage within each drainage basin. | PW | Ongoing |
| CC5.1.6 | Design the storm drainage system so as not to transfer storm drainage problems from one drainage basin to another. | PW | Ongoing |
| CC5.1.7 | Manage and maintain the San Lorenzo River floodway. | PW | Ongoing |
| CC5.1.8 | Require new development to maintain predevelopment runoff levels. | PL, PW | Ongoing |
| CC5.1.9 | Reduce stormwater pollution. | PW | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CC5.1.10 | Implement a water pollution prevention program. | PW | Ongoing |
| CC5.1.11 | Implement the Clean Ocean Business Program. | PW | Ongoing |
| CC5.1.12 | Educate the public about the downstream impacts of new development. | PW | Ongoing |
| CC6.1.1 | Develop and implement a comprehensive recycling and waste reduction plan for City facilities. | PW | Ongoing |
| CC6.1.2 | Develop and implement a citywide comprehensive recycling and waste reduction plan to:<br>• Increase the quantity and convenience of recycling.<br>• Ensure that systems are in place to enable recycling when practical.<br>• Provide receptacles for separating recyclable from non-recyclable materials at City parks and recreation facilities, schools, the Wharf, beaches and other public facilities.<br>• Develop and disseminate educational programs about reducing waste and recycling.<br>• Promote and practice source reduction and recycling. | PW | Ongoing |
| CC6.1.3 | Identify and implement incentives and penalties to encourage waste reduction and recycling. | PW | Ongoing |
| CC6.1.4 | Adopt an ordinance to require commercial and industrial recycling. | PW | Ongoing |
| CC6.1.5 | Adopt an ordinance to require waste audits for commercial and industrial waste generators. | PW | Ongoing |
| CC6.1.6 | Develop a program that results in recycling all cement and asphalt concrete when removed. | PW | Ongoing |
| CC6.1.7 | Require new developments to design service areas that encourage recycling. | PL, PW | Ongoing |
| CC6.1.8 | Implement programs to reduce and, when possible, recycle environmentally hazardous materials. | PW | Ongoing |
| CC6.1.9 | Increase the use of recycled materials such as asphalt, groundcovers, carpet, etc., in City operations and construction. | PW | Ongoing |
| CC6.1.10 | Promote and purchase products made from recycled content. | PW | Ongoing |
| CC6.1.11 | Extend producer responsibility to costs of product recycling and disposal. | PW | Ongoing |
| CC6.1.12 | Promote the use of products that are reusable, recyclable, or biodegradable. | PW | Ongoing |
| CC6.1.13 | Adopt and implement an ordinance requiring all plastic bags provided to customers in the city limits to be biodegradable or compostable. | PW | Ongoing |
| CC6.1.14 | Increase the convenience of recycling and the number and types of materials accepted by the City. | PW | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CC6.1.15 | Develop programs for composting organic materials at the Resource Recovery Facility, community gardens, schools, and residences. | PW | Ongoing |
| CC6.1.16 | Develop a food waste collection and composting program. | PW | Ongoing |
| CC6.1.17 | Adopt an ordinance banning polystyrene foam disposable food service ware and requiring the use of biodegradable, compostable, or recyclable disposable food service ware. | PW | Ongoing |
| CC6.1.18 | Cooperate with nonprofit organizations, local government agencies, special districts, and contiguous counties to jointly develop waste management alternatives. | PW | Ongoing |
| CC6.1.19 | Encourage and attract local industries that manufacture products from reused and recycled materials. | PW | Ongoing |
| CC6.2.1 | Perform route studies as needed. | PW | Ongoing |
| CC6.2.2 | Expand the list of curbside recyclables. | PW | Ongoing |
| CC6.2.3 | Consider alternatives to curbside pickup. | PW | Ongoing |
| CC6.3.1 | Develop a comprehensive operating plan for the Resource Recovery Facility. | PW | Ongoing |
| CC6.4.1 | Revise landfill permits as needed to reflect operational and/or design changes and to comply with State regulations. | PW, CCC | Ongoing |
| CC6.4.2 | Strive to achieve maximum compaction densities of all landfill waste. | PW | Ongoing |
| CC6.4.3 | Reduce the percentage of recyclable material becoming landfill. | PW | Ongoing |
| CC7.1.1 | Ensure appropriate police staff, stations, equipment, and training to meet the demands of increased population and tourism. | PO | Ongoing |
| CC7.1.2 | Train officers in personal and interpersonal conflict resolution, and maintain a current list of community referral agencies. | PO, F | Ongoing |
| CC7.1.3 | Participate in developing programs aimed at preventing traumatic crimes and violence. | PO | Ongoing |
| CC7.1.4 | Maintain the Sexual Assault Team program. | PO | Ongoing |
| CC7.1.5 | Enhance response to and prevention of domestic violence. | PO | Ongoing |
| CC7.1.6 | Provide rapid and timely response to all emergencies and services. | PO, F | Ongoing |
| CC7.1.7 | Update and maintain police response time standards. | PO | Ongoing |
| CC7.2.1 | Maintain the Community Service Officer program. | PO | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CC7.2.2 | Reduce crime through neighborhood-based crime prevention activities. | PO | Ongoing |
| CC7.2.3 | Update and maintain Beach Area programs designed to reduce crime. | PO | Ongoing |
| CC7.2.4 | Respond to community service and special assistance calls; aid those who cannot care for themselves. | PO, F | Ongoing |
| CC7.2.5 | Seek ways to reduce police service demands through land use planning and project design. | PL, PO | Ongoing |
| CC7.2.6 | Support housing projects that promote the proprietary interest of residents in their neighborhoods and apartment complexes. | PL, PO | Ongoing |
| CC7.2.7 | Work with the Planning Department to develop site and building design guidelines that create defensible space in residential, industrial, commercial, and recreational areas. | PL, PO, F | Ongoing |
| CC7.3.1 | Cooperate with the County on public safety and policing issues outside the city limits. | PO | Ongoing |
| CC7.3.2 | Encourage UCSC participation and support in providing safety and emergency services within the city. | PO, F | Ongoing |
| CC7.4.1 | Provide diversion programs and referrals for juvenile offenders. | PO | Ongoing |
| CC7.4.2 | Monitor repeat juvenile offenders and identify them to the proper authorities. | PO | Ongoing |
| CC7.4.3 | Work with Santa Cruz City Schools and private schools to provide drug prevention. | PO | Ongoing |
| CC7.5.1 | Identify evolving or existing crime patterns, particularly those involving career criminals and gang activity. | PO | Ongoing |
| CC7.5.2 | Investigate all reported felony crimes where solvability factors are sufficient to warrant, and provide for quality preliminary investigations that will enhance the success of follow-up and subsequent court investigations. | PO | Ongoing |
| CC7.6.1 | Participate in multi-jurisdictional crime suppression units with emphasis on career criminal apprehension and reducing the number of victims. | PO | Ongoing |
| CC7.6.2 | Maintain mutual aid agreements and train in mutual aid procedures. | PO, F | Ongoing |
| CC8.1.1 | Cooperate with the school district in monitoring the impact of housing developments on elementary school populations. | PL, SD | Ongoing |
| CC8.1.2 | Promote local educational agencies' vocational programs to the business community. | SD | Ongoing |
| CC8.2.1 | Encourage joint-use facilities that combine educational and community uses. | PR, SD | Ongoing |
| CC8.2.2 | Plan for adequate sites for schools. | PL, SD | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CC8.3.1 | Develop programs that promote youth leadership, empowerment, self-esteem, and an understanding, appreciation, and respect for cultural diversity. | ED, PR, SD | Ongoing |
| CC8.3.2 | Provide appropriate training opportunities for professionals who work with children, youth, and families. | PR, N | Ongoing |
| CC8.3.3 | Promote or sponsor teen activities such as dances, job fairs, special classes geared to teen interests and issues, and volunteer programs for youth. | PR, N, SD | Ongoing |
| CC8.3.4 | Work with appropriate agencies to develop aggressive prevention and early intervention efforts toward reducing educational failure and other problems for children and youth. | PR, SD | Ongoing |
| CC8.3.5 | Promote widely available public and private educational programs in the city. | SD | Ongoing |
| CC8.3.6 | Support youth and family programs through the community grant program. | ED, PR, SD | Ongoing |
| CC8.3.7 | Promote children, youth, and family programs in the annual budget review process. | ED, PR | Ongoing |
| CC8.3.8 | Work to provide recreational, educational, and arts and cultural programs for residents of the community and region. | ED, PR | Ongoing |
| CC8.4.1 | Implement the Safe Routes to School program where funded. | PW | Ongoing |
| CC8.4.2 | Re-stripe streets for school zone safety as needed. | PW | Ongoing |
| CC8.5.1 | Assure that basic library services are provided free of charge. | L | Ongoing |
| CC8.5.2 | Maintain a significant collection and user-oriented hours at all City libraries. | L | Ongoing |
| CC8.5.3 | Make all library buildings accessible to the physically disadvantaged and the elderly. | L | Ongoing |
| CC8.5.4 | Provide accurate information and professional guidance for the use of library reference and community resources. | L | Ongoing |
| CC8.5.5 | Ensure that the public is aware of the full range of information services provided by the library. | L | Ongoing |
| CC8.6.1 | Ensure that residents and businesses have full access to current communications, information technologies, and resources. | L | Ongoing |
| CC8.6.2 | Remove those obstacles to the use of available technologies that are under City control. | ED | Ongoing |
| CC8.6.3 | Provide collections, staff, resources, and basic services in languages appropriate to the library's service area. | L | Ongoing |
| CC8.7.1 | Support provision of public library services via Library Joint Powers Agreements. | L | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CC8.8.1 | Provide educational information regarding responsible care of companion animals. | N | Ongoing |
| CC9.1.1 | Work with regional agencies to develop policies that promote health, wellness, and local sustainable food options. | N | Ongoing |
| CC9.2.1 | Work with cooperating agencies to provide shelters and services for those in need. | N | Ongoing |
| CC9.2.2 | Work with cooperating agencies to ensure adequate nutrition for children, youth, and families. | N | Ongoing |
| CC9.4.1 | Maintain paramedic and emergency medical services, consistent with population growth, through the Joint Powers Authority. | F | Ongoing |
| CC9.4.2 | Make operational improvements toward providing emergency services at accident or disaster scenes within an average time of 4 minutes or less and within 5 minutes or less 90 percent of the time. | PO, F | Ongoing |
| CC9.4.3 | Facilitate accessibility of farmers' markets or other fresh food outlets to low-income residents. | ED, PL, N | Short-term |
| CC10.1.1 | Develop a mechanism to obtain and preserve planned childcare sites. | PL, N | Ongoing |
| CC10.1.2 | Provide startup and licensing information to assist childcare providers. | PL | Short-term |
| CC10.1.3 | Allow childcare centers and facilities in all land use designations. | PL, N | Short-term |
| CC10.1.4 | Streamline processing and permit regulations for childcare facilities. | PL | Short-term |
| CC10.1.5 | Support and promote subsidized childcare for low- and moderate income Santa Cruz families. | PL, N | Ongoing |
| CC10.1.6 | Encourage the development of childcare facilities. | ED, PL | Short-term |
| CC10.2.1 | Investigate the feasibility of incentives for encouraging employer-provided childcare programs within the city. | ED, PL | Short-term |
| CC10.4.1 | Consider allowing the square footage area of a childcare facility to be built without counting toward lot coverage. | PL | Short-term |
| CC10.4.2 | Offer density bonuses to promote childcare facilities in new developments in accordance with State law. | PL | Short-term |
| CC10.5.1 | Implement a childcare impact fee on new development. | PL | Short-term |
| CC11.1.1 | Facilitate the continuation of community television. | ED, N | Ongoing |
| CC11.1.2 | Support and facilitate the provision of communications infrastructure needed by high-tech and knowledge-based industries. | ED, PW, N | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| CC11.1.3 | Leverage high-tech infrastructure/dark fiber at UCSC and other local educational institutions, and promote innovative partnerships to broaden access to that infrastructure. | ED | Ongoing |
| CC11.1.4 | Promote universal and competitive digital services to residences and businesses. | ED, | Ongoing |
| CC11.1.5 | Encourage the development of advanced and redundant broadband infrastructure. | ED, PW | Ongoing |
| CC11.1.6 | Ensure timely provision of leading edge technologies within the community. | ED | Ongoing |
| CC11.2.1 | Collaborate with the County and other municipalities in developing consistent policies for developing communication and information technologies. | ED | Ongoing |
| CC11.2.2 | Develop and promote Internet-based platforms for citizens to request and receive municipal services. Examples include online bill paying, licensing, and permitting. | N | Ongoing |
| CC11.2.3 | Leverage technology to automate routine services. Examples are wireless water and parking meters | PW, W, ED | Short-term |
| CC11.2.4 | Improve visitor services with real-time technology. Examples are traffic cameras, parking availability, online reservations, rapidly updatable information signs, and GPS-based information systems. | PW | Short-term |

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**DEPARTMENTS:** CC= City Clerk, PL = Planning, PW= Public Works, PR = Parks, ED = Economic Development, PO= Police, F= Fire, W= Water, L=Library, SD=School District, CCC=California Coastal Commission, N=Non-City Agency, ASA=Administrative Services Department, ALL=All Departments

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| HZ1.1.1 | Annually update the Emergency Operations Plan. | PW, PR | Ongoing |
| HZ1.1.2 | Train City staff in emergency preparedness. | PW | Ongoing |
| HZ1.1.3 | Ensure that new development design, circulation, and access allows for maintaining minimum emergency response times. | PW, PL, F | Ongoing |
| HZ1.1.4 | Ensure the completeness and availability of emergency supplies and equipment in cooperation with other agencies. | PW, PL, F | Ongoing |
| HZ1.1.5 | Promote the development of a new countywide Emergency Operations Center facility. | PW | Long-term |
| HZ1.1.6 | Ensure preparation for delivery of a safe, reliable water supply in an emergency. | PW, F, W | Ongoing |
| HZ1.1.7 | Maintain the physical and structural integrity of all existing emergency use facilities. | PW, PR, W, PO | Ongoing |
| HZ1.1.8 | Evaluate the geographic distribution of critical facilities and their ability to survive flood and seismic hazards. | PW, PR, F, PO, W | Ongoing |
| HZ1.1.9 | Ensure that water, gas, and sewage utilities serving critical facilities are in good condition and are engineered to withstand damage from disasters. | PW, W | Ongoing |
| HZ1.1.10 | Encourage utility and building retrofits as technologies improve. | PL | Ongoing |
| HZ1.1.11 | Continue to strengthen and maintain bridges to withstand flood and earthquake. | PW | Ongoing |
| HZ1.2.1 | Annually review data on calls for service, response times, and changing risk probabilities. | PO, F | Ongoing |
| HZ1.2.2 | Make continuous operational improvements in an effort to arrive on emergency scenes within an average time of 4 minutes or less and within 5 minutes or less 90 percent of the time. | PO, F | Ongoing |
| HZ1.2.3 | Maintain a system of pre-fire surveys for selected buildings that will make critical information immediately available to emergency personnel responding. | F | Ongoing |
| HZ1.2.4 | Ensure citywide access for emergency vehicles. | PW, PL, F | Ongoing |
| HZ1.2.5 | Continue to ensure that new development design and circulation allow for adequate emergency access. | PW, PL, F | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| HZ1.2.6 | Prohibit the placement of speed bumps on fire department primary response routes. | PW, F | Ongoing |
| HZ1.2.7 | Coordinate emergency planning efforts with the Santa Cruz County Office of Emergency Services. | PW | Ongoing |
| HZ1.2.8 | Assure cellular telephone services to critical facilities. | PW, PR, F, PO, W | Ongoing |
| HZ1.3.1 | Maintain and publicize a system of emergency and evacuation routes serving all areas of the city. | PL, PW, F | Ongoing |
| HZ1.3.2 | Educate the public regarding seismic, geologic, flood, fire, and other potential hazards. | PL, PW, F | Ongoing |
| HZ1.4.1 | Ensure department readiness through ongoing equipment maintenance and personnel training. | F | Ongoing |
| HZ1.4.2 | Continue to promote the installation, inspection, and testing of built-in fire extinguishing and early warning fire alarm systems. | F | Ongoing |
| HZ1.4.3 | Ensure that water systems serving a new use or change in use are designed to meet fire flow requirements. | F, W | Ongoing |
| HZ1.4.4 | Continue mutual fire protection services with participating agencies. | F | Ongoing |
| HZ1.4.5 | Operate cooperative fire protection services with UCSC, the County fire districts, and the California Department of Forestry. | F | Ongoing |
| HZ1.5.1 | Reduce wildfire hazards. | F | Ongoing |
| HZ1.5.2 | Regulate development in and adjacent to areas with steep canyons, arroyos and fire-prone vegetation. | PL, F | Ongoing |
| HZ1.5.3 | Where preservation of fire-prone vegetation in undeveloped areas is desirable and appropriate, require development setbacks as determined by the fire department on a project-by-project basis. | PL, F | Ongoing |
| HZ1.5.4 | Require new development in areas susceptible to wildfires to be responsible for fire prevention activities (e.g., visible house numbering and use of fire-resistant and fire-retardant building and landscape materials) and to also provide a defensible zone to inhibit the spread of wildfires. | PL, F | Ongoing |
| HZ1.5.5 | Maintain all access roads and driveways so as to ensure the fire department safe and expedient passage at all times. | PL, PW, F | Ongoing |
| HZ1.5.6 | Abate hazardous buildings and conditions. | PL, F | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| HZ1.5.7 | Discourage locating public structures and utilities in high or extreme fire hazard areas. | ALL | Ongoing |
| HZ1.5.8 | Promote fire safety and prevention programs for high occupancy uses. | PL, F | Ongoing |
| HZ1.6.1 | Periodically update existing codes to address life safety issues. | Pl, F | Ongoing |
| HZ2.1.1 | Support and implement local actions and County, State and federal legislation promoting the reduced emission of carbon dioxide and other greenhouse gases. | Pl, PW, PR, W | Ongoing |
| HZ2.1.2 | Investigate methods for developing a carbon dioxide budget for the City that limits carbon dioxide emissions. | PL, PW | Ongoing |
| HZ2.1.3 | Implement chlorofluorocarbon (CFC) recycling and elimination regulations. | PW | Ongoing |
| HZ2.1.4 | Strive to eliminate the use of polystyrene foam (PSF) packaging products throughout the city. | PW | Mid-term |
| HZ2.2.1 | Require future development projects to implement applicable Monterey Bay Unified Air Pollution Control District (MBUAPCD) control measure and/or air quality mitigations in the design of new projects as set forth in the District's "CEQA Guidelines." | PL | Ongoing |
| HZ2.2.2 | Permit major indirect sources of air pollution only if they provide transportation measures to reduce their impacts to a less-than-significant level, consistent with applicable MBUAPCD recommended mitigation and control measures as set forth in the District's "CEQA Guidelines." | PL, PW | Ongoing |
| HZ2.2.3 | Locate air pollution-sensitive land uses away from major sources of air pollution or require mitigation measures to protect residential and sensitive land uses from freeways, arterials, point source polluters, and hazardous material locations. | PL | Ongoing |
| HZ2.2.4 | Encourage public education programs promoting reduced emissions from transportation-generated pollutants and area-wide sources. | PW, PL | Ongoing |
| HZ2.2.5 | Implement and enforce the Smoking Pollution Control Ordinance. | PR, PO | Ongoing |
| HZ2.2.6 | Support MBUAPCD air pollution control strategies, air quality monitoring and enforcement activities. | PL | Ongoing |
| HZ3.1.1 | Require land uses to operate at noise levels that do not significantly increase surrounding ambient noise. | PL, PO | Ongoing |
| HZ3.1.2 | Use site planning and design approaches to minimize noise impacts from new development on surrounding land uses. | PL | Ongoing |
| HZ3.1.3 | Ensure that construction activities are managed to minimize overall noise impacts on surrounding land uses. | PL, PW, PR, W | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| HZ3.1.4 | Minimize the impacts of intermittent urban noise on residents. | PW | Ongoing |
| HZ3.1.5 | Develop a system to monitor construction noise impacts on surrounding land uses. | PL, PO | Ongoing |
| HZ3.1.6 | Require evaluation of noise mitigation measures for projects that would substantially increase noise. | PL | Ongoing |
| HZ3.1.7 | Protect residential areas from excessive noise from traffic and from road projects. | PW, PL | Ongoing |
| HZ3.1.8 | Require environmental review and mitigation of roadway projects that may significantly increase the average day/night noise levels. | PW, PL | Ongoing |
| HZ3.1.9 | Limit truck traffic in residential and commercial areas to designated truck routes. | PW, PL | Ongoing |
| HZ3.1.10 | Where noise reduction would be beneficial, consider installing quiet pavement surfaces as part of repaving projects. | PW | Ongoing |
| HZ3.1.11 | Require soundwalls, earth berms, setbacks, and other noise reduction techniques for new development, when appropriate and necessary, as conditions of approval. | PW, PL | Ongoing |
| HZ3.2.1 | Apply noise and land use compatibility table and standards to all new residential, commercial, and mixed-use proposals, including condominium conversions in accordance with standards set forth in the Land Use-Noise Compatibility Standards Figure 2. | PW | Ongoing |
| HZ3.2.2 | Establish Ldn noise level targets of 65 dBA for outdoor activity areas in new multifamily residential developments. | PL | Ongoing |
| HZ3.2.3 | Require that interior noise in all new multifamily housing not exceed an Ldn of 45 dBA with the windows and doors closed (State of California Noise Insulation Standards) and extend the requirement to single-family homes. | PL | Ongoing |
| HZ4.1.1 | Work with the County's Environmental Health Services, the County, and other groups in adopting, implementing, and updating a countywide Hazardous Waste Management Plan and Joint County Hazardous Materials Ocean Response Plan. | PW, F | Ongoing |
| HZ4.1.2 | Establish guidelines for hours, methods, routes, and amounts of hazardous waste being transported through the city. | PW, F | Ongoing |
| HZ4.1.3 | Monitor the City-County agreement for administering and enforcing hazardous materials regulations, and recommend any needed changes. | PW, F | Ongoing |
| HZ4.1.4 | Reduce the use of toxic materials in the community and prevent their disposal into the air, water, or soil. | PL, PW, F, W | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| HZ4.1.5 | Require Building Maintenance and other City staff to use nontoxic materials whenever possible. | ASA | Ongoing |
| HZ4.1.6 | Emphasize the city's role as an organic agricultural center and work with appropriate agencies to develop demonstration projects on non-chemical pest control and soil management practices. | PW, PR | Ongoing |
| HZ4.1.7 | Work with the County's Environmental Health Services department and other agencies to establish an educational outreach program for businesses and residents regarding the safe use, recycling, and disposal of toxic materials; reducing the use of hazardous household wastes; and acceptable substitutes for toxic substances. | PW, F | Ongoing |
| HZ4.2.1 | Maintain the Hazardous Household Wastes facility for Santa Cruz residents to dispose hazardous materials safely and legally. | PW, F | Ongoing |
| HZ4.2.2 | Continue to offer a program for households and businesses to turn in unwanted Hazardous Household Wastes. | P | Ongoing |
| HZ4.2.3 | Prevent illegal dumping of hazardous waste at the Resource Recovery Facility. | PW | Ongoing |
| HZ4.2.4 | Work with local pharmacies to provide citizens with safe and legal drop-off opportunities for unwanted and unused medications and sharps. | PW | Ongoing |
| HZ4.3.1 | Train personnel and ensure that resources are available to quickly respond to hazardous waste emergencies. | PW, F | Ongoing |
| HZ4.4.1 | Regulate the siting and permitting of businesses that handle hazardous materials, and assure that safe handling and use information from those businesses is provided to fire protection and other safety agencies. | F | Ongoing |
| HZ4.4.2 | Periodically review and update procedures for land uses that handle, store, or transport lead, mercury, vinyl chloride, benzene, asbestos, beryllium, or other hazardous materials. | PL, PW, F | Ongoing |
| HZ5.1.1 | Investigate the merits of a "dark sky ordinance" and the standards and enforcement efforts required. | PW | Ongoing |
| HZ5.1.2 | Develop lighting design guidelines that reduce light spillage both upward and onto adjoining properties. | PW | Mid-term |
| HZ5.1.3 | Consider appropriateness of lighting when reviewing proposed development or renovation of parks and recreation facilities. | PW, PL | Ongoing |
| HZ6.1.1 | Minimize hazards posed by coastal cliff retreat. | PW | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| HZ6.1.2 | For development adjacent to cliffs, require setbacks for buildings equal to 50 years of anticipated cliff retreat. | PL | Ongoing |
| HZ6.2.1 | Require engineering geology reports when, in the opinion of the City's planning director, excavation and grading have the potential for exposure to slope instability or the potential to create unstable slope or soil conditions. | PL, PW, PR, W | Ongoing |
| HZ6.3.1 | Adopt new State-approved California Building Codes (CBC) and require that all new construction conform with the latest edition of the CBC. | PL | Ongoing |
| HZ6.3.2 | Complete seismic retrofit of unreinforced masonry buildings within the city in accordance with the Uniform Code for the Abatement of Dangerous Buildings | PL | Ongoing |
| HZ6.3.3 | Require earthquake retrofit in connection with repair or alterations, and use the City's Rehabilitation Program, where appropriate to manage the work. | PW, PL | Ongoing |
| HZ6.3.4 | When feasible, upgrade sewer, water, and other piping to withstand seismic shaking and differential settlement. | PW, W | Ongoing |
| HZ6.3.5 | Consider an automatic gas shutoff ordinance for buildings within the city to reduce fire hazards related to seismic shaking. | PL, F | Ongoing |
| HZ6.3.6 | Require site specific geologic investigation(s) by qualified professionals for proposed development in potential liquefaction areas shown on the Liquefaction Hazard Map to assess potential liquefaction hazards, and require developments to incorporate the design and other mitigation measures recommended by the investigation(s). | PL | Ongoing |
| HZ6.4.1 | Address the effects of global warming through changes in land use and building codes for low-lying areas that may be flooded by increases in sea levels and storm violence. | PL, PW | Ongoing |
| HZ6.4.2 | Increase public awareness of flood hazards. | PL, PW, F | Ongoing |
| HZ6.4.3 | Ensure that flood information is made available to property owners, potential buyers, and residents living in floodplains and coastal inundation areas, and encourage them to participate in the Federal Flood Insurance Program. | PL | Ongoing |
| HZ6.4.4 | Work with creekside property owners to reduce and mitigate flood hazards. | PL, PW, W | Ongoing |
| HZ6.4.5 | Continue to reduce flooding hazards in areas with flood potential. | PW, PL | Ongoing |
| HZ6.4.6 | Regulate and provide guidelines for construction and development in floodplains. | PL | Ongoing |
| HZ6.4.7 | Restrict or prohibit uses in undeveloped flood areas, and maintain floodplain and floodway regulations in developed flood areas. | PL | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| HZ6.4.8 | Minimize the alteration of natural floodplains, stream channels, and natural protective barriers that accommodate or channel floodwaters. | PW, PL, W | Ongoing |
| HZ6.4.9 | Control filling, grading, dredging, and other development that may increase flood potential. | PW, PL, W | Ongoing |
| HZ6.4.10 | Limit the amount of impervious surface in flood-prone areas. | PW, PL | Ongoing |
| HZ6.4.11 | Identify and annually review areas subject to floods. | PL | Ongoing |
| HZ6.6.1 | Continue to enhance emergency management systems and develop patrol activities to ensure early warning for evacuation of areas susceptible to natural flooding, tsunami inundation, seiches, or dam failure. | PW | Ongoing |
| HZ6.6.2 | Institute a flood warning system for developed areas in floodplains, tsunami inundation areas, and areas affected by Newell Creek dam failure. | PW | Ongoing |
| HZ6.6.3 | Periodically review evacuation plans for flooding, potential dam failures, and tsunami inundation areas. | PW | Ongoing |

## CHAPTER 9 Parks, Recreation and Open Space

**TIME FRAMES:** Ongoing = currently and continuously implement, Short-term by 2018, Mid-term by 2022, Long-term by 2028

**DEPARTMENTS:** CC= City Clerk, PL = Planning, PW= Public Works, PR = Parks, ED = Economic Development, PO= Police, F= Fire, W= Water, L=Library, SD=School District, CCC=California Coastal Commission, N=Non-City Agency, ASA=Administrative Services Department, ALL=All Departments

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| PR1.1.1 | Update and modify the park system and services to accommodate changes in the population and its recreational needs. | PR | Ongoing |
| PR1.1.2 | Develop and maintain a citywide Parks Master Plan that sets service standards and strategic goals for the development and maintenance of parks and related facilities. | PR | Mid-term |
| PR1.1.3 | Evaluate all lands, regardless of size, for their potential development as small parks, community gardens, or landscape lots. | PL, PR | Mid-term |
| PR1.1.4 | Plan parks and recreation facilities adequate for the city's recreational needs, activities, and programs. | PR | Ongoing |
| PR1.1.5 | Plan for expansion of concessions in parks and recreation facilities. | PR | Ongoing |
| PR1.1.6 | Fund and staff regularly scheduled preventative maintenance. | PR | Mid-term |
| PR1.2.1 | Coordinate with local schools to expand parks and recreation opportunities for the community. | PR | Short-term |
| PR1.2.2 | Examine the feasibility of developing new (and/or expanding and refurbishing existing) athletic fields, including those on school sites. | PR | Ongoing |
| PR1.2.3 | Expand joint-use agreements with UCSC and Santa Cruz Schools for use of recreation facilities for parks, recreation, and community activities. | PR | Short-term |
| PR1.3.1 | Ensure that adequate park land is provided in conjunction with new development. | PL, PR | Ongoing |
| PR1.3.2 | Strive for a neighborhood parks ratio of 2.0 acres per 1,000 population. | PL, PR | Ongoing |
| PR1.3.3 | Strive for a community parks ratio of 2.5 acres per 1,000 population. | PL, PR | Ongoing |
| PR1.3.4 | Ensure that ongoing maintenance needs are addressed in the development and funding plans for any new or expanded parks, recreation facilities, or open space areas. | PR | Ongoing |
| PR1.5.1 | Maintain and staff the Parks Security program and unit. | PR | Ongoing |
| PR1.5.2 | Work with the community to maintain and expand neighborhood/park watch programs. | PR, PO | Ongoing |
| PR1.6.1 | Maintain and enhance access for vehicles, transit, bicycles, and pedestrians. | PW, PR | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| PR1.6.2 | Develop a sign program for visitor access to coastal parks and recreation areas, for all modes of transportation. | ED, PW, PR | Ongoing |
| PR1.6.3 | Ensure adequate access in public transit and shuttle programs, for fee and free parking and mass transit, and at park-and-ride lots. | PW, PR | Short-term |
| PR1.6.4 | Provide and encourage provision of adequate bike parking. | PW, PL, PR | Ongoing |
| PR1.6.5 | Coordinate with other public entities in assuring public access to unrestricted open space lands and coastline. | PR | Ongoing |
| PR1.7.1 | Require park land dedications of suitable recreational land at a ratio of 4.5 acres/1,000 population generated by a development project, or payment of a corresponding in-lieu fee. | PR | Ongoing |
| PR1.7.2 | Require that new park facilities generated by a development project be designed to serve the recreational needs of the anticipated population. | PL, PR | Ongoing |
| PR1.7.3 | Link annual cost adjustments of park dedication in-lieu fees to annual construction cost indexes to reflect existing needs and the cost of providing and maintaining park lands and recreational facilities. | PR | Ongoing |
| PR1.9.1 | Link annual cost adjustments to the Parks and Recreation Facilities tax to annual construction indexes to reflect the cost of providing and maintaining park lands and recreational facilities. | PR | Short-term |
| PR1.9.2 | Explore setting aside a defined percentage of Parks and Recreation Facilities Tax for maintenance of existing parks and recreational facilities. | PR | Ongoing |
| PR2.1.1 | Solicit public input to determine community interests and needs. | PR | Ongoing |
| PR2.1.2 | Provide and support cultural and recreational events, activities, and festivals that relate to diverse community needs. | PR | Ongoing |
| PR2.2.1 | Leverage private, public, and nonprofit resources toward providing recreational and cultural activities and events. | PR | Ongoing |
| PR2.2.2 | Encourage private sponsorship of special events and programs, historic events, joint projects, and cultural exchanges that involve and benefit the community. | PR | Ongoing |
| PR2.2.3 | Encourage and support year-round arts and cultural events through supportive City policies, procedures, and fees. | ED, PW, PR, PO | Ongoing |
| PR2.2.4 | Promote the use of volunteers to help with recreational and cultural programs. | PR | Mid-term |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| PR3.1.1 | Provide recreational and educational opportunities within the open space lands and coastline consistent with adopted master or management plans. | PR | Ongoing |
| PR3.3.1 | Protect coastal bluffs and beaches from intrusion by nonrecreational structures and incompatible uses. | PW, PL | Ongoing |
| PR3.3.2 | Ensure that development does not interfere with the public's right to access the ocean (where acquired through use or other legislative authorization). | PW,PL, PR | Ongoing |
| PR3.3.3 | Require new development and public works projects to provide public access from the nearest public roadway to the shoreline and along the coast, except where it is inconsistent with public safety or protection of fragile coastal resources, or where adequate access exists nearby. | PL, PR, PW | Ongoing |
| PR3.3.4 | Maximize public access and enjoyment of recreation areas along the coastline. | PL, PR, PW | Ongoing |
| PR4.1.1 | Provide trails for a range of uses. | PR | Ongoing |
| PR4.1.2 | Update and maintain trails in accordance with the City's Bicycle and Pedestrian Master Plans. | PR | Ongoing |
| PR4.1.3 | Maintain and enhance the recreational value of the San Lorenzo River walkway and East and the West Cliff Drive pathways. | PR | Ongoing |
| PR4.1.4 | Create a continuous pathway along the coast by enhancing the physical links between West Cliff and East Cliff Drives and the Beach Promenade. | PW, PR | Mid-term |
| PR4.1.5 | Determine the need for streetscape and safety improvements, or for facility rehabilitation. | PW, PR | Ongoing |
| PR4.1.6 | For special events, examine the feasibility of periodically closing the street or limiting vehicular access along West Cliff Drive. | PW, PR, PO | Ongoing |
| PR4.2.1 | Use public or quasi-publicly-owned lands for trails. | PR | Ongoing |
| PR4.2.2 | Obtain trail easements through private donations and by public purchase, where required for critical links. | PL, PW, PR | Ongoing |
| PR4.2.3 | Require development projects located along planned trail routes to dedicate trails or trail easements. | PW, PR | Ongoing |
| PR4.2.4 | Use roadside improvement funds to develop bicycle paths and pedestrian trails. | PW, PL | Mid-term |

# CHAPTER 10 Natural Resources and Conservation

**TIME FRAMES:** Ongoing = currently and continuously implement, Short-term by 2018, Mid-term by 2022, Long-term by 2028

**DEPARTMENTS:** CC= City Clerk, PL = Planning, PW= Public Works, PR = Parks, ED = Economic Development, PO= Police, F= Fire, W= Water, L=Library, SD=School District, CCC=California Coastal Commission, N=Non-City Agency, ASA=Administrative Services Department, ALL=All Departments

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| NRC1.1.1 | Require setbacks and implementation of standards and guidelines for development and improvements within the city and adjacent to creeks and wetlands as set forth in the *City-wide Creeks and Wetlands Management Plan.* | PL | Short-term |
| NRC1.1.2 | Where consistent with riparian and wetland protection, provide actual or visual access of a low-impact nature. | PL, PW, PR | Ongoing |
| NCR1.1.3 | Conduct landscape water audits for all parks, and incorporate results into budgetary decisions for upgrading systems and scheduling irrigation. | W, PR | Ongoing |
| NCR1.1.4 | Re-vegetate plants native to the specific habitat in buffer/setback areas adjacent to creeks and wetlands. | PL, PW, W, PR | Ongoing |
| NCR1.1.5 | Where appropriate, provide educational signs about water conservation practices and plantings. | W | Ongoing |
| NRC1.2.1 | Evaluate new uses for potential impacts to watershed, riverine, stream, and riparian environments. | PW, W, PL | Ongoing |
| NRC1.2.2 | Work with local and regional agencies to implement strategies to reduce or mitigate impacts of uses and development within the City's watershed lands. | PL, PW, W, PR | Ongoing |
| NRC1.3.1 | Conserve creek, riparian, and wetland resources in accordance with the adopted *City-wide Creeks and Wetlands Management Plan* and the San Lorenzo River Plan. | PL, PW, W, PR | Ongoing |
| NRC2.1.1 | Maintain an up-to-date list and map of sensitive, rare, and endangered flora and fauna. | PL | Ongoing |
| NRC2.1.2 | Maintain, for public use, generalized maps showing locations of special-status species. Specific site information may be kept confidential to protect the resources. | PL | Ongoing |
| NRC2.1.3 | Evaluate development for impacts to special-status place and animal species. | PL | Ongoing |
| NRC2.1.4 | Implement strategies to reduce or minimize impacts. | PL | Ongoing |
| NRC2.1.5 | Maintain an inventory of the region's threatened or extinct species. | PL | Ongoing |
| NRC2.2.1 | As part of the CEQA review process for development projects, evaluate and mitigate potential impacts to sensitive habitat (including special-status species) for sites located within or adjacent to these areas. | PL, W, PW, W | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| NRC2.2.2 | Protect coastal roosts and rookeries in the course of activities that could disturb or disrupt breeding or result in loss of habitat, such as construction activities, recreational activities, or special events. | PW, PL, PW, W | Ongoing |
| NRC2.2.3 | Encourage the planting and restoration of native rather than non-native vegetation throughout the city and in areas where plants or habitats are diseased or degraded. | PW, PL, PW, W | Ongoing |
| NRC2.2.4 | Minimize the impact of grading and filling on sensitive habitat areas. | PW, PL, PW, W | Ongoing |
| NRC2.2.5 | Encourage the eradication and control of non-native and invasive plant species. | PW, PL, PW, W | Ongoing |
| NRC2.2.6 | Amend Zoning Ordinance section 24.14.080 to provide an updated reference the sensitive habitats identified in the *General Plan 2030*. | PL | Ongoing |
| NRC2.3.1 | Restrict the use of barriers that can hamper wildlife movement through corridors and buffers. | PL | Ongoing |
| NRC2.4.1 | Maintain a Monarch Butterfly Management Plan. | PL | Ongoing |
| NRC3.1.1 | Continue and expand school education and public information programs related to conservation. | PW, PR, W | Ongoing |
| NRC3.1.2 | Preserve and manage woodland areas within open spaces. | PL, PR | Ongoing |
| NRC3.2.1 | Reduce the sale and the use of synthetic pesticides, herbicides, and fungicides. | PL, PW, PR | Ongoing |
| NRC4.1.1 | By 2030, require that all new development be carbon neutral. | PW, PL, PW, W | Long-term |
| NRC4.1.2 | Revise the Climate Action Plan to include projected *General Plan 2030* growth to the year 2030, and implement municipal, community, and business sections of the Climate Action Plan on energy efficiency and expanded use of renewable energy. | PW, PL, PW, W | Long-term |
| NRC4.1.3 | Implement sections of the Climate Action Plan that reduce vehicle emissions 30 percent by 2020, identify metrics for tracking success, and address objectives not met. | PW, PL, PW, W | Long-term |
| NRC4.1.4 | Continue to expand municipal energy efficiency programs to reduce building energy use to a defined level. Provide incentives for departments to meet efficiency goals. | PW, W, PR | Ongoing |
| NRC4.1.5 | Complete solar analysis and implement a five year plan to increase solar generation significantly on municipal buildings. | PW, PL, PW, W | Ongoing |
| NRC4.1.6 | Establish an Energy Conservation team responsible for defining and achieving building efficiency goals. | PW, PL, PW, W | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| NRC4.1.7 | Work with the Santa Cruz Regional Compact on Climate Change to draft a countywide strategy to meet greenhouse gas (GHG) reduction goals of 80 percent by 2050. | PL | Long-term |
| NRC4.1.8 | Implement tracking and reporting procedures that meet AB32 requirements and public interest. | PL | Short-term |
| NRC4.1.9 | Promote efficiency upgrades and renewable energy projects over the use of carbon offsets to meet climate reduction goals. | PW, PL, W | Ongoing |
| NRC4.2.1 | Continue to support the Regional Climate Action Compact on Climate Change, and encourage participation from other cities in the County. | PL, PW | Ongoing |
| NRC4.2.2 | Adopt and implement key programs developed by the Regional Climate Action Compact on Climate Change that meet city greenhouse gas reduction goals. | PW, PL, PW, W | Ongoing |
| NRC4.3.1 | Expand public outreach campaigns (e.g., climate action teams, green business programs) to city residents and businesses aimed at reducing energy use 30 percent by 2020. | PW, PL | Ongoing |
| NRC4.3.2 | Involve the public to identify additional City incentives necessary to improve community energy efficiency upgrades. | PW, PL | Ongoing |
| NRC4.3.3 | Adopt City renewable energy objectives as defined within the Climate Action Plan. | PL | Ongoing |
| NRC4.3.4 | Draft and implement a Santa Cruz Solar Plan that provides incentives and coordinates financing for city residences and businesses to invest in solar energy. | PW, PL, W | Mid-term |
| NRC4.3.5 | Evaluate mechanisms to expand the use of solar energy by Downtown businesses and property owners. | ED, PL | Ongoing |
| NRC4.4.1 | Draft policies to address future development in areas defined as High Risk within the Climate Change Risk Assessment. | PW, PL, PO, F | Ongoing |
| NRC4.4.2 | Establish a Sustainable Transportation and Land Use Team to produce a transportation plan that defines alternative transportation options (not associated with autos, busses or carpools) to address the Santa Cruz mobile emission reduction goals of 30 percent by 2020 and 80 percent by 2050. | PW, PL | Ongoing |
| NRC4.5.1 | Complete the City Vulnerability Study and the Climate Change Risk Assessment. | PW, PL | Short-term |
| NRC5.1.1 | Continue and enhance educational programs and opportunities to promote the Urban Forest. Examples include communitywide Arbor Day activities and neighborhood street tree plantings. | PW, PL, PR | Ongoing |
| NRC5.1.2 | Maintain and add to the city's urban tree canopy and increase tree diversity within urbanized areas using native and non-invasive tree species. | PR | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| NRC5.2.1 | Provide and maintain a list for the public identifying species appropriate for street trees. | PR | Ongoing |
| NRC7.1.1 | Reduce electricity and natural gas consumption in public facilities by at least 20 percent compared to usage in 2000, by the year 2015. | PW, PL, PW, W | Ongoing |
| NRC7.1.2 | Adopt or adapt the Model Lighting Ordinance and Design Guidelines jointly developed by the International Dark Sky Association and the Illuminating Engineering Society of North America. | PW | Ongoing |
| NRC7.1.3 | Implement energy strategies to increase the local use and production of renewable energy. | PW, PL, PW, W | Ongoing |
| NRC7.1.4 | Require new development to provide for passive and natural heating and cooling opportunities, including beneficial site orientation and dedication of solar easements. | PL | Ongoing |
| NRC7.1.5 | Require City facilities to annually increase the percentage of green electricity used until the 2020 goal of 100 percent is met. | PW, PL, PW, W | Ongoing |
| NRC7.1.6 | Increase local energy awareness. | PW, PL, PW, W | Ongoing |
| NRC7.1.7 | Establish an outreach program and cooperate with other agencies that encourage energy conservation and renewable energy programs. | PW, PL, PW, W | Ongoing |
| NRC7.1.8 | Educate the public about energy resources, conservation, and renewable energy through public information and outreach efforts, and offer educational programs for use in school classrooms. | PW, PL, PW, W | Ongoing |
| NRC7.1.9 | Support State and federal legislation promoting research on renewable energy and other technologies. | PW, PL, PW, W | Ongoing |
| NRC7.1.10 | Improve energy conservation and efficiency in existing parks and recreational facilities. | PR | Ongoing |
| NRC7.1.11 | Continue to install energy efficient system in existing park and recreational facilities. | PR | Ongoing |
| NRC7.2.1 | Recruit industries that use energy efficiently and which offer renewable energy systems and energy efficient production methods. | ED | Ongoing |
| NRC7.3.1 | Promote the implementation of circulation system improvements that can reduce local consumption of fossil fuels. | PW | Ongoing |
| NRC7.3.2 | Purchase City vehicles with fuel efficient or alternative fuel systems including hybrid, compressed natural gas (CNG), and bio-diesel. | PW, PL, PW, W | Ongoing |
| NRC7.3.3 | Establish telecommuting technologies and alternative work schedules for City employees. | ALL | Ongoing |

| NUMBER | ACTION | RESPONSIBLE DEPARTMENT | TIME FRAME |
|---|---|---|---|
| NRC7.3.4 | Conduct a fleet efficiency study to identify where smaller, more efficient, electric or hybrid vehicles can be used by the City to meet a 30 percent reduction in greenhouse gas emissions by 2020. | ASA | Ongoing |
| NRC7.3.5 | Investigate partnerships with UCSC to improve electric vehicle use in the community. | PW | Ongoing |
| NRC7.4.1 | Provide the public with information on the benefits of replacing or installing new energy and water efficiency fixtures and appliances. Examples include faucet aerators, low-flow showerheads, high-efficiency clothes washers and dishwashers, and high-efficiency water heaters. | PW, W | Ongoing |
| NRC7.4.2 | Require that new construction and major remodeling projects in City facilities use high-efficiency or zero-waste fixtures. | PW | Ongoing |
| NRC7.4.3 | Support gray water collection and reuse within residential and business closed water systems (toilets), and support further study of appropriate use of gray water within landscaped areas. | PW, W | Ongoing |

# GLOSSARY*

## General Plan 2030/Housing Element 2007

A glossary is "a collection of ... terms limited to a special area of knowledge or usage." This glossary was developed from *The California General Plan Glossary,* prepared by Naphtali H. Knox, FAICP. Contributions by J. Laurence Mintier, AICP. Edited by Charles E. Knox, AICP, and Naphtali H. Knox, FAICP. California Planning Roundtable, 1990, 1997, 2001, 2008. It defines over 400 terms used in preparing and writing general plans in California.

Some may find that the expressions and terms used in the planning process are new; others know what the terms mean, but interpret them with variations. Because the general plan is such a comprehensive and overriding policy document, it is critical that all those participating in the planning process, and all those who will use the Plan, have a common understanding of what the more frequently used terms mean. The aim of this Glossary is to ensure that every user understands the Plan and interprets it in the same way.

This version of the Glossary adds definitions for terms requested by the Santa Cruz General Plan Advisory Committee, 2006–2007, and the Planning Commission, 2008. DC&E and Knox & Associates (as consultants to the City of Santa Cruz on its General Plan Update) collaborated in crafting the additional definitions.

**Glossary covers terminology found in the Housing Element.*

### Abbreviations

**ADT** Average daily trips made by vehicles or persons in a 24-hour period
**ALUC** Airport Land Use Commission
**BMR** Below-market-rate dwelling unit
**CBD** Central Business District
**CC&Rs** Covenants, Conditions, and Restrictions
**CDBG** Community Development Block Grant
**CEQA** California Environmental Quality Act
**CFD** A Mello-Roos Community Facilities District
**CHFA** California Housing Finance Agency
**CIP** Capital Improvements Program
**CNEL** Community Noise Equivalent Level
**CMP** Congestion Management Plan
**COG** Council of Governments
**dB** Decibel
**dBA** "A-weighted" decibel
**EIR** Environmental Impact Report (State)
**EIS** Environmental Impact Statement (Federal)
**FAR** Floor Area Ratio
**FAUS** Federal Aid to Urban Systems
**FEMA** Federal Emergency Management Agency
**FHA** Federal Highway Administration
**FIR** Fiscal Impact Report
**FIRM** Flood Insurance Rate Map
**FmHA** Farmers Home Administration
**GMI** Gross Monthly Income
**HAP** Housing Assistance Plan
**HCD** Housing and Community Development Department of the State of California
**HOV** High Occupancy Vehicle
**HUD** U.S. Dept. of Housing and Urban Development
**JPA** Joint Powers Authority
**LAFCo** Local Agency Formation Commission
**$L_{dn}$** Day and Night Average Sound Level
**$L_{eq}$** Sound Energy Equivalent Level
**LHA** Local Housing Authority
**LOS** Level of Service
**LRT** Light (duty) Rail Transit
**MBUAPCD** Monterey Bay Unified Air Pollution Control District
**NEPA** National Environmental Policy Act
**OPR** Office of Planning and Research, State of California
**PUD** Planned Unit Development
**RHNA** Regional Housing Needs Allocation
**SRO** Single Room Occupancy
**TCP** Traditional Cultural Property
**TDM** Transportation Demand Management
**TDR** Transfer of Development Rights
**TSM** Transportation Systems Management
**CBC** California Building Code
**UHC** Uniform Housing Code
**UMTA** Urban Mass Transportation Administration
**VMT** Vehicle Miles Traveled

## Definitions

**Acceptable Risk** A hazard deemed to be a tolerable exposure to danger given the expected benefits to be obtained. Different levels of acceptable risk may be assigned according to the potential danger and the criticalness of the threatened structure. The levels may range from "near zero" for nuclear plants and natural gas transmission lines to "moderate" for open space, ranches and low-intensity warehouse uses.

**Access/Egress** The ability to enter a site from a roadway and exit a site onto a roadway by motorized vehicle.

**Acres, Gross** The entire acreage of a site. Most communities calculate gross acreage to the centerline of proposed bounding streets and to the edge of the right-of-way of existing or dedicated streets.

**Acres, Net** The portion of a site that can actually be built upon. The following generally are not included in the net acreage of a site: public or private road rights-of-way, public open space, and floodways.

**Action** A program, activity, or strategy carried out in response to adopted policy to achieve a specific goal or objective. Policies and programs establish the "who," "how" and "when" for carrying out the "what" and "where" of goals and objectives.

**Active Solar System** A system that uses a mechanical device, such as pumps or fans run by electricity in addition to solar energy, to transport air or water between a solar collector and the interior of a building for heating or cooling. (See "Passive Solar System.")

**Activity Center** Walkable, mixed-used, transit-oriented areas with a distinct focus, identity, function, and sense of place, in which the city's economic, educational, recreational, cultural and social life is concentrated. The six major activity centers in Santa Cruz are Downtown, the Beach Area, UCSC, Harvey West, the Mission Street commercial area, and the Soquel Avenue Eastside business district.

**Adaptive Reuse** The conversion of obsolescent or historic buildings from their original or most recent use to a new use. For example, the conversion of former hospital or school buildings to residential use, or the conversion of an historic single-family home to office use.

**Adverse Impact** A negative consequence for the physical, social, or economic environment resulting from an action or project.

**Affordability Requirements** Provisions established by a public agency to require that a specific percentage of housing units in a project or development remain affordable to very low- and low-income households for a specified period.

**Affordable Housing** Housing capable of being purchased or rented by a household with very low, low, or moderate income, based on a household's ability to make monthly payments necessary to obtain housing. Housing is considered affordable when a household pays less than 30 percent of its gross monthly income (GMI) for housing including utilities.

**Agency** The governmental entity, department, office, or administrative unit responsible for carrying out regulations.

**Agricultural Preserve** Land designated for agriculture or conservation. (See "Williamson Act.")

**Agriculture** Use of land for the production of food and fiber, including the growing of crops and/or the grazing of animals on natural prime or improved pasture land.

**Agriculture-related Business** Feed mills, dairy supplies, poultry processing, creameries, auction yards, veterinarians and other businesses supporting local agriculture.

**Air Pollution** Concentrations of substances found in the atmosphere that exceed naturally occurring quantities and are undesirable or harmful in some way.

**Air Rights** The right granted by a property owner to a buyer to use space above an existing right-of-way or other site, usually for development.

**Airport-related Use** A use that supports airport operations including, but not limited to, aircraft repair and maintenance, flight instruction, and aircraft chartering.

**Alley** A narrow service way, either public or private, which provides a permanently reserved but secondary means of public access not intended for general traffic circulation. Alleys typically are located along rear property lines.

**Alluvial** Soils deposited by stream action.

**Alquist-Priolo Act, Seismic Hazard Zone** A seismic hazard zone designated by the State of California within which specialized geologic investigations must be prepared prior to approval of certain new development

**Ambient** Surrounding on all sides; used to describe measurements of existing conditions with respect to traffic, noise, air and other environments.

**Annex, v.** To incorporate a land area into an existing district or municipality, with a resulting change in the boundaries of the annexing jurisdiction.

**Apartment** (1) One or more rooms of a building used as a place to live, in a building containing at least one other unit used for the same purpose. (2) A separate suite, not owner occupied, which includes kitchen facilities and is designed for and rented as the home, residence, or sleeping place of one or more persons living as a single housekeeping unit.

**Approach Zone** The air space at each end of a landing strip that defines the glide path or approach path of an aircraft and that should be free from obstruction.

**Appropriate** An act, condition, or state that is considered suitable.

**Aquifer** An underground, water-bearing layer of earth, porous rock, sand, or gravel, through which water can seep or be held in natural storage. Aquifers generally hold sufficient water to be used as a water supply.

**Arable** Land capable of being cultivated for farming.

**Archaeological** Relating to the material remains of past human life, culture, or activities.

**Architectural Control; Architectural Review** Regulations and procedures requiring the exterior design of structures to be suitable, harmonious, and in keeping with the general appearance, historic character, and/or style of surrounding areas. A process used to exercise control over the design of buildings and their settings. (See "Design Review.")

**Area; Area Median Income** As used in State of California housing law with respect to income eligibility limits established by the U.S. Department of Housing and Urban Development (HUD) or the California Department of Housing and Community Development (HCD), "area" means metropolitan area or non-metropolitan county.

**Arterial** Medium-speed (30-40 mph), medium-capacity (10,000-35,000 average daily trips) roadway that provides intra-community travel and access to the county-wide highway system. Access to community arterials should be provided at collector roads and local streets, but direct access from parcels to existing arterials is common.

**Artesian** An aquifer in which water is confined under pressure between layers of impermeable material. Wells tapping into an artesian stratum will flow naturally without the use of pumps. (See "Aquifer.")

**Article 34 Referendum** Article 34 of the Constitution of the State of California requires passage of a referendum within a city or county for approval of the development or acquisition of a publicly financed housing project where more than 49 percent of the units are set aside for low-income households.

**Articulation** Variation in the depth of the building plane, roof line, or height of a structure that breaks up plain, monotonous areas and creates patterns of light and shadow.

**Assessment District** (See "Benefit Assessment District.")

**Assisted Housing** Generally multi-family rental housing, but sometimes single-family ownership units, whose construction, financing, sales prices, or rents have been subsidized by federal, state, or local housing programs including, but not limited to Federal Section 8 (new construction, substantial rehabilitation, and loan management set-asides), Federal Sections 213, 236, and 202, Federal Section 221(d)(3) (below-market interest rate program), Federal Section 101 (rent supplement assistance), CDBG, FmHA Section 515, multi-family mortgage revenue bond programs, the City's Affordable Housing Trust Fund, and units developed pursuant to local inclusionary housing and density bonus programs.

**Auto Mall** A single location that provides sales space and centralized services for a number of automobile dealers, and which may include such related services as auto insurance dealers and credit institutions that provide financing opportunities.

**Automobile-intensive Use** A use of a retail area that depends on exposure to continuous auto traffic.

**Base Flood** In any given year, a 100-year flood that has 1 percent likelihood of occurring, and is recognized as a standard for acceptable risk.

**Baylands** Areas along a bay that are permanently wet or periodically covered with shallow water, such as saltwater and freshwater marshes, open or closed brackish marshes, swamps, mudflats, and fans.

**Bed and Breakfast** Usually a dwelling unit, but sometimes a small hotel, which provides lodging and breakfast for temporary overnight occupants, for compensation.

**Below-market-rate (BMR) Housing Unit** (1) Any housing unit specifically priced to be sold or rented to low- or moderate-income households for an amount less than the fair-market value of the unit. Both the State of California and the U.S. Department of Housing and Urban Development set standards for determining which households qualify as "low income" or "moderate income." (2) The financing of housing at less than prevailing interest rates.

**Benefit Assessment District** An area within a public agency's boundaries that receives a special benefit from the construction of one or more public facilities. A Benefit Assessment District has no legal life of its own and cannot act by itself. It is strictly a financing mechanism for providing public infrastructure as allowed under the Streets and Highways Code. Bonds may be issued to finance the improvements, subject to repayment by assessments charged against the benefiting properties. Creation of a Benefit Assessment District enables property owners in a specific area to cause the construction of public facilities or to maintain them (for example, a downtown, or the grounds and landscaping of a specific area) by contributing their fair share of the construction and/or installation and operating costs.

**Bicycle Lane (Class II facility)** A corridor expressly reserved for bicycles, existing on a street or roadway in addition to any lanes for use by motorized vehicles.

**Bicycle Path (Class I facility)** A paved route not on a street or roadway and expressly reserved for bicycles traversing an otherwise unpaved area. Bicycle paths may parallel roads but typically are separated from them by landscaping.

**Bicycle Route (Class III facility)** A facility shared with motorists and identified only by signs, a bicycle route has no pavement markings or lane stripes.

**Bikeways** A term that encompasses bicycle lanes, bicycle paths, and bicycle routes.

**Biomass** Plant material, used for the production of such things as fuel alcohol and non-chemical fertilizers. Biomass sources may be plants grown especially for that purpose or waste products from livestock, harvesting, milling, or from agricultural production or processing.

**Biotic Community** A group of living organisms characterized by a distinctive combination of both animal and plant species in a particular habitat.

**Blight** A condition of a site, structure, or area that may cause nearby buildings and/or areas to decline in attractiveness and/or utility.

**Bond** An interest-bearing promise to pay a stipulated sum of money, with the principal amount due on a specific date. Funds raised through the sale of bonds can be used for various public purposes.

**Buffer Zone** An area of land separating two distinct land uses that acts to soften or mitigate the effects of one land use on the other.

**Building** Any structure used or intended for supporting or sheltering any use or occupancy.

**Building Height** The vertical distance from the average contact ground level of a building to the highest point of the coping of a flat roof or to the deck line of a mansard roof or to the mean height level between eaves and ridge for a gable, hip, or gambrel roof. The exact definition varies by community. For example, in some communities building height is measured to the highest point of the roof, not including elevator and cooling towers.

**Building Envelope** The three-dimensional space within which a structure is permitted to be built on a lot and which is defined by regulations governing building setbacks, maximum height, and bulk; by other regulations; or any combination thereof.

**Buildout; Build-out** Development of land to its full potential or theoretical capacity as permitted under current or proposed planning or zoning designations. (See "Carrying Capacity (3).")

**Business Services** A subcategory of commercial land use that permits establishments primarily engaged in rendering services to other business establishments on a fee or contract basis, such as advertising and mailing; building maintenance; personnel and employment services; management and consulting services; protective services; equipment rental and leasing; photo finishing; copying and printing; travel; office supply; and similar services.

**Bus Rapid Transit (BRT)** Involves buses with their own dedicated lane, fewer stops than regular bus service, driver control of traffic signals, quicker trips, and connections with bus feeder routes.

**Busway** A vehicular right-of-way or portion thereof—often an exclusive lane—reserved exclusively for buses.

**California Environmental Quality Act (CEQA)** A State law requiring State and local agencies to regulate activities with consideration for environmental protection. If a proposed activity has the potential for a significant adverse environmental impact, an Environmental Impact Report (EIR) must be prepared and certified as to its adequacy before taking action on the proposed project. An Initial Study must be prepared for housing elements, leading to a Negative Declaration in most cases.

**California Housing Finance Agency (CHFA)** A State agency, established by the Housing and Home Finance Act of 1975, which is authorized to sell revenue bonds and generate funds for the development, rehabilitation, and conservation of low-and moderate-income housing.

**Caltrans** California Department of Transportation.

**Capacity** As used in transportation, the ability of a corridor to accommodate the passage of vehicles or persons without irreversibly changing the quality of the surrounding environment. Capacity can refer to roadway capacity for autos ("vehicle travelway capacity"); roadway capacity for all modes including autos, carpools and transit; or transit service capacity.

**Capacity, Carrying** Used in determining the potential of an area to absorb development: (1) The level of land use, human activity, or development for a specific area that can be accommodated permanently without an irreversible change in the quality of air, water, land, or plant and animal habitats. (2) The upper limits of development beyond which the quality of human life, health, welfare, safety, or community character within an area will be impaired. (3) The maximum level of development allowable under current zoning. (See "Buildout.")

**Capital Improvements Program (CIP)** A program, administered by a city or county government and reviewed by its planning commission, which schedules permanent improvements, usually for a minimum of five years in the future, to fit the projected fiscal capability of the local jurisdiction. The program generally is reviewed annually, for conformance to and consistency with the general plan.

**Carbon Dioxide** A colorless, odorless, non-poisonous gas that is a normal part of the atmosphere.

**Carbon Monoxide** A colorless, odorless, highly poisonous gas produced by automobiles and other

machines with internal combustion engines that imperfectly burn fossil fuels such as oil and gas.

**Carbon Neutral** The purchase of sufficient "carbon offsets" to counter greenhouse gas and other polluting emissions to the atmosphere to achieve carbon zero accreditation. An emission reduction made elsewhere has a positive effect and offsets an emission made locally.

**Carbon Offsets** Credits for emission reductions achieved by projects elsewhere, such as wind farms, solar installations, or energy efficiency projects. The credits are applied against emissions made locally to reduce net climate impact.

**Caulking** A waterproof compound or material used to stop up and make tight against leakage (as cracks in a window frame).

**Census** The official decennial enumeration of the population conducted by the federal government.

**Central Business District (CBD)** The major commercial downtown center of a community. General guidelines for delineating a downtown area are defined by the U.S. Census of Retail Trade, with specific boundaries being set by the local municipality.

**Certified Local Government (CLG) Status** A national program to encourage direct participation of a local government in preserving and identifying historic resources within its jurisdiction. As a CLG, a city can apply for federal grants administered through the State Office of Historic Preservation and utilize opportunities for State training and other resources.

**Channelization** (1) The straightening and/or deepening of a watercourse for purposes of storm-runoff control or ease of navigation. Channelization often includes lining of stream banks with a retaining material such as concrete. (2) At the intersection of roadways, the directional separation of traffic lanes through the use of curbs or raised islands that limit the paths that vehicles may take through the intersection.

**Character** Special physical characteristics of a structure or area that set it apart from its surroundings and contribute to its individuality.

**Circulation Element** One of the seven State-mandated elements of a local general plan, it contains adopted goals, policies, and implementation programs for the planning and management of existing and proposed thoroughfares, transportation routes, and terminals, as well as local public utilities and facilities, all correlated with the land use element of the general plan.

**City** City with a capital "C" generally refers to the government or administration of a city. City with a lower case "c" may mean any city or may refer to the geographical area of a city (e.g., the city bikeway system.)

**Clear Zone** That section of an approach zone of an airport where the plane defining the glide path is 50 feet or less above the center-line of the runway. The clear zone ends where the height of the glide path above ground level is above 50 feet. Land use under the clear zone is restricted.

**Clustered Development** Development in which a number of dwelling units are placed in closer proximity than usual, or are attached, with the purpose of retaining an open space area.

**Cogeneration** The harnessing of heat energy, that normally would be wasted, to generate electricity—usually through the burning of waste.

**Collector** Relatively-low-speed (25-30 mph), relatively-low-volume (5,000-20,000 average daily trips) street that provides circulation within and between neighborhoods. Collectors usually serve short trips and are intended for collecting trips from local streets and distributing them to the arterial network.

**Combined Sewer/Combination Sewer** A sewerage system that carries both sanitary sewage and stormwater runoff.

**Commercial** A land use classification that permits facilities for the buying and selling of commodities and services.

**Commercial Strip** Commercial development, usually one store deep, that fronts on a major street for a distance of one city block or more. Includes individual buildings on their own lots, with or without on-site parking, and small linear shopping centers with shallow on-site parking in front of the stores.

**Community Care Facility** Any facility maintained and operated to provide non-medical residential care, day treatment, adult day care, or foster family agency services for six or fewer persons. "Six or fewer persons" does not include the licensee or members of the licensee's family or persons employed as facility staff. Community care facilities which serve six or fewer persons are considered a residential use of property.

**Community Child Care Agency** A non-profit agency established to organize community resources for the development and improvement of child care services.

**Community Development Block Grant (CDBG)** A grant program administered by the U.S. Department of Housing and Urban Development (HUD) on a formula basis for entitlement communities, and by the State Department of Housing and Community Development (HCD) for non-entitled jurisdictions. This grant allots money to cities and counties for housing rehabilitation and community development, including public facilities and economic development.

**Community Facilities District** Under the Mello-Roos Community Facilities Act of 1982 (Government Code Section 53311 et seq), a legislative body may create within its jurisdiction a special district that can issue tax-exempt bonds for the planning, design, acquisition, construction, and/or operation of public facilities, as well as provide public services to district residents.

Special tax assessments levied by the district are used to repay the bonds.

**Community Noise Equivalent Level (CNEL)** A 24-hour energy equivalent level derived from a variety of single-noise events, with weighting factors of 5 and 10 dBA applied to the evening (7 PM to 10 PM) and nighttime (10 PM to 7 AM) periods, respectively, to allow for the greater sensitivity to noise during these hours.

**Community Park** Land with full public access intended to provide recreation opportunities beyond those supplied by neighborhood parks. Community parks are larger in scale than neighborhood parks but smaller than regional parks.

**Community Service Area** A geographic subarea of a city or county used for the planning and delivery of parks, recreation, and other human services based on an assessment of the service needs of the population in that subarea.

**Commute-shed** The area from which people do or might commute from their homes to a specific workplace destination, given specific assumptions about maximum travel time or distance.

**Compact** Packed together; dense, as in "a compact arrangement of diverse land uses."

**Comparison Goods** Retail goods for which consumers will do comparison shopping before making a purchase. These goods tend to have a style factor and to be "larger ticket" items such as clothes, furniture, appliances and automobiles.

**Compatible** Capable of existing together without conflict or ill effects.

**Complete Street** A transportation facility planned, designed, operated, and maintained to provide safe mobility for all users, including bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors, as appropriate to the function and context of the facility.

**Composting** The treatment of solid organic refuse through aerobic, biologic decomposition.

**Condominium** A structure of two or more units, the interior spaces of which are individually owned; the balance of the property (both land and building) is owned in common by the owners of the individual units. (See "Townhouse.")

**Congestion Management Plan (CMP)** A mechanism employing growth management techniques, including traffic level of service requirements, standards for public transit, trip reduction programs involving transportation systems management and jobs/housing balance strategies, and capital improvement programming, for the purpose of controlling and/or reducing the cumulative regional traffic impacts of development. AB 1791, effective August 1, 1990, requires all cities, and counties that include urbanized areas, to adopt by December 1, 1991, and annually update a Congestion Management Plan.

**Congregate Care** Apartment housing, usually for seniors, in a group setting that includes independent living and sleeping accommodations in conjunction with shared dining and recreational facilities. Congregate care usually implies a higher level of care than independent living. (See "Community Care Facility.")

**Conservation** The management of natural resources to prevent waste, destruction, or neglect. The state mandates that a Conservation Element be included in the general plan.

**Conservation Element** One of the seven State-mandated elements of a local general plan, it contains adopted goals, policies, and implementation programs for the conservation, development, and use of natural resources including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources.

**Consistent** Free from variation or contradiction. Programs in the General Plan are to be consistent, not contradictory or preferential. State law requires consistency between a general plan and implementation measures such as the zoning ordinance.

**Convenience Goods** Retail items generally necessary or desirable for everyday living, usually purchased at a convenient nearby location. Because these goods cost relatively little compared to income, they are often purchased without comparison shopping.

**Conveyance Tax** A tax imposed on the sale, lease, or transfer of real property.

**Cordon Count** A measurement of all travel (usually vehicle trips, but sometimes person trips) in and out of a defined area (around which a "cordon" is drawn).

**Corridor, Transportation** A broad geographic band that follows a general route alignment of a roadway or rail right-of-way, and includes the area within that band that is or would be serviced by the roadway and/or transit system.

**County** County with a capital "C" generally refers to the government or administration of a county. County with a lower case "c" may mean any county or may refer to the geographical area of a county (e.g., the county road system).

**Covenants, Conditions, and Restrictions (CC&Rs)** A term used to describe restrictive limitations that may be placed on property and its use, and which usually are made a condition of holding title or lease.

**Criterion** A standard upon which a judgment or decision may be based. (See "Standards.")

**Critical Facility** Facilities housing or serving many people, which are necessary in the event of an earthquake or flood, such as hospitals, fire, police, and emergency service facilities, utility "lifeline" facilities, such as water, electricity, and

gas supply, sewage disposal, and communications and transportation facilities.

**Cul-de-sac** A short street or alley with only a single means of ingress and egress at one end and with a large turnaround at its other end.

**Cumulative Impact** As used in CEQA, the total impact resulting from the accumulated impacts of individual projects or programs over time.

**dB** Decibel; a unit used to express the relative intensity of a sound as it is heard by the human ear.

**dBA** The "A-weighted" scale for measuring sound in decibels; weighs or reduces the effects of low and high frequencies in order to simulate human hearing. Every increase of 10 dBA doubles the perceived loudness though the noise is actually ten times more intense.

**Dedication** The turning over by an owner or developer of private land for public use, and the acceptance of land for such use by the governmental agency having jurisdiction over the public function for which it will be used. Dedications for roads, parks, school sites, or other public uses often are made conditions for approval of a development by a city or county.

**Dedication, In lieu of** Cash payments that may be required of an owner or developer as a substitute for a dedication of land, usually calculated in dollars per lot, and referred to as in lieu fees or in lieu contributions.

**Defensible space** (1) In fire-fighting and prevention, a 30-foot area of non-combustible surfaces separating urban and wildland areas. (2) In urban areas, open spaces, entry points, and pathways configured to provide maximum opportunities to rightful users and/or residents to defend themselves against intruders and criminal activity.

**Density, Residential** The number of permanent residential dwelling units per acre of land. Densities specified in the General Plan may be expressed in units per gross acre or per net developable acre. (See "Acres, Gross," and "Developable Acres, Net.")

**Density Bonus** The allocation of development rights that allow a parcel to accommodate additional square footage or additional residential units beyond the maximum for which the parcel is zoned, usually in exchange for the provision or preservation of an amenity at the same site or at another location. Under California law, a housing development that provides 10 percent of its units for moderate income or lower income households, or 5 percent of its units for very-low income households, or is a senior housing facility, is entitled to a density bonus.

**Density, Control of** A limitation on the occupancy of land. Density can be controlled through zoning in the following ways: use restrictions, minimum lot-size requirements, floor area ratios, land use-intensity ratios, setback and yard requirements, minimum house-size requirements, ratios comparing number and types of housing units to land area, limits on units per acre, and other means. Allowable density often serves as the major distinction between residential districts.

**Density, Employment** A measure of the number of employed persons per specific area (for example, employees/acre).

**Density Transfer** A way of retaining open space by concentrating densities—usually in compact areas adjacent to existing urbanization and utilities—while leaving unchanged historic, sensitive, or hazardous areas. In some jurisdictions, for example, developers can buy development rights of properties targeted for public open space and transfer the additional density to the base number of units permitted in the zone in which they propose to develop.

**Design Review; Design Control** The comprehensive evaluation of a development and its impact on neighboring properties and the community as a whole, from the standpoint of site and landscape design, architecture, materials, colors, lighting, and signs, in accordance with a set of adopted criteria and standards. "Design Control" requires that certain specific things be done and that other things not be done. Design Control language is most often found within a zoning ordinance. "Design Review" usually refers to a system set up outside of the zoning ordinance, whereby projects are reviewed against certain standards and criteria by a specially established design review board or committee. (See "Architectural Control.")

**Destination Retail** Retail businesses that generate a special purpose trip and that do not necessarily benefit from a high-volume pedestrian location.

**Detachment** Withdrawal of territory from a special district or city.

**Detention Dam/Basin/Pond** Dams may be classified according to the broad function they serve, such as storage, diversion, or detention. Detention dams are constructed to retard flood runoff and minimize the effect of sudden floods. Detention dams fall into two main types. In one type, the water is temporarily stored, and released through an outlet structure at a rate which will not exceed the carrying capacity of the channel downstream. Often, the basins are planted with grass and used for open space or recreation in periods of dry weather. The other type, most often called a Retention Pond, allows for water to be held as long as possible and may or may not allow for the controlled release of water. In some cases, the water is allowed to seep into the permeable banks or gravel strata in the foundation. This latter type is sometimes called a Water-Spreading Dam or Dike because its main purpose is to recharge the underground water supply. Detention dams are also constructed to trap sediment. These are often called Debris Dams.

**Developable Acres, Net** The portion of a site that can be used for density calculations. Some com-

munities calculate density based on gross acreage. Public or private road rights-of-way are not included in the net developable acreage of a site.

**Developable Land** Land that is suitable as a location for structures and that can be developed free of hazards to, and without disruption of, or significant impact on, natural resource areas.

**Developer** An individual who or business that prepares raw land for the construction of buildings or causes to be built physical building space for use primarily by others, and in which the preparation of the land or the creation of the building space is in itself a business and is not incidental to another business or activity.

**Development** The physical extension and/or construction of urban land uses. Development activities include: subdivision of land; construction or alteration of structures, roads, utilities, and other facilities; installation of septic systems; grading; deposit of refuse, debris, or fill materials; and clearing of natural vegetative cover (with the exception of agricultural activities). Routine repair and maintenance activities are exempted.

**Development Fee** (See "Impact Fee.")

**Development Rights** The right to develop land by a land owner who maintains fee-simple ownership over the land or by a party other than the owner who has obtained the rights to develop. Such rights usually are expressed in terms of density allowed under existing zoning. For example, one development right may equal one unit of housing or may equal a specific number of square feet of gross floor area in one or more specified zone districts. (See "Interest, Fee" and "Interest, Less-than-fee," and "Development Rights, Transfer of [TDR].")

**Development Rights, Transfer of (TDR)** Also known as "Transfer of Development Credits," a program that can relocate potential development from areas where proposed land use or environmental impacts are considered undesirable (the "donor" site) to another ("receiver") site chosen on the basis of its ability to accommodate additional units of development beyond that for which it was zoned, with minimal environmental, social, and aesthetic impacts. (See "Development Rights.")

**Discourage, v.** To advise or persuade to refrain from.

**Discretionary Decision** As used in CEQA, an action taken by a governmental agency that calls for the exercise of judgment in deciding whether to approve and/or how to carry out a project.

**Dissolution** Elimination of a special district; the opposite of formation.

**Distribution Use** (See "Warehousing Use.")

**District** In the context of community and urban design, an area of a city or county that has a unique character identifiable as different from surrounding areas because of distinctive architecture, streets, geographic features, culture, landmarks, activities, or land uses. Examples include *regional districts* (primarily large, regional-serving areas, such as employment centers and open space areas); *community districts* (large, bounded, contiguous geographic areas with effectively integrated multiple uses, physical design, and vehicle and pedestrian circulation); and *regional employment districts* (large employment centers—either single- or multi-use areas—that serve populations well beyond the city.

**Diversion** The direction of water in a stream away from its natural course (i.e., as in a diversion that removes water from a stream for human use).

**Diversity** Differences among otherwise similar elements that give them unique forms and qualities. E.g., housing diversity can be achieved by differences in unit size, tenure, or cost.

**Duplex** A detached building under single ownership that is designed for occupation as the residence of two families living independently of each other.

**Dwelling Unit** A room or group of rooms (including sleeping, eating, cooking, and sanitation facilities, but not more than one kitchen), which constitutes an independent housekeeping unit, occupied or intended for occupancy by one household on a long-term basis.

**Easement** Usually the right to use property owned by another for specific purposes or to gain access to another property. For example, utility companies often have easements on the private property of individuals to be able to install and maintain utility facilities.

**Easement, Conservation** A tool for acquiring open space with less than full-fee purchase, whereby a public agency buys only certain specific rights from the land owner. These may be positive rights (providing the public with the opportunity to hunt, fish, hike, or ride over the land), or they may be restrictive rights (limiting the uses to which the land owner may devote the land in the future.)

**Easement, Scenic** A tool that allows a public agency to use an owner's land for scenic enhancement, such as roadside landscaping or vista preservation.

**Ecology** The interrelationship of living things to one another and their environment; the study of such interrelationships.

**Economic Base** Economic Base theory essentially holds that the structure of the economy is made up of two broad classes of productive effort—*basic* activities that produce and distribute goods and services for export to firms and individuals outside a defined localized economic area, and *non-basic* activities whose goods and services are consumed at home within the boundaries of the local economic area. Viewed another way, basic activity exports goods and services and brings new dollars into the area; non-basic activity recirculates dollars within the area. This distinction holds that

the reason for the growth of a particular region is its capacity to provide the means of payment for raw materials, food, and services that the region cannot produce itself and also support the non-basic activities that are principally local in productive scope and market area. (See "Industry, Basic" and "Industry, Non-basic.")

**Economic Development Commission (EDC)** An agency charged with seeking economic development projects and economic expansion at higher employment densities.

**Ecosystem** An interacting system formed by a biotic community and its physical environment.

**Ecotone** A transition area between two adjacent ecological communities (or ecosystems). It may manifest itself as a sharp boundary line or as a gradual blending of the two communities.

**Elderly Housing** Typically one- and two-bedroom apartments or condominiums designed to meet the needs of persons 62 years of age and older or, if more than 35 units, persons 55 years of age and older, and restricted to occupancy by them. (See "Senior Housing.")

**Emergency Shelter** Housing with minimal supportive services that is limited to occupancy of six months or less by a homeless person. No individual or household may be denied emergency shelter because of an inability to pay. Supportive services usually include food, counseling, and access to other social programs. (See "Homeless" and "Transitional Housing.")

**Eminent Domain** The right of a public entity to acquire private property for public use by condemnation, and the payment of just compensation.

**Emission Standard** The maximum amount of pollutant legally permitted to be discharged from a single source, either mobile or stationary.

**Employment-intensive** Job-rich office and high technology/light industrial uses with extended opening hours and reasonable rental environments, and which typically do not require customers or clients to visit the site. Densities average 300 to 500 sq. ft. per employee. Limited commercial and public uses that offer on-site amenities and services are allowed.

**Encourage, v.** To stimulate or foster a particular condition through direct or indirect action by the private sector or government agencies.

**Endangered Species** A species of animal or plant is considered to be endangered when its prospects for survival and reproduction are in immediate jeopardy from one or more causes.

**Energy Benefit, Net** The difference between the energy produced and the energy required for production, including the indirect energy consumed in the manufacture and delivery of components.

**Enhance, v.** To improve existing conditions by increasing the quantity or quality of beneficial uses or features.

**Environment** CEQA defines environment as "the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, mineral, flora, fauna, noise, and objects of historic or aesthetic significance."

**Environmental Impact Report (EIR)** A report required by the California Environmental Quality Act for a project, including a general plan, that may have a significant effect on the environment. The report assesses all the environmental characteristics of an area and determines what effects or impacts will result if the area is altered or disturbed by a proposed action. (See "California Environmental Quality Act.")

**Environmental Impact Statement (EIS)** Under the National Environmental Policy Act, a statement on the effect of development proposals and other major actions that significantly affect the environment.

**Erosion** (1) The loosening and transportation of rock and soil debris by wind, rain, or running water. (2) The gradual wearing away of the upper layers of earth.

**Exaction** A contribution or payment required as an authorized precondition for receiving a development permit; usually refers to mandatory dedication (or fee in lieu of dedication) requirements found in many subdivision regulations.

**Expansive Soils** Soils that swell when they absorb water and shrink as they dry.

**Export-employment Use** An activity that produces and/or distributes goods and services for export to firms and individuals outside of the city (or county). (See Economic Base.)

**Expressway** A divided multi-lane major arterial street for through traffic with partial control of access and with grade separations at major intersections.

**Extremely Low Income Household** A household with an annual income no greater than approximately 30 percent of the area median family income, based on the latest available eligibility limits established by the U.S. Department of Housing and Urban Development (HUD) or the California Department of Housing and Community Development (HCD). A local agency may either use available census data to calculate the percentage of very-low income households that qualify as extremely low income, or may presume that 50 percent so qualify. California Govt. Code §655583(a)(1).

**Fair Market Rent** The rent, including utility allowances, determined by the United States Department of Housing and Urban Development for purposes of administering the Section 8 Existing Housing Program.

**Family** (1) Two or more persons related by birth, marriage, or adoption [U.S. Bureau of the Census]. (2) An individual or a group of persons

living together who constitute a bona fide single-family housekeeping unit in a dwelling unit, not including a fraternity, sorority, club, or other group of persons occupying a hotel, lodging house or institution of any kind [California].

**Farmers Home Administration (FmHA)** A federal agency providing loans and grants for improvement projects and low-income housing in rural areas.

**Farmland** Refers to eight classifications of land mapped by the U.S. Department of Agriculture Soil Conservation Service. The five agricultural classifications defined below — except Grazing Land — do not include publicly owned lands for which there is an adopted policy preventing agricultural use.

**Prime Farmland** Land which has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime Farmland must have been used for the production of irrigated crops within the last three years.

**Farmland of Statewide Importance** Land other than Prime Farmland which has a good combination of physical and chemical characteristics for the production of crops. It must have been used for the production of irrigated crops within the last three years.

**Unique Farmland** Land which does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, that is currently used for the production of specific high economic value crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. Examples of such crops may include oranges, olives, avocados, rice, grapes, and cut flowers.

**Farmland of Local Importance** Land other than Prime Farmland, Farmland of Statewide Importance, or Unique Farmland that is either currently producing crops, or that has the capability of production. This land may be important to the local economy due to its productivity.

**Grazing Land** Land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock. This classification does not include land previously designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance, and heavily brushed, timbered, excessively steep, or rocky lands which restrict the access and movement of livestock.

**Fast-food Restaurant** Any retail establishment intended primarily to provide short-order food services for on-site dining and/or take-out, including self-serve restaurants (excluding cafeterias where food is consumed on the premises), drive-in restaurants, and formula restaurants required by contract or other arrangement to offer standardized menus, ingredients, and fast-food preparation.

**Fault** A fracture in the earth's crust forming a boundary between rock masses that have shifted.

**Feasible** Capable of being done, executed, or managed successfully from the standpoint of the physical and/or financial abilities of the implementer(s).

**Feasible, Technically** Capable of being implemented because the industrial, mechanical, or application technology exists.

**Field Act** Legislation, passed after a 1933 Long Beach earthquake that collapsed a school, that established more stringent structural requirements and standards for construction of schools than for other buildings.

**Finding(s)** The basis upon which decisions are made. Findings are used by government agents and bodies to justify action taken by the entity and must be supported by substantial evidence.

**Fire Hazard Zone** An area where, due to slope, fuel, weather, or other fire-related conditions, the potential loss of life and property from a fire necessitates special fire protection measures and planning before development occurs.

**Fire-resistive** Able to withstand specified temperatures for a certain period of time, such as a one-hour fire wall; not fireproof.

**Fiscal Impact Analysis** A projection of the direct public costs and revenues resulting from population or employment change to the local jurisdiction(s) in which the change is taking place. Enables local governments to evaluate relative fiscal merits of general plans, specific plans, or projects.

**Fiscal Impact Report (FIR)** A report projecting the public costs and revenues that will result from a proposed program or development. (See "Fiscal Impact Analysis.")

**Flood, 100-Year** The magnitude of a flood expected to occur on the average every 100 years, based on historical data. The 100-year flood has a 1/100, or one percent, chance of occurring in any given year.

**Flood Insurance Rate Map (FIRM)** For each community, the official map on which the Federal Insurance Administration has delineated areas of special flood hazard and the risk premium zones applicable to that community.

**FloodPlain** The relatively level land area on either side of the banks of a stream regularly subject to flooding. That part of the floodplain subject to a

one percent chance of flooding in any given year is designated as an "area of special flood hazard" by the Federal Insurance Administration.

**FloodPlain Fringe** All land between the floodway and the upper elevation of the 100-year flood.

**Floodway** The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the "base flood" without cumulatively increasing the water surface elevation more than one foot. No development is allowed in floodways.

**Floor Area Ratio (FAR)** The gross floor area permitted on a site divided by the total net area of the site, expressed in decimals to one or two places. For example, on a site with 10,000 net sq. ft. of land area, a Floor Area Ratio of 1.0 will allow a maximum of 10,000 gross sq. ft. of building floor area to be built. On the same site, an FAR of 1.5 would allow 15,000 sq. ft. of floor area; an FAR of 2.0 would allow 20,000 sq. ft.; and an FAR of 0.5 would allow only 5,000 sq. ft. Also commonly used in zoning, FARs typically are applied on a parcel-by-parcel basis as opposed to an average FAR for an entire land use or zoning district.

**Footprint; Building Footprint** The outline of a building at all of those points where it meets the ground.

**Freeway** A high-speed, high-capacity, limited-access transportation facility serving regional and county-wide travel. Such roads are free of tolls, as contrasted with "turnpikes" or other "toll roads" that are now being introduced into Southern California. Freeways generally are used for long trips between major land use generators. At Level of Service "E," they carry approximately 1,875 vehicles per lane per hour, in both directions. Major streets cross at a different grade level.

**Friction Factor** Constraint applied in a traffic model to introduce an approximation of conditions that exist on streets in a city or county. These conditions reduce the speed of traffic and the desirability of specific links in the network upon which the traffic model distributes trips. Examples are frequency of low-speed curves, frequency of driveways, narrowness of lanes, and lack of turning lanes at intersections.

**Frontage** (1) The front part of a piece of property. (2) The land between a building and the street. (3) Land adjacent to something, such as a building, street, or body of water.

**Gateway** A point along a roadway entering a city or county at which a motorist gains a sense of having left the environs and of having entered the city or county.

**General Plan** A compendium of city or county policies regarding its long-term development, in the form of maps and accompanying text. The General Plan is a legal document required of each local agency by the State of California Government Code Section 65301 and adopted by the City Council or Board of Supervisors. In California, the General Plan has 7 mandatory elements (Circulation, Conservation, Housing, Land Use, Noise, Open Space, Safety and Seismic Safety) and may include any number of optional elements (such as Air Quality, Economic Development, Hazardous Waste, and Parks and Recreation). The General Plan may also be called a "City Plan," "Comprehensive Plan," or "Master Plan."

**Geologic Review** The analysis of geologic hazards, including all potential seismic hazards, surface ruptures, liquefaction, landsliding, mudsliding, and the potential for erosion and sedimentation.

**Geological** Pertaining to rock or solid matter.

**Goal** A general, overall, and ultimate purpose, aim, or end toward which the City or County will direct effort.

**Granny Flat** (See "Second Unit.")

**Grasslands** Land reserved for pasturing or mowing, in which grasses are the predominant vegetation.

**Greenhouse Effect** A term used to describe the warming of the Earth's atmosphere due to accumulated carbon dioxide and other gases in the upper atmosphere. These gases absorb energy radiated from the Earth's surface, "trapping" it in the same manner as glass in a greenhouse traps heat.

**Groundwater** Water under the earth's surface, often confined to aquifers capable of supplying wells and springs.

**Groundwater Recharge** The natural process of infiltration and percolation of rainwater from land areas or streams through permeable soils into water-holding rocks that provide underground storage ("aquifers").

**Group Quarters** A residential living arrangement, other than the usual house, apartment, or mobile home, in which two or more unrelated persons share living quarters and cooking facilities. Institutional group quarters include nursing homes, orphanages, and prisons. Non-institutional group quarters include dormitories, shelters, and large boardinghouses.

**Growth Management** The use by a community of a wide range of techniques in combination to determine the amount, type, and rate of development desired by the community and to channel that growth into designated areas. Growth management policies can be implemented through growth rates, zoning, capital improvement programs, public facilities ordinances, urban limit lines, standards for levels of service, and other programs. (See "Congestion Management Plan.")

**Guidelines** General statements of policy direction around which specific details may be later established.

**Guideway** A roadway system that supports and guides the vehicles using it (e.g., the "monorail)." The railroad is the most familiar and most used guideway. Many guideway systems use wayside electrical power for propulsion.

**Habitat** The physical location or type of environment in which an organism or biological population lives or occurs.

**Handicapped** A person determined to have a physical impairment or mental disorder expected to be of long or indefinite duration. Many such impairments or disorders are of such a nature that a person's ability to live independently can be improved by appropriate housing conditions.

**Hazardous Material** Any substance that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. The term includes, but is not limited to, hazardous substances and hazardous wastes.

**High-occupancy Structure** All pre-1935 buildings with over 25 occupants, and all pre-1976 buildings with more than 100 occupants.

**High-occupancy Vehicle (HOV)** Any vehicle other than a driver-only automobile (e.g., a vanpool, a bus, or two or more persons to a car).

**Highway** High-speed, high-capacity, limited-access transportation facility serving regional and county-wide travel. Highways may cross at a different grade level.

**Hillsides** Land that has an average percent of slope equal to or exceeding fifteen percent.

**Historic; Historical** An historic building or site is one that is noteworthy for its significance in local, state, or national history or culture, its architecture or design, or its works of art, memorabilia, or artifacts.

**Historic Preservation** The preservation of historically significant structures and neighborhoods until such time as, and in order to facilitate, restoration and rehabilitation of the building(s) to a former condition.

**Home Occupation** A commercial activity conducted solely by the occupants of a particular dwelling unit in a manner incidental to residential occupancy.

**Homeless** Persons [and families] who lack a fixed, regular, and adequate nighttime residence or whose primary nighttime residence is a shelter, an institution, or place not designed or ordinarily used as a regular sleeping accommodation for humans. (U.S. Code, Title 42, Chapter 119, Subchapter I, §11302) Includes those who are accommodated with friends or others with the understanding that shelter is being provided as a last resort. (See "Emergency Shelter" and "Transitional Housing.")

**Hotel** A facility in which guest rooms or suites are offered to the general public for lodging with or without meals and for compensation, and where no provision is made for cooking in any individual guest room or suite. (See "Motel.")

**Household** All those persons—related or unrelated—who occupy a single housing unit. (See "Family.")

**Householder** The head of a household.

**Households, Number of** The count of all year-round housing units occupied by one or more persons. The concept of household is important because the formation of new households generates the demand for housing. Each new household formed creates the need for one additional housing unit or requires that one existing housing unit be shared by two households. Thus, household formation can continue to take place even without an increase in population, thereby increasing the demand for housing.

**Housing and Community Development Department of the State of California (HCD)** The State agency that has principal responsibility for assessing, planning for, and assisting communities to meet the needs of low- and moderate-income households.

**Housing Authority, Local (LHA)** Local housing agency established in State law, subject to local activation and operation. Originally intended to manage certain federal subsidies, but vested with broad powers to develop and manage other forms of affordable housing.

**Housing Element** One of the seven State-mandated elements of a local general plan, it assesses the existing and projected housing needs of all economic segments of the community, identifies potential sites adequate to provide the amount and kind of housing needed, and contains adopted goals, policies, and implementation programs for the preservation, improvement, and development of housing. Under State law, Housing Elements must be updated every five years.

**Housing and Urban Development, U.S. Department of (HUD)** A cabinet-level department of the federal government that administers housing and community development programs.

**Housing Unit** The place of permanent or customary abode of a person or family. A housing unit may be a single-family dwelling, a multi-family dwelling, a condominium, a modular home, a mobile home, a cooperative, or any other residential unit considered real property under State law. A housing unit has, at least, cooking facilities, a bathroom, and a place to sleep. It also is a dwelling that cannot be moved without substantial damage or unreasonable cost. (See "Dwelling Unit," "Family," and "Household.")

**Hydrocarbons** A family of compounds containing carbon and hydrogen in various combinations. They are emitted into the atmosphere from manufacturing, storage and handling, or combus-

tion of petroleum products and through natural processes. Certain hydrocarbons interact with nitrogen oxides in the presence of intense sunlight to form photochemical air pollution.

**Identity** A consistent quality that makes a city, place, area, or building unique and gives it a distinguishing character.

**Image** The mental picture or impression of a city or place taken from memory and held in common by members of the community.

**Impact** The effect of any direct man-made actions or indirect repercussions of man-made actions on existing physical, social, or economic conditions.

**Impact Fee** A fee, also called a development fee, levied on the developer of a project by a city, county, or other public agency as compensation for otherwise-unmitigated impacts the project will produce. California Government Code Section 66000 et seq. specifies that development fees shall not exceed the estimated reasonable cost of providing the service for which the fee is charged. To lawfully impose a development fee, the public agency must verify its method of calculation and document proper restrictions on use of the fund.

**Impacted Areas** Census tracts where more than 50 percent of the dwelling units house low- and very low-income households.

**Impervious Surface** Surface through which water cannot penetrate, such as roof, road, sidewalk, and paved parking lot. The amount of impervious surface increases with development and establishes the need for drainage facilities to carry the increased runoff.

**Implementation** Actions, procedures, programs, or techniques that carry out policies.

**Improvement** The addition of one or more structures or utilities on a parcel of land.

**Incineration** The burning of refuse at high temperatures to reduce the volume of waste.

**Incorporation** Creation of a new city.

**Incubator Space** Retail or industrial space that is affordable to and dedicated to the start-up and growth of small businesses. Facility support systems are often provided, including copy machines and other office and electronic equipment.

**Industrial** The manufacture, production, and processing of consumer goods. Industrial is often divided into "heavy industrial" uses, such as construction yards, quarrying, and factories; and "light industrial" uses, such as research and development and less intensive warehousing and manufacturing.

**Industrial, Heavy** Land uses characterized by production, manufacturing, distribution, or fabrication activities, and which have few pedestrians, low parking turnover, and significant truck and trailer traffic.

**Industrial Park; Office Park** A planned assemblage of buildings designed for "Workplace Use." (See "Workplace Use.")

**Industry, Basic** The segment of economic activity that brings dollars to a region from other areas. Traditional examples are manufacturing, mining and agriculture. The products of all of these activities are exported (sold) to other regions. The money thus brought into the local economy is used to purchase locally-provided goods and services as well as items that are not available locally and that must be imported from other regions. Other, less traditional examples of basic industry are tourism, higher education, and retirement activities that also bring new money into a region.

**Infill Development** Development of vacant land (usually individual lots or left-over properties) in areas already largely developed.

**Infrastructure** Public services and facilities, such as sewage-disposal systems, water-supply systems, other utility systems, and roads.

**Infrastructure, Green** The strategically planned and managed network of wilderness, parks, greenways, conservation easements, and working lands with conservation value that supports native species, maintains natural ecological processes, sustains air and water resources, and contributes to the health and quality of communities and individuals. **www.greeninfrastructure.net/definition**

**In Lieu Fee** (See "Dedication, In lieu of.")

**Institutional Use** (1) Publicly or privately owned and operated activities that are institutional in nature, such as hospitals, museums, and schools; (2) churches and other religious organizations; and (3) other nonprofit activities of a welfare, educational, or philanthropic nature that can not be considered a residential, commercial, or industrial activity.

**Interagency** Indicates cooperation between or among two or more discrete agencies in regard to a specific program.

**Interest, Fee** The broadest ownership interest in land, entitling a land owner to exercise the greatest control over use of land, subject only to recorded restrictions such as easements and covenants, government land use regulations, and other limitations.

**Interest, Less-than-fee** The purchase of interest in land rather than outright ownership; includes the purchase of development rights via conservation, open space, or scenic easements. (See "Development Rights," "Easement, Scenic," "Lease," and "Leasehold Interest.")

**Intermittent Stream** A stream that normally flows for at least thirty (30) days after the last major rain of the season and is dry a large part of the year.

**Issues** Important unsettled community matters or problems that are identified in a community's general plan and dealt with by the plan's goals, objectives, policies, plan proposals, and implementation programs.

**Jobs/Housing Balance; Jobs/Housing Ratio** The availability of affordable housing for employees. The jobs/housing ratio divides the number of jobs in an area by the number of employed residents. A ratio of 1.0 indicates a balance. A ratio greater than 1.0 indicates a net in-commute; less than 1.0 indicates a net out-commute.

**Joint Powers Authority (JPA)** A legal arrangement that enables two or more units of government to share authority in order to plan and carry out a specific program or set of programs that serves both units.

**Land Banking** The purchase of land by a local government for use or resale at a later date. "Banked lands" have been used for development of low- and moderate-income housing, expansion of parks, and development of industrial and commercial centers. Federal rail-banking law allows railroads to bank unused rail corridors for future rail use while allowing interim use as trails.

**Landmark** (1) A building, site, object, structure, or significant tree, having historical, architectural, social, or cultural significance and marked for preservation by the local, state, or federal government. (2) A visually prominent or outstanding structure or natural feature that functions as a point of orientation or identification.

**Landscape Lot(s)** Areas including plants, shrubbery, trees, etc., planted in a manner that is pleasing to the eye, producing a picturesque effect.

**Landscaping** Planting—including trees, shrubs, and ground covers—suitably designed, selected, installed, and maintained as to enhance a site or roadway permanently.

**Landslide** A general term for a falling mass of soil or rocks.

**Land Use** The occupation or utilization of land or water area for any human activity or any purpose defined in the General Plan.

**Land Use Classification** A system for classifying and designating the appropriate use of properties.

**Land Use Element** A required element of the General Plan that uses text and maps to designate the future use or reuse of land within a given jurisdiction's planning area. The land use element serves as a guide to the structuring of zoning and subdivision controls, urban renewal and capital improvements programs, and to official decisions regarding the distribution and intensity of development and the location of public facilities and open space. (See "Mandatory Element.")

**Land Use Regulation** A term encompassing the regulation of land in general and often used to mean those regulations incorporated in the General Plan, as distinct from zoning regulations (which are more specific).

**$L_{dn}$** Day-Night Average Sound Level. The A-weighted average sound level for a given area (measured in decibels) during a 24-hour period with a 10 dB weighting applied to night-time sound levels. The Ldn is approximately numerically equal to the CNEL for most environmental settings.

**Lease** A contractual agreement by which an owner of real property (the lessor) gives the right of possession to another (a lessee) for a specified period of time (term) and for a specified consideration (rent).

**Leasehold Interest** (1) The interest that the lessee has in the value of the lease itself in condemnation award determination. (2) The difference between the total remaining rent under the lease and the rent the lessee would currently pay for similar space for the same time period.

**$L_{eq}$** The energy equivalent level, defined as the average sound level on the basis of sound energy (or sound pressure squared). The Leq is a "dosage" type measure and is the basis for the descriptors used in current standards, such as the 24-hour CNEL used by the State of California.

**Level of Service (LOS)** (1) A scale that measures the amount of traffic a roadway may be capable of handling on a roadway or at the intersection of roadways. Levels range from A to F, with A representing the highest level of service, as follows:

**Level of Service A** Indicates a relatively free flow of traffic, with little or no limitation on vehicle movement or speed.

**Level of Service B** Describes a steady flow of traffic, with only slight delays in vehicle movement and speed. All queues clear in a single signal cycle.

**Level of Service C** Denotes a reasonably steady, high-volume flow of traffic, with some limitations on movement and speed, and occasional backups on critical approaches.

**Level of Service D** Denotes the level where traffic nears an unstable flow. Intersections still function, but short queues develop and cars may have to wait through one cycle during short peaks.

**Level of Service E** Describes traffic characterized by slow movement and frequent (although momentary) stoppages. This type of congestion is considered severe, but is not uncommon at peak traffic hours, with frequent stopping, long-standing queues, and blocked intersections.

**Level of Service F** Describes unsatisfactory stop-and-go traffic characterized by "traffic jams" and stoppages of long duration. Vehicles at signalized intersections usually have to wait through one or more signal changes, and "upstream" intersections may be blocked by the long queues.

(2) Some communities have developed standards for levels of service relating to municipal functions such as police, fire, and library service. These standards are incorporated in the General Plan or in separate "Level of Service Plans."

**Life-cycle Costing** A method of evaluating a capital investment that takes into account the sum total of all costs associated with the investment over the lifetime of the project.

**Light (duty) Rail Transit (LRT)** "Street cars" or "trolley cars" that typically operate entirely or substantially in mixed traffic and in non-exclusive, at-grade rights-of-way. Passengers typically board vehicles from the street level (as opposed to a platform that is level with the train) and the driver may collect fares. Vehicles are each electrically self-propelled and usually operate in one or two-car trains.

**Linkage** With respect to jobs/housing balance, a program designed to offset the impact of employment on housing need within a community, whereby project approval is conditioned on the provision of housing units or the payment of an equivalent in-lieu fee. The linkage program must establish the cause-and-effect relationship between a new commercial or industrial development and the increased demand for housing.

**Liquefaction** The transformation of loose water-saturated granular materials (such as sand or silt) from a solid into a liquid state. A type of ground failure that can occur during an earthquake.

**Livable Streets** Streets that encourage walking by emphasizing pedestrian character and design features that reduce the negative impacts of vehicles on pedestrians. People can walk and cycle rather than drive to meet their daily needs.

**Local Agency Formation Commission (LAFCo)** A five- or seven-member commission within each county that reviews and evaluates all proposals for formation of special districts, incorporation of cities, annexation to special districts or cities, consolidation of districts, and merger of districts with cities. Each county's LAFCo is empowered to approve, disapprove, or conditionally approve such proposals. The five LAFCo members generally include two county supervisors, two city council members, and one member representing the general public. Some LAFCos include two representatives of special districts.

**Lot** (See "Site.")

**Lot of Record** A lot that is part of a recorded subdivision or a parcel of land that has been recorded at the county recorder's office containing property tax records.

**Low-income Household** A household with an annual income no greater than approximately 80 percent of the area median income for a household of that size and based on the latest available eligibility limits established by either the U.S. Department of Housing and Urban Development (HUD) for the Section 8 Housing Program or the California Department of Housing and Community Development (HCD). (See "Area.")

**Low-Income Housing Tax Credits (LIHTC)** Tax reductions provided by the federal and State governments for investors in housing for low-income households.

**$L_{10}$** A statistical descriptor indicating peak noise levels–the sound level exceeded ten percent of the time. It is a commonly used descriptor of community noise, and has been used in Federal Highway Administration standards and the standards of some cities and counties.

**Maintain, v.** To keep in an existing state. (See "Preserve, v.")

**Mandatory Element** A component of the General Plan mandated by State Law. California State law requires that a General Plan include elements dealing with seven subjects—circulation, conservation, housing, land use, noise, open space and safety-and specifies to various degrees the information to be incorporated in each element. (See "Land Use Element.")

**Manufactured Housing** Residential structures that are constructed entirely in the factory, and that since June 15, 1976, have been regulated by the federal Manufactured Home Construction and Safety Standards Act of 1974 under the administration of the U.S. Department of Housing and Urban Development (HUD). (See "Mobile Home" and "Modular Unit.")

**Manufacturing** (1) Bringing something into being by forming, shaping, combining, or altering materials. (2) The mechanical or chemical transformation of materials or substances into new products, including the assembling of component parts, the creation of products, and the blending of materials including but not limited to oils, plastics, and resins.

**Marsh** Any area designated as marsh or swamp on the largest scale United States Geologic Survey topographic map most recently published. A marsh usually is an area periodically or permanently covered with shallow water, either fresh or saline.

**May** That which is permissible.

**Mean Sea Level** The average altitude of the sea surface for all tidal stages.

**Median Strip** The dividing area, either paved or landscaped, between opposing lanes of traffic on a roadway.

**Mello-Roos Bonds** Locally issued bonds that are repaid by a special tax imposed on property owners within a "community facilities" district established by a governmental entity. The bond proceeds can be used for public improvements and for a limited number of services. Named after the program's legislative authors.

**Mercalli Intensity Scale** A subjective measure of the observed effects (human reactions, structural damage, geologic effects) of an earthquake. Expressed in Roman numerals from I to XII.

**Merger (District)** Elimination of a special district by transferring its service responsibilities to a city government. The merging district's territory must be totally included inside the city.

**Metropolitan** Of, relating to, or characteristic of a large important city.

**Microclimate** The climate of a small, distinct area, such as a city street or a building's courtyard; can be favorably altered through functional landscaping, architecture, or other design features.

**Mineral Resource** Land on which known deposits of commercially viable mineral or aggregate deposits exist. This designation is applied to sites determined by the State Division of Mines and Geology as being a resource of regional significance, and is intended to help maintain the quarrying operations and protect them from encroachment of incompatible land uses.

**Minimize, v.** To reduce or lessen, but not necessarily to eliminate.

**Mining** The act or process of extracting resources, such as coal, oil, or minerals, from the earth.

**Minipark** Small neighborhood park of approximately one acre or less.

**Ministerial (Administrative) Decision** An action taken by a governmental agency that follows established procedures and rules and does not call for the exercise of judgment in deciding whether to approve a project.

**Mitigate, v.** To ameliorate, alleviate, or avoid to the extent reasonably feasible.

**Mixed Use** Properties on which various uses, such as office, commercial, institutional, and residential, are combined in a single building or on a single site in an integrated development project with significant functional interrelationships and a coherent physical design. A "single site" may include contiguous properties.

**Mobile Home** A structure, transportable in one or more sections, built on a permanent chassis and designed for use as a single-family dwelling unit and that (1) has a minimum of 400 square feet of living space; (2) has a minimum width in excess of 102 inches; (3) is connected to all available permanent utilities; and (4) is tied down (a) to a permanent foundation on a lot either owned or leased by the homeowner or (b) is set on piers, with wheels removed and skirted, in a mobile home park. (See "Manufactured Housing" and "Modular Unit.")

**Moderate-income Household** A household with an annual income between the lower income eligibility limits and 120 percent of the area median family income, as established by either the U.S. Department of Housing and Urban Development (HUD) or the California Department of Housing and Community Development (HCD). (See "Area" and "Low-income Household.")

**Modular Unit** A factory-fabricated, transportable building or major component designed for use by itself or for incorporation with similar units onsite into a structure for residential, commercial, educational, or industrial use. Differs from mobile homes and manufactured housing by (in addition to lacking an integral chassis or permanent hitch to allow future movement) being subject to California housing law design standards. California standards are more restrictive than federal standards in some respects. Also called Factory-built Housing and regulated by State law of that title. (See "Mobile Home" and "Manufactured Housing.")

**Motel** (1) A hotel for motorists. (2) A facility in which guest rooms or suites are offered to the general public for lodging with or without meals and for compensation, and where guest parking is provided in proximity to guest rooms. Quite often, provision is made for cooking in individual guest rooms or suites. (See "Hotel.")

**Multiple Family Building** A detached building designed and used exclusively as a dwelling by three or more families occupying separate suites.

**Multiplier Effect** The recirculation of money through the economy multiplies its impact on jobs and income. For example, money paid as salaries to industrial and office workers is spent on housing, food, clothes and other locally-available goods and services. This spending creates jobs in housing construction, retail stores (e.g., grocery and drug stores) and professional offices. The wage paid to workers in those industries is again re-spent, creating still more jobs. Overall, one job in basic industry is estimated to create approximately one more job in non-basic industry.

**Must** That which is mandatory.

**National Ambient Air Quality Standards** The prescribed level of pollutants in the outside air that cannot be exceeded legally during a specified time in a specified geographical area.

**National Environmental Policy Act (NEPA)** An act passed in 1974 establishing federal legislation for national environmental policy, a council on environmental quality, and the requirements for environmental impact statements.

**National Flood Insurance Program** A federal program that authorizes the sale of federally subsidized flood insurance in communities where such flood insurance is not available privately.

**National Historic Preservation Act** A 1966 federal law that established a National Register of Historic Places and the Advisory Council on Historic Preservation, and that authorized grants-in-aid for preserving historic properties.

**National Register of Historic Places** The official list, established by the National Historic Preservation Act, of sites, districts, buildings, structures, and objects significant in the nation's history or whose artistic or architectural value is unique.

**Natural State** The condition existing prior to development.

**Necessary** Essential or required.

**Need** A condition requiring supply or relief. The City or County may act upon findings of need within or on behalf of the community.

**Neighborhood** A primarily residential area, generally bounded by arterial streets, and focused around a park, school, or other activity node that gives the neighborhood its identity. The distance from the node to the perimeter should be a comfortable walking distance for a school-age child. Limited commercial can occur on the perimeter where arterials intersect.

**Neighborhood Livability** Livable neighborhoods feature quiet, tree-lined streets. Transit is nearby, and changing life-cycle needs are accommodated.

**Neighborhood Park** City- or County-owned land intended to serve the recreation needs of people living or working within one-half mile radius of the park.

**Neighborhood Unit** According to one widely-accepted concept of planning, the neighborhood unit should be the basic building block of the city. It is based on the elementary school, with other community facilities located at its center and arterial streets at its perimeter. The distance from the school to the perimeter should be a comfortable walking distance for a school-age child; there would be no through traffic uses. Limited industrial or commercial would occur on the perimeter where arterials intersect. This was the model for American suburban development after World War II.

**Nitrogen Oxide(s)** A reddish brown gas that is a byproduct of combustion and ozone formation processes. Often referred to as NOX, this gas gives smog its "dirty air" appearance.

**Noise** Any sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. Noise, simply, is "unwanted sound."

**Noise Attenuation** Reduction of the level of a noise source using a substance, material, or surface, such as earth berms and/or solid concrete walls.

**Noise Contour** A line connecting points of equal noise level as measured on the same scale. Noise levels greater than the 60 Ldn contour (measured in dBA) require noise attenuation in residential development.

**Noise Element** One of the seven State-mandated elements of a local general plan, it assesses noise levels of highways and freeways, local arterials, railroads, airports, local industrial plants, and other ground stationary sources, and adopts goals, policies, and implementation programs to reduce the community's exposure to noise.

**Non-attainment** The condition of not achieving a desired or required level of performance. Frequently used in reference to air quality.

**Non-conforming Use** A use that was valid when brought into existence, but by subsequent regulation becomes no longer conforming. "Non-conforming use" is a generic term and includes (1) non-conforming structures (by virtue of size, type of construction, location on land, or proximity to other structures), (2) non-conforming use of a conforming building, (3) non-conforming use of a non-conforming building, and (4) non-conforming use of land. Thus, any use lawfully existing on any piece of property that is inconsistent with a new or amended General Plan, and that in turn is a violation of a zoning ordinance amendment subsequently adopted in conformance with the General Plan, will be a non- conforming use. Typically, non-conforming uses are permitted to continue for a designated period of time, subject to certain restrictions.

**Notice (of Hearing)** A legal document announcing the opportunity for the public to present their views to an official representative or board of a public agency concerning an official action pending before the agency.

**Objective** A specific statement of desired future condition toward which the City or County will expend effort in the context of striving to achieve a broader goal. An objective should be achievable and, where possible, should be measurable and time-specific. The State Government Code (Section 65302) requires that general plans spell out the "objectives," principles, standards, and proposals of the general plan. "The addition of 100 units of affordable housing by 1995" is an example of an objective.

**Office Park** (See "Industrial Park.")

**Office Use** The use of land by general business offices, medical and professional offices, administrative or headquarters offices for large wholesaling or manufacturing operations, and research and development.

**Official County Scenic Highway** A segment of state highway identified in the Master Plan of State Highways Eligible for Official Scenic Highway Designation and designated by the Director of the Department of Transportation (Caltrans).

**Open Space Element** One of the seven State-mandated elements of a local general plan, it contains an inventory of privately and publicly owned open-space lands, and adopted goals, policies, and implementation programs for the preservation, protection, and management of open space lands.

**Open Space Land** Any parcel or area of land or water that is essentially unimproved and devoted to an open space use for the purposes of (1) the preservation of natural resources, (2) the managed production of resources, (3) outdoor recreation, or (4) public health and safety.

**Orchard** A group of fruit or nut trees, either small and diverse and grown for home use, or large and uniform (i.e., of one variety) and cultivated for revenue. Such a collection must be planted, managed and renewed by the householder or farmer and should not be confused with a naturally occurring grove. Citrus and nut plantations are customarily called groves.

**Ordinance** A law or regulation set forth and adopted by a governmental authority, usually a city or county.

**Outdoor Advertising Structure** Any device used or intended to direct attention to a business, profession, commodity, service, or entertainment conducted, sold, or offered elsewhere than upon the lot where such device is located.

**Outdoor Recreation Use** A privately or publicly owned or operated use providing facilities for outdoor recreation activities.

**Outer Approach Zone** Airspace in which an air-traffic controller initiates radar monitoring for incoming flights approaching an airport.

**Overlay** A land use designation on the Land Use Map, or a zoning designation on a zoning map, that modifies the basic underlying designation in some specific manner.

**Ozone** A tri-atomic form of oxygen (O3) created naturally in the upper atmosphere by a photochemical reaction with solar ultraviolet radiation. In the lower atmosphere, ozone is a recognized air pollutant that is not emitted directly into the environment, but is formed by complex chemical reactions between oxides of nitrogen and reactive organic compounds in the presence of sunlight, and becomes a major agent in the formation of smog.

**Para-transit** Refers to transportation services and that operate vehicles, such as buses, jitneys, taxis, and vans for senior citizens, and/or mobility-impaired.

**Parcel** A lot, or contiguous group of lots, in single ownership or under single control, usually considered a unit for purposes of development.

**Parking, Shared** A public or private parking area used jointly by two or more uses.

**Parking Area, Public** An open area, excluding a street or other public way, used for the parking of automobiles and available to the public, whether for free or for compensation.

**Parking Management** An evolving TDM technique designed to obtain maximum utilization from a limited number of parking spaces. Can involve pricing and preferential treatment for HOVs, non-peak period users, and short-term users. (See "High Occupancy Vehicle" and "Transportation Demand Management.")

**Parking Ratio** The number of parking spaces provided per 1,000 square of floor area, e.g., 2:1 or "two per thousand."

**Parking Space, Compact** A parking space (usually 7.5 feet wide by 16 feet long when perpendicular to a driveway or aisle) permitted in some localities on the assumption that many modern cars are significantly smaller, and require less room, than a standard automobile. A standard parking space, when perpendicular to a driveway or aisle, is usually 8.5 feet wide by 18 feet long.

**Parks** Open space lands whose primary purpose is recreation. (See "Open Space Land," "Community Park," and "Neighborhood Park.")

**Parkway** An expressway or freeway designed for non-commercial traffic only; usually located within a strip of landscaped park or natural vegetation.

**Parkway Strip** A piece of land located between the rear of a curb and the front of a sidewalk, usually used for planting low ground cover and/or street trees, also known as "planter strip."

**Passive Solar System** A system that distributes collected heat via direct transfer from a thermal mass rather than mechanical power. Passive systems rely on building design and materials to collect and store heat and to create natural ventilation for cooling. (See "Active Solar System.")

**Patio Unit** A detached single family unit, typically situated on a reduced-sized lot, that orients outdoor activity within rear or side yard patio areas for better utilization of the site for outdoor living space.

**Payback Period** The number of years required to accumulate savings or profit equal to the value of a proposed investment.

**Peak Hour/Peak Period** For any given roadway, a daily period during which traffic volume is highest, usually occurring in the morning and evening commute periods. Where "F" Levels of Service are encountered, the "peak hour" may stretch into a "peak period" of several hours' duration.

**Pedestrian Friendly; Pedestrian Scale** (1) A street or area that has sidewalks on both sides of the roadway and has safe street crossings. (2) Streets, districts, and neighborhoods that support the location of stores, offices, residences, schools, recreational areas, and other public facilities within walking distance of each other.

**Performance Standards** Zoning regulations that permit uses based on a particular set of standards of operation rather than on particular type of use. Performance standards provide specific criteria limiting noise, air pollution, emissions, odors, vibration, dust, dirt, glare, heat, fire hazards, wastes, traffic impacts, and visual impact of a use.

**Personal Services** Services of a personal convenience nature, as opposed to products that are sold to individual consumers, as contrasted with companies. Personal services include barber and beauty shops, shoe and luggage repair, fortune tellers, photographers, laundry and cleaning ser-

vices and pick-up stations, copying, repair and fitting of clothes, and similar services.

**Physical Diversity** A quality of a site, city, or region in which are found a variety of architectural styles, natural landscapes, and/or land uses.

**Picnic Area, Group** Two or more picnic tables reserved for use by 10 or more persons equipped with picnic tables, barbecue stands, and may be provided with a roofed shelter.

**Plan Line** A precise line that establishes future rights-of-way along any portion of an existing or proposed street or highway and that is depicted on a map showing the streets and lot line or lines and the proposed right-of-way lines, and the distance thereof from the established centerline of the street or highway, or from existing or established property lines.

**Planned Community** A large-scale development whose essential features are a definable boundary; a consistent, but not necessarily uniform, character; overall control during the development process by a single development entity; private ownership of recreation amenities; and enforcement of covenants, conditions, and restrictions by a master community association.

**Planned Unit Development (PUD)** A description of a proposed unified development, consisting at a minimum of a map and adopted ordinance setting forth the regulations governing, and the location and phasing of all proposed uses and improvements to be included in the development.

**Planning and Research, Office of (OPR)** A governmental division of the State of California that has among its responsibilities the preparation of a set of guidelines for use by local jurisdictions in drafting General Plans.

**Planning Area** The land area addressed by the General Plan. For a city, the Planning Area boundary typically coincides with the Sphere of Influence that encompasses land both within the City Limits and potentially annexable land.

**Planning Commission** A body, usually having five or seven members, created by a city or county in compliance with California law. Section 65100 of the State Code requires the assignment of the planning functions of the city or county to a planning department, planning commission, hearing officers, and/or the legislative body itself, as deemed appropriate by the legislative body.

**Policy** A specific statement of principle or of guiding actions that implies clear commitment but is not mandatory. A general direction that a governmental agency sets to follow, in order to meet its goals and objectives before undertaking an action program. (See "Program.")

**Pollutant** Any introduced gas, liquid, or solid that makes a resource unfit for its normal or usual purpose.

**Pollution** The presence of matter or energy whose nature, location, or quantity produces undesired environmental effects.

**Pollution, Non-Point** Sources for pollution that are less definable and usually cover broad areas of land, such as agricultural land with fertilizers that are carried from the land by runoff, or automobiles.

**Pollution, Point** In reference to water quality, a discrete source from which pollution is generated before it enters receiving waters, such as a sewer outfall, a smokestack, or an industrial waste pipe.

**Poverty Level** As used by the U.S. Census, families and unrelated individuals are classified as being above or below the poverty level based on a poverty index that provides a range of income cutoffs or "poverty thresholds" varying by size of family, number of children, and age of householder. The income cutoffs are updated each year to reflect the change in the Consumer Price Index.

**Preserve, n.** An area in which beneficial uses in their present condition are protected; for example, a nature preserve or an agricultural preserve. (See "Agricultural Preserve" and Protect.")

**Preserve, v.** To keep safe from destruction or decay; to maintain or keep intact. (See "Maintain.")

**Principle** An assumption, fundamental rule, or doctrine that will guide general plan policies, proposals, standards, and implementation measures. The State Government Code (Section 65302) requires that general plans spell out the objectives, "principles," standards, and proposals of the general plan. "Adjacent land uses should be compatible with one another" is an example of a principle.

**Professional Offices** A use providing professional or consulting services in the fields of law, medicine, architecture, design, engineering, accounting, and similar professions, but not including financial institutions or real estate or insurance offices.

**Program** An action, activity, or strategy carried out in response to adopted policy to achieve a specific goal or objective. Policies and programs establish the "who," "how" and "when" for carrying out the "what" and "where" of goals and objectives.

**Pro Rata** The proportionate distribution of the cost of something to something else or to some group, e.g., the cost of infrastructure improvements for new development apportioned to infrastructure users based on projected use.

**Protect, v.** To maintain and preserve beneficial uses in their present condition as nearly as possible. (See "Enhance.")

**PRT** Personal rapid transit. In general, PRT systems carry one to six people in small, electric-powered pods on guideways which sometimes are elevated on support structures.

**Public and Quasi-public Facilities** Institutional, academic, governmental and community service uses, either publicly owned or operated by non-profit organizations.

**Public Art** Any visual work of art, accessible to public view, on public or private property within the city including residential, business, or industrial buildings, apartment and condominium complexes, parks, multiple-use structures, and similar facilities. The work of art may include but need not be limited to sculptures, murals, monuments, frescoes, fountains, paintings, stained glass, or ceramics.

**Public Space** A space at ground level wholly or partly enclosed by a building or buildings, continuously accessible to the public, and with openings to the sky.

**Rare or Endangered Species** A species of animal or plant listed in Sections 670.2 or 670.5, Title 14, California Administrative Code; or Title 50, Code of Federal Regulations, Section 17.11 or Section 17.2, pursuant to the Federal Endangered Species Act designating species as rare, threatened, or endangered.

**Reclamation** The reuse of resources, usually those present in solid wastes or sewage.

**Recognize, v.** To officially (or by official action) identify or perceive a given situation.

**Recreation, Active** A type of recreation or activity that requires the use of organized play areas including, but not limited to, softball, baseball, football and soccer fields, tennis and basketball courts and various forms of children's play equipment.

**Recreation, Passive** Type of recreation or activity that does not require the use of organized play areas.

**Recycle, v.** The process of extraction and reuse of materials from waste products.

**Redevelop, v.** To demolish existing buildings; or to increase the overall floor area existing on a property; or both; irrespective of whether a change occurs in land use.

**Regional** Pertaining to activities or economies at a scale greater than that of a single jurisdiction, and affecting a broad geographic area.

**Regional Housing Needs Plan** A quantification by a COG or by HCD of existing and projected housing need, by household income group, for all localities within a region.

**Regional Park** A park typically 150-500 acres in size focusing on activities and natural features not included in most other types of parks and often based on a specific scenic or recreational opportunity.

**Regulation** A rule or order prescribed for managing government.

**Rehabilitation** The repair, preservation, and/or improvement of substandard housing.

**Research and Development Use** A use engaged in study, testing, design, analysis, and experimental development of products, processes, or services.

**Residential** Land designated in the City or County General Plan and zoning ordinance for buildings consisting only of dwelling units. May be improved, vacant, or unimproved. (See "Dwelling Unit.")

**Residential Care Facility** A home serving six or fewer persons or family units who have chronic, life-threatening illness and who are 18 years of age or older or are emancipated minors. A "family unit" means at least one parent or guardian and one or more of that parent or guardian's children, one of whom has a chronic, life-threatening illness. "Six or fewer persons" does not include the licensee or members of the licensee's family or persons employed as facility staff. (Health and Safety Code, §1568.01) Residential care facilities which serve six or fewer persons are considered a residential use of property. (Health and Safety Code, §1568.0831)

**Residential, Multiple Family** Usually three or more dwelling units on a single site, which may be in the same or separate buildings.

**Residential, Single-family** A single dwelling unit on a building site.

**Resources, Non-renewable** Refers to natural resources, such as fossil fuels and natural gas, which, once used, cannot be replaced and used again.

**Restore, v.** To renew, rebuild, or reconstruct to a former state.

**Restrict, v.** To check, bound, or decrease the range, scope, or incidence of a particular condition.

**Retention Basin/Retention Pond** (See "Detention Basin/Detention Pond.")

**Retrofit, v.** To add materials and/or devices to an existing building or system to improve its operation, safety, or efficiency. Buildings have been retrofitted to use solar energy and to strengthen their ability to withstand earthquakes, for example.

**Reverse Annuity Mortgages** A home financing mechanism that enables a homeowner who is a senior citizen to release equity from his or her home. The senior receives periodic payments that can be put to immediate use. Loans are fixed term and are paid when the house is sold or when the term expires.

**Rezoning** An amendment to the map and/or text of a zoning ordinance to effect a change in the nature, density, or intensity of uses allowed in a zoning district and/or on a designated parcel or land area.

**Richter Scale** A measure of the size or energy release of an earthquake at its source. The scale is logarithmic; the wave amplitude of each number

on the scale is 10 times greater than that of the previous whole number.

**Ridership** The number of passengers who ride a public transport system.

**Rideshare** A travel mode other than driving alone, such as buses, rail transit, carpools, and vanpools.

**Ridgeline** A line connecting the highest points along a ridge and separating drainage basins or small-scale drainage systems from one another.

**Right-of-way** A strip of land occupied or intended to be occupied by certain transportation and public use facilities, such as roadways, railroads, and utility lines.

**Riparian Lands** Riparian lands are comprised of the vegetative and wildlife areas adjacent to perennial and intermittent streams. Riparian areas are delineated by the existence of plant species normally found near freshwater.

**Risk** The danger or degree of hazard or potential loss.

**Runoff** That portion of rain or snow that does not percolate into the ground and is discharged into streams instead.

**Safety Element** One of the seven State-mandated elements of a local general plan, it contains adopted goals, policies, and implementation programs for the protection of the community from any unreasonable risks associated with seismic and geologic hazards, flooding, and wildland and urban fires. Many safety elements also incorporate a review of police needs, objectives, facilities, and services.

**Sanitary Landfill** The controlled placement of refuse within a limited area, followed by compaction and covering with a suitable thickness of earth and other containment material.

**Sanitary Sewer** A system of subterranean conduits that carries refuse liquids or waste matter to a plant where the sewage is treated, as contrasted with storm drainage systems (that carry surface water) and septic tanks or leech fields (that hold refuse liquids and waste matter on-site). (See "Combined Sewer" and "Septic System.")

**Scenic Highway Corridor** The area outside a highway right-of-way that is generally visible to persons traveling on the highway.

**Scenic Highway/Scenic Route** A highway, road, drive, or street that, in addition to its transportation function, provides opportunities for the enjoyment of natural and man- made scenic resources and access or direct views to areas or scenes of exceptional beauty or historic or cultural interest. The aesthetic values of scenic routes often are protected and enhanced by regulations governing the development of property or the placement of outdoor advertising. Until the mid-1980s, general plans in California were required to include a Scenic Highways element.

**School District Lands** Properties owned by public school districts and used for educational, recreational, and administrative purposes.

**Second Mortgage Program** The lending by a public or private agency of a portion of a required down payment to a developer or first-time homebuyer, usually with restrictions requiring that the units assisted through the program remain affordable to very low- and low-income households.

**Second Unit** A self-contained unit providing living, sleeping, eating, cooking, and sanitation accommodations, either attached to or detached from, and in addition to, the primary residential unit on a single lot. Sometimes called "Granny Flat." (See "Dwelling Unit"; also see Government Code §65852.2(i)(4).)

**Section 8 Rental Assistance Program** A federal (HUD) rent-subsidy program that is one of the main sources of federal housing assistance for low-income households. The program operates by providing "housing assistance payments" to owners, developers, and public housing agencies to make up the difference between the "Fair Market Rent" of a unit (set by HUD) and the household's contribution toward the rent, which is calculated at 30 percent of the household's adjusted gross monthly income (GMI). "Section 8" includes programs for new construction, existing housing, and substantial or moderate housing rehabilitation.

**Seiche** An earthquake-generated wave in an enclosed body of water such as a lake, reservoir, or bay.

**Seismic** Caused by or subject to earthquakes or earth vibrations.

**Senior Housing** (See "Elderly Housing.")

**Seniors** Persons age 62 and older, or 55 years and older in senior housing with at least 35 dwelling units.

**Septic System** A sewage-treatment system that includes a settling tank through which liquid sewage flows and in which solid sewage settles and is decomposed by bacteria in the absence of oxygen. Septic systems are often used for individual-home waste disposal where an urban sewer system is not available. (See "Sanitary Sewer.")

**Setback** The horizontal distance between the property line and any structure.

**Settlement** (1) The drop in elevation of a ground surface caused by settling or compacting. (2) The gradual downward movement of an engineered structure due to compaction. Differential settlement is uneven settlement, where one part of a structure settles more or at a different rate than another part.

**Shall** That which is obligatory or necessary.

**Shared Living** The occupancy of a dwelling unit by persons of more than one family in order to reduce housing expenses and provide social contact, mutual support, and assistance. Shared living facilities serving six or fewer persons are permit-

ted in all residential districts by Section 1566.3 of the California Health and Safety Code.

**Shoppers Goods** Another name for comparison goods.

**Shopping Center** A group of commercial establishments, planned, developed, owned, or managed as a unit, with common off-street parking provided on the site.

**Should** Signifies a directive to be honored if at all possible.

**Sign** Any representation (written or pictorial) used to convey information, or to identify, announce, or otherwise direct attention to a business, profession, commodity, service, or entertainment, and placed on, suspended from, or in any way attached to, any structure, vehicle, or feature of the natural or manmade landscape.

**Signal Preemption** A system used by emergency vehicles, public transit vehicles and/or trains to change signal phasing from red to green assigning immediate right-of-way for a specific purpose.

**Significant Effect** An adverse impact on the environment. May include, but is not limited to, significant changes in an area's air, water, and land resources.

**Siltation** (1) The accumulating deposition of eroded material. (2) The gradual filling in of streams and other bodies of water with sand, silt, and clay.

**Single-family Dwelling, Attached** A dwelling unit occupied or intended for occupancy by only one household that is structurally connected with at least one other such dwelling unit. (See "Townhouse.")

**Single-family Dwelling, Detached** A dwelling unit occupied or intended for occupancy by only one household that is structurally independent from any other such dwelling unit or structure intended for residential or other use. (See "Family.")

**Single Room Occupancy (SRO)** A single room, typically 80-250 square feet, with a sink and closet, but that may require the occupant to share a communal bathroom, shower, and kitchen.

**Site** A parcel of land used or intended for one use or a group of uses and having frontage on a public or an approved private street. A lot. (See "Lot.")

**Slope** Land gradient described as the vertical rise divided by the horizontal run, and expressed in percent.

**Soil** The unconsolidated material on the immediate surface of the earth created by natural forces that serves as natural medium for growing land plants.

**Solar Access** The provision of direct sunlight to an area specified for solar energy collection when the sun's azimuth is within 45 degrees of true south.

**Solar System, Active** A system using a mechanical device, such as a pump or a fan, and energy in addition to solar energy to transport a conductive medium (air or water) between a solar collector and the interior of a building for the purpose of heating or cooling.

**Solar System, Passive** A system that uses direct heat transfer from thermal mass instead of mechanical power to distribute collected heat. Passive systems rely on building design and materials to collect and store heat and to create natural ventilation for cooling.

**Solid Waste** Any unwanted or discarded material that is not a liquid or gas. Includes organic wastes, paper products, metals, glass, plastics, cloth, brick, rock, soil, leather, rubber, yard wastes, and wood, but does not include sewage and hazardous materials. Organic wastes and paper products comprise about 75 percent of typical urban solid waste.

**Specific Plan** Under Article 8 of the Government Code (Section 65450 et seq), a legal tool for detailed design and implementation of a defined portion of the area covered by a General Plan. A specific plan may include all detailed regulations, conditions, programs, and/or proposed legislation that may be necessary or convenient for the systematic implementation of any General Plan element(s).

**Speed, Average** The sum of the speeds of the cars observed divided by the number of cars observed.

**Speed, Critical** The speed that is not exceeded by 85 percent of the cars observed.

**Sphere of Influence (SOI)** The probable ultimate physical boundaries and service area of a local agency (city or district) as determined by the Local Agency Formation Commission (LAFCo) of the County.

**Standards** (1) A rule or measure establishing a level of quality or quantity that must be complied with or satisfied. The State Government Code (Section 65302) requires that general plans spell out the objectives, principles, "standards," and proposals of the general plan. Examples of standards might include the number of acres of park land per 1,000 population that the community will attempt to acquire and improve, or the "traffic Level of Service" (LOS) that the plan hopes to attain. (2) Requirements in a zoning ordinance that govern building and development as distinguished from use restrictions—for example, site-design regulations such as lot area, height limit, frontage, landscaping, and floor area ratio.

**Stock Cooperative Housing** Multiple-family ownership housing in which the occupant of a unit holds a share of stock in a corporation that owns the structure in which the unit is located.

**Storm Runoff** Surplus surface water generated by rainfall that does not seep into the earth but flows overland to flowing or stagnant bodies of water.

**Street Furniture** Those features associated with a street that are intended to enhance that street's physical character and use by pedestrians, such as

benches, trash receptacles, kiosks, lights, newspaper racks.

**Street Tree Plan** A comprehensive plan for all trees on public streets that sets goals for solar access, and standards for species selection, maintenance, and replacement criteria, and for planting trees in patterns that will define neighborhood character while avoiding monotony or maintenance problems.

**Streets, Local** (See " Streets, Minor.")

**Streets, Major** The transportation network that includes a hierarchy of freeways, arterials, and collectors to service through traffic.

**Streets, Minor** Local streets not shown on the Circulation Plan, Map, or Diagram, whose primary intended purpose is to provide access to fronting properties.

**Streets, Through** Streets that extend continuously between other major streets in the community.

**Structure** Anything constructed or erected that requires location on the ground (excluding swimming pools, fences, and walls used as fences).

**Subdivision** The division of a tract of land into defined lots, either improved or unimproved, which can be separately conveyed by sale or lease, and which can be altered or developed. "Subdivision" includes a condominium project as defined in Section 1350 of the California Civil Code and a community apartment project as defined in Section 11004 of the Business and Professions Code.

**Subdivision Map Act** Division 2 (Sections 66410 et seq) of the California Government code, this act vests in local legislative bodies the regulation and control of the design and improvement of subdivisions, including the requirement for tentative and final maps. (See "Subdivision.")

**Subregional** Pertaining to a portion of a region. The Golden Triangle is a subregional task force.

**Subsidence** The gradual settling or sinking of an area with little or no horizontal motion. (See "Settlement.")

**Subsidize** To assist by payment of a sum of money or by the granting of terms or favors that reduce the need for monetary expenditures. Housing subsidies may take the forms of mortgage interest deductions or tax credits from federal and/or state income taxes, sale or lease at less than market value of land to be used for the construction of housing, payments to supplement a minimum affordable rent, and the like.

**Substandard Housing** Residential dwellings that, because of their physical condition, do not provide safe and sanitary housing.

**Substantial** Considerable in importance, value, degree, or amount.

**Supportive Housing** Housing with no limit on length of stay, that is occupied by a target population defined in Health and Safety Code §53260(d), and that is linked to onsite or offsite services that assist the supportive housing resident in retaining the housing, improving his or her health status, and maximizing his or her ability to live and, when possible, work in the community. In general, "target population" means low-income adults with one or more disabilities, and may include families with children, elderly persons, young adults aging out of the foster care system, individuals exiting from institutional settings, veterans, or homeless people.

**Sustainable** Applied to resources or systems that can be maintained without compromising the needs of future generations, and in so doing, will conserve or restore an ecological balance and avoid depleting resources.

**Target Areas** Specifically designated sections of the community where loans and grants are made to bring about a specific outcome, such as the rehabilitation of housing affordable by very low-and low-income households.

**Tax Credit** A dollar amount that may be subtracted from the amount of taxes owed.

**Thermal Mass** Large quantities of heavy or dense material with a high heat capacity, used in solar buildings to absorb heat, which is then stored and re-radiated as needed for heating and cooling.

**Topography** Configuration of a surface, including its relief and the position of natural and man-made features.

**Tourism** The business of providing services for persons traveling for pleasure, tourism contributes to the vitality of the community by providing revenue to local business. Tourism can be measured through changes in the transient occupancy tax, or restaurant sales.

**Townhouse; Townhome** A one-family dwelling in a row of at least three such units in which each unit has its own front and rear access to the outside, no unit is located over another unit, and each unit is separated from any other unit by one or more common and fire-resistant walls. Townhouses usually have separate utilities; however, in some condominium situations, common areas are serviced by utilities purchased by a homeowners association on behalf of all townhouse members of the association. (See "Condominium.")

**Traditional Cultural Properties (TCP)** A special type of resource valued by living communities for culturally important reasons, especially if they embody or help reinforce that community's values, beliefs, and customs. A TCP's legal significance comes from its eligibility under one or more California Register criteria. Programs will specify procedures for identifying, documenting, and managing TCPs.

**Traffic Model** A mathematical representation of traffic movement within an area or region based on observed relationships between the kind and intensity of development in specific areas. Many traffic models operate on the theory that trips are

produced by persons living in residential areas and are attracted by various non-residential land uses. (See "Trip.")

**Transit** The conveyance of persons or goods from one place to another by means of a local, public transportation system.

**Transit-dependent** Refers to persons unable to operate automobiles or other motorized vehicles, or those who do not own motorized vehicles. Transit-dependent citizens must rely on transit, para-transit, or owners of private vehicles for transportation. Transit-dependent citizens include the young, the handicapped, the elderly, the poor, and those with prior violations in motor vehicle laws.

**Transit, Public** A system of regularly-scheduled buses and/or trains available to the public on a fee-per-ride basis. Also called "Mass Transit."

**Transition Zone** Controlled airspace extending upward from 700 or more feet above the ground wherein procedures for aircraft approach have been designated. The transition zone lies closer to an airport than the outer approach zone and outside of the inner approach zone. (See "Approach Zone" and "Outer Approach Zone.")

**Transitional Housing** Buildings configured as rental housing developments, but operated under program requirements that call for the termination of assistance and recirculation of the assisted unit to another eligible program recipient at a future time, but no less than six months. In general, the program provides supportive services (including self-sufficiency development services) for recently homeless persons, with the goal of moving them to permanent housing as quickly as possible.

**Transportation Demand Management (TDM)** A strategy for reducing demand on the road system by reducing the number of vehicles using the roadways and/or increasing the number of persons per vehicle. TDM attempts to reduce the number of persons who drive alone on the roadway during the commute period and to increase the number in carpools, vanpools, buses and trains, walking, and biking. TDM can be an element of TSM (see below).

**Transportation Systems Management (TSM)** A comprehensive strategy developed to address the problems caused by additional development, increasing trips, and a shortfall in transportation capacity. Transportation Systems Management focuses on more efficiently utilizing existing highway and transit systems rather than expanding them. TSM measures are characterized by their low cost and quick implementation time frame, such as computerized traffic signals, metered freeway ramps, and one-way streets.

**Trees, Heritage** Trees planted by a group of citizens or by the City or County in commemoration of an event or in memory of a person figuring significantly in history.

**Trees, Landmark** Trees whose size, visual impact, or association with a historically significant structure or event have led the City or County to designate them as landmarks.

**Trees, Street** Trees strategically planted—usually in parkway strips, medians, or along streets—to enhance the visual quality of a street.

**Trip** A one-way journey that proceeds from an origin to a destination via a single mode of transportation; the smallest unit of movement considered in transportation studies. Each trip has one "production end," (or origin—often from home, but not always), and one "attraction end," (destination). (See "Traffic Model.")

**Trip Generation** The dynamics that account for people making trips in automobiles or by means of public transportation. Trip generation is the basis for estimating the level of use for a transportation system and the impact of additional development or transportation facilities on an existing, local transportation system. Trip generations of households are correlated with destinations that attract household members for specific purposes.

**Truck Route** A path of circulation required for all vehicles exceeding set weight or axle limits, a truck route follows major arterials through commercial or industrial areas and avoids sensitive areas.

**Tsunami** A large ocean wave generated by an earthquake in or near the ocean.

**Undevelopable** Specific areas where topographic, geologic, and/or surficial soil conditions indicate a significant danger to future occupants and a liability to the City or County are designated as "undevelopable" by the City or County.

**Undue** Improper, or more than necessary.

**California Building Code (CBC)** A state or federal standard building code that sets forth minimum standards for construction.

**Uniform Housing Code (UHC)** State housing regulations governing the condition of habitable structures with regard to health and safety standards, and which provide for the conservation and rehabilitation of housing in accordance with the California Building Code (CBC).

**Universal Design** An approach to the design of all products and environments by accommodating limitations so as to be usable by everyone regardless of age, ability, or situation.

**Urban Design** The attempt to give form, in terms of both beauty and function, to selected urban areas or to whole cities. Urban design is concerned with the location, mass, and design of various urban components and combines elements of urban planning, architecture, and landscape architecture.

**Urban Limit Line** A boundary, sometimes parcel-specific, located to mark the outer limit beyond which urban development will not be

allowed. It has the aim of discouraging urban sprawl by containing urban development during a specified period, and its location may be modified over time.

**Urban Open Space** The absence of buildings or development, usually in well-defined volumes, within an urban environment.

**Urban Services** Utilities (such as water, gas, electricity, and sewer) and public services (such as police, fire, schools, parks, and recreation) provided to an urbanized or urbanizing area.

**Urban Sprawl** Haphazard growth or outward extension of a city resulting from uncontrolled or poorly managed development.

**Use** The purpose for which a lot or structure is or may be leased, occupied, maintained, arranged, designed, intended, constructed, erected, moved, altered, and/or enlarged in accordance with the City or County zoning ordinance and General Plan land use designations.

**Use, Non-conforming** (See "Non-conforming Use.")

**Use Permit** The discretionary and conditional review of an activity or function or operation on a site or in a building or facility.

**Utility Corridors** Rights-of-way or easements for utility lines on either publicly or privately owned property. (See "Right-of-way" or "Easement.")

**Vacant** Lands or buildings that are not actively used for any purpose.

**Variance** A departure from any provision of the zoning requirements for a specific parcel, except use, without changing the zoning ordinance or the underlying zoning of the parcel. A variance usually is granted only upon demonstration of hardship based on the peculiarity of the property in relation to other properties in the same zone district.

**Vehicle Miles Traveled (VMT)** A key measure of overall street and highway use. Reducing VMT is often a major objective in efforts to reduce vehicular congestion and achieve regional air quality goals.

**Very Low-income Household** A household with an annual income no greater than approximately 50 percent of the area median family income, based on the latest available eligibility limits established by the U.S. Department of Housing and Urban Development (HUD) for the Section 8 Housing Program or the California Department of Housing and Community Development (HCD). "Very-low income households" includes extremely low income households as defined in Health and Safety Code §50106. (See "Area.")

**View Corridor** The line of sight—identified as to height, width, and distance—of an observer looking toward an object of significance to the community (e.g., ridgeline, river, historic building); a route that directs the viewers attention.

**Viewshed** The area within view from a defined observation point.

**Volume-to-Capacity Ratio** A measure of the operating capacity of a roadway or intersection, in terms of the number of vehicles passing through, divided by the number of vehicles that theoretically could pass through when the roadway or intersection is operating at its designed capacity. Abbreviated as "v/c." At a v/c ratio of 1.0, the roadway or intersection is operating at capacity. If the ratio is less than 1.0, the traffic facility has additional capacity. Although ratios slightly greater than 1.0 are possible, it is more likely that the peak hour will elongate into a "peak period." (See "Peak Hour" and "Level of Service.")

**Warehousing Use** A use engaged in storage, wholesale, and distribution of manufactured products, supplies, and equipment, excluding bulk storage of materials that are inflammable or explosive or that present hazards or conditions commonly recognized as offensive.

**Wastewater Irrigation** The process by which wastewater that has undergone appropriate treatment is used to irrigate land.

**Watercourse** Natural or once natural flowing (perennially or intermittently) water including rivers, streams, and creeks. Includes natural waterways that have been channelized, but does not include manmade channels, ditches, and underground drainage and sewage systems.

**Watershed** The total area above a given point on a watercourse that contributes water to its flow; the entire region drained by a waterway or watercourse that drains into a lake, or reservoir.

**Waterway** (See "Watercourse.")

**Wetlands** Transitional areas between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water. Under a "unified" methodology now used by all federal agencies, wetlands are defined as "those areas meeting certain criteria for hydrology, vegetation, and soils."

**Wildlife Refuge** An area maintained in a natural state for the preservation of both animal and plant life.

**Williamson Act** Known formally as the California Land Conservation Act of 1965, it was designed as an incentive to retain prime agricultural land and open space in agricultural use, thereby slowing its conversion to urban and suburban development. The program entails a 10-year contract between the City or County and an owner of land whereby the land is taxed on the basis of its agricultural use rather than the market value. The land becomes subject to certain enforceable restrictions, and certain conditions need to be met prior to approval of an agreement.

**Workplace Use** The combination of a variety of businesses, from office to research and development to light industry to warehousing, located in structures built with open floor plans, so as to leave most interior improvements to the tenants to design to their needs. (See also "Industrial Park.")

**Zero Lot Line** A detached single family unit distinguished by the location of one exterior wall on a side property line.

**Zone, Combining** A special purpose zone that is superimposed over the regular zoning map. Combining zones are used for a variety of purposes, such as airport compatibility, flood plain or wetlands protection, historic designation, or special parking regulations. Also called "overlay zone."

**Zone, Interim** A zoning designation that temporarily reduces or freezes allowable development in an area until a permanent classification can be fixed; generally assigned during General Plan preparation to provide a basis for permanent zoning.

**Zone, Study** (See " Zone, Interim.")

**Zone, Traffic** In a mathematical traffic model the area to be studied is divided into zones, with each zone treated as producing and attracting trips. The production of trips by a zone is based on the number of trips to or from work or shopping, or other trips produced per dwelling unit.

**Zoning** The division of a city or county by legislative regulations into areas, or zones, which specify allowable uses for real property and size restrictions for buildings within these areas; a program that implements policies of the General Plan.

**Zoning Bonus** (See "Zoning, Incentive.")

**Zoning District** A designated section of a city or county for which prescribed land use requirements and building and development standards are uniform.

**Zoning, Exclusionary** Development regulations that result in the exclusion of low- and moderate-income and/or minority families from a community.

**Zoning, Incentive** The awarding of bonus credits to a development in the form of allowing more intensive use of land if public benefits—such as preservation of greater than the minimum required open space, provision for low- and moderate-income housing, or plans for public plazas and courts at ground level—are included in a project.

**Zoning, Inclusionary** Regulations that increase housing choice by providing the opportunity to construct more diverse and economical housing to meet the needs of low- and moderate-income families. Often such regulations require a minimum percentage of housing for low- and moderate-income households in new housing developments and in conversions of apartments to condominiums.

**Zoning Map** Government Code Section 65851 permits a legislative body to divide a county, a city, or portions thereof, into zones of the number, shape, and area it deems best suited to carry out the purposes of the zoning ordinance. These zones are delineated on a map or maps, called the Zoning Map.

# 4.1 LAND USE

## 4.1.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Regulatory Setting
- Municipal & Planning Boundaries
- Existing Land Uses & Vacant Lands
- Existing General Plan Designations & Buildout
- City Plans
- State-Adopted Plans

### REGULATORY SETTING

#### California General Plan Requirements

Pursuant to California State (Government Code section 65040), each city and county in California must prepare a comprehensive, long-term general plan to guide its future. Seven elements are required by State law: land use, circulation, housing, conservation, open space, noise and safety. By statute, the housing element must be updated every seven years. The City's updated General Plan is the subject of this EIR, but does not include the Housing Element, which will be updated at the intervals prescribed by State law. Communities may also adopt area and community plans, which are part of the general plan.

#### California Coastal Act

A portion of Santa Cruz is located within the coastal zone, which is subject to the requirements of the California Coastal Act (Public Resources Code Section 30000 et seq). The Coastal Act is intended to "protect, maintain, and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources." The Coastal Act requires preparation of a Local Coastal Program (LCP) for areas of cities and counties within the coastal zone, which must be certified by the California Coastal Commission (CCC). The City's certified LCP currently is part of the General Plan. All development in the coastal zone requires approval of a coastal development permit, which is administered by the City with its certified LCP. However, the CCC currently retains permit authority for portions of the Santa Cruz Harbor.

### Local Agency Formation Commission Requirements

Pursuant to State law enacted in 1963 (Government Code Section 54773 et seq.), a Local Agency Formation Commission (LAFCO) was established in each county to promote the orderly development of local government agencies, efficient provision of services, guide development away from prime agricultural land and discourage urban sprawl. In meeting its responsibility, LAFCO is required to review and approve or disapprove, with or without amendments, wholly, partially, or conditionally, governmental boundary change proposals with regards to Spheres of Influence, annexation, detachment, reorganization and/or extending a city's water or sewer service area (Santa Cruz LAFCO website; http:///www.santacruzlafco.org). In addition to the regulatory responsibilities of LAFCO referred to above, the Commission is empowered to initiate and to make studies of existing governmental agencies. Such studies shall include but not be limited to inventorying such agencies and determining their maximum service areas and service capabilities.

Pursuant to State law, LAFCO must adopt a Sphere of Influence (SOI) for each governmental agency (including special districts. A sphere of influence means a plan for the probable future physical boundaries and service area of a local governmental agency that takes into account existing and future land uses, service needs and service capacities.

## MUNICIPAL AND PLANNING BOUNDARIES

### Municipal Boundaries

The City of Santa Cruz encompasses approximately 12.7 square miles, and its municipal boundaries are shown on Figure 1-1.[1] Santa Cruz has maintained clearly-defined urban boundaries as it has grown, formed by the UCSC campus and city-owned greenbelt lands (Moore Creek Preserve, Pogonip, and Delaveaga Park) as shown on Figure 1-2. The City's coastal zone, also shown on Figure 1-1, includes approximately 2,330 acres. The Santa Cruz Harbor is located within City limits but is operated under the authority of the Santa Cruz Port District, an independent special district. Development projects within Harbor lands and water are subject to coastal development permits from the City of Santa Cruz or the California Coastal Commission.

### Sphere of Influence

The City's adopted Sphere of Influence (SOI) includes lands within City limits and some lands adjacent to the City, as shown on Figure 4.1-1, for a total of approximately 0.4 square miles within the SOI. In addition to land within the City limits, the SOI encompasses land in the Carbonera neighborhood near Highway 17, and along with a strip of land east of the City limits, between the Santa Cruz Harbor and 7th Avenue.

[1] All EIR figures are included in Chapter 7.0 at the end of the EIR (before appendices) for ease of reference as some figures are referenced in several sections.

In October 2008, the City of Santa Cruz filed an application to the Santa Cruz LAFCO to amend the City's Sphere of Influence (SOI), concurrent with the University's application to LAFCO for the provision of extraterritorial water and sewer services for a 374-acre portion of the UCSC campus identified as the North Campus (shown on Figure 4.1-1) for the development of 3,175,000 gross square feet of additional building space as described in the University's adopted 2005 Long-Range Development Plan (LRDP). Further description of the UCSC LRDP is provided below in the "State-Adopted Plans" subsection. At this time, no annexation of land is proposed, nor has the University proposed site-specific development or extension of infrastructure into the north campus area. The Santa Cruz City Council certified an EIR for the SOI amendment in August 2010, which was subsequently legally challenged. On July 20, 2011, the Superior Court of Santa Cruz County made a tentative ruling in which it upheld the adequacy of the EIR and the City's compliance with CEQA in all respects concerning the SOI amendment. The final ruling upholding the SOI EIR as adequate under CEQA was issued on August 31, 2011. The court is expected to issue its final decision in adopting its tentative ruling in full in early September. The applications for the Sphere of Influence Amendment and Provision of Extraterritorial Water and Sewer Services to UCSC are pending before LAFCO.

### General Plan "Planning Area"

The State encourages cities to look beyond their borders when updating a General Plan. The City's *General Plan 2030* establishes and evaluates a "Planning Area," which includes land outside of the City limits, as shown on Figure 2-1. The Planning Area encompasses approximately 26 square miles and includes land within the City limits and adopted Sphere of Influence, portions of Henry Cowell Redwoods State Park and Wilder Ranch State Park, the northern portion of UCSC, which currently is not within City limits, and an area west of Graham Hill Road. The unincorporated land that is outside of the City limits, but within the Planning Area, remains under the jurisdiction of Santa Cruz County.

## EXISTING LAND USES & VACANT LANDS

### Existing Land Uses

Background studies prepared for the General Plan Update include estimates of existing land uses within the City. Existing land uses are summarized on Table 4.1-1 and depicted on Figure 4.1-2. Nearly 40% of existing land uses within the City are residential, followed by parks/open space and public/institutional each comprising approximately 25% of existing lands within the City. Approximately 8% of lands within the City currently consist of commercial and industrial uses, with remaining acreage being roads and vacant properties.

### Vacant and Underutilized Lands

There are approximately 169 acres of vacant land within Santa Cruz's City limits (Design, Community & Environment, December 2006) as shown on Figure 4.1-3. In addition to vacant sites, there may be development opportunities on some of the City's underutilized sites, wherein the site is not completely developed and/or older development may be demolished and new development with a higher land use intensity may be constructed. Underutilized sites are

estimated to comprise a total of 185 acres within the City limits (Design, Community & Environment, December 2006) as shown on Figure 4.1-3. This map shows that all of Santa Cruz's commercial and industrial areas have a fairly large number of underutilized sites, including surface parking lots in downtown Santa Cruz and near the Santa Cruz Boardwalk. In addition, there are several large underutilized sites in the Harvey West area.

**TABLE 4.1-1**
**Existing Land Uses in Santa Cruz City Limits**

| Designation | Acres | Subtotal | Percentage of Total Acres | Subtotal |
|---|---|---|---|---|
| RESIDENTIAL | | | | |
| ▪ *Single-Family Residential* | 2,068 | | 30.3% | |
| ▪ *Two to Four Unit Residential* | 198 | | 2.9% | |
| ▪ *Multi-Family Residential* | 311 | | 4.6% | |
| ▪ *Mobile Home Park* | 40 | | 0.6% | |
| ***Subtotal*** | | ***2,617*** | | ***38.3%*** |
| COMMERCIAL & INDUSTRIAL | | | | |
| ▪ *Commercial/Mixed Use* | 252 | | 3.7% | |
| ▪ *Office* | 61 | | 0.9% | |
| ▪ *Industrial* | 197 | | 2.9% | |
| ***Subtotal*** | | ***510*** | | ***7.5%*** |
| PUBLIC/INSTITUTIONAL | | ***1,756*** | | ***25.7%*** |
| PARKS & OPEN SPACE | | | | |
| ▪ *Parks* | 654 | | 9.6% | |
| ▪ *Open Space* | 1,068 | | 15.6% | |
| ***Subtotal*** | | ***1,722*** | | ***25.2%*** |
| PARKING & PRIVATE ROADS | | ***59*** | | ***0.9%*** |
| VACANT | | ***169*** | | ***2.5%*** |
| **TOTAL** | | 6,833 | | 100% |

**SOURCE:** Design, Community & Environment, December 2006

## Approved and Pending Development Projects

There are numerous development projects that have recently been approved or have submitted use permit applications that are pending decisions. These include projects on some of the remaining vacant and underutilized sites. Taken together, these projects include approximately 35 single-family residential units, 425 multi-family residential units, 470 visitor-serving rooms, and approximately 460,000 square feet of commercial/industrial space.

## EXISTING GENERAL PLAN DESIGNATIONS & BUILDOUT

### Existing General Plan Designations

The existing General Plan Land Use Map is shown on Figure 4.1-4. The current land use designations for the City of Santa Cruz were created as part of the 1990 General Plan Update and include seventeen designations as summarized and described in Table 4.1-2.

Table 4.1-3 identifies the acreage of the existing General Plan land use designations within City limits. As can be seen, almost half of the lands within the City (about 43%) are currently designated for residential use, the majority of which are designated low density. Parks and open space designations (natural areas and agricultural lands) comprise the second largest portion of existing City General Plan designations (nearly 33%), the majority of which are natural areas. Of the remaining designations, approximately 13% are devoted to commercial, office, and industrial uses, and approximately 11% account for community facilities and UCSC.

### Potential Buildout Under Existing General Plan

The 1990-2005 General Plan/Local Coastal Program estimated that approximately 2,030 residential units could be developed on vacant lands and an additional 460 units could be developed on underutilized residentially zoned sites. Thus, potential mixed use development on non-residentially designated sites was not considered in these previous estimates, nor were non-residential buildout estimates provided.

Buildout under the existing 1990-2005 General Plan was reviewed and updated for the City Planning Department by Design, Community & Environment (DC&E) as part of the General Plan Update process. The purpose was to account for mixed use, intensified redevelopment and non-residential development not estimated in the existing General Plan and to provide a buildout estimate using the same methodology that was used to project the draft *General Plan 2030* buildout. The assumptions and methodology are further described in Appendix B.

The buildout estimate included development potential on:

a) Existing vacant lands;

b) Redevelopment of uses on existing underutilized parcels to reflect intensification and/or mixed uses; and

c) Limited residential infill and intensification of land use was assumed on existing underutilized parcels within the Seabright residential neighborhood given existing land use designations in this area.

**TABLE 4.1-2**
**1990-2005 General Plan Land Use Designations**

- VERY LOW DENSITY RESIDENTIAL. This is a large-lot designation allowing up to one dwelling unit per acre.
- LOW DENSITY RESIDENTIAL. 1.1 to 10 dwelling units per acre.
- LOW MEDIUM DENSITY RESIDENTIAL. 10.1 to 20 dwelling units per acre.
- MEDIUM DENSITY RESIDENTIAL.20.1 to 30 dwelling units per acre.
- HIGH DENSITY RESIDENTIAL. 30.1 to 55 dwelling units per acre.
- NEIGHBORHOOD COMMERCIAL. This designation allows for up to 30 dwelling units per acre and up to 30 employees per acre and serves residential neighborhoods with small scale commercial uses such as laundromats, grocery and convenience stores, and mixed-use projects.
- COMMUNITY COMMERCIAL. This designation allows for up to 30 dwelling units per acre and up to 60 employees per acre and is intended to primarily serve the general needs of the community and includes retail, service and office establishments.
- REGIONAL/VISITOR COMMERCIAL. This designation allows for up to 30 dwelling units per acre and up to 80 employees per acre. This designation covers three areas: downtown central business district, the beach area and the south of laurel area. Each area specifies a different intensity, type and mix of regional/visitor-serving commercial development.
- OFFICE. This designation allows up to 30 dwelling units per acre and up to 60 employees per acre and acts as a transition area between commercial areas and residential zones.
- GENERAL INDUSTRIAL. This designation applies to non-coastal industrial uses. it allows up to 30 dwelling units and 60 employees per acre.
- COASTAL DEPENDENT. This designation applies to land that is to be utilized for coastal-dependent industries and allows no dwelling units and up to 20 employees per acre.
- COMMUNITY FACILITIES. This designation applies to land with existing or proposed community facilities. it allows up to 80 employees per acre.
- UCSC. UCSC is a state institution with its own development plan; therefore, a distinctive land use designation is assigned to that portion of the campus within the city boundaries, excluding long marine lab. (It should be noted that the northern, undeveloped portion of UCSC is currently not within city limits, but this portion is designated as "UCSC" on the city's current general plan land use map.)
- PARK LANDS. This designation includes neighborhood, community and regional park lands used for passive and/or active recreational uses by residents and visitors.
- COASTAL RECREATION. This designation includes lands along the coastline including beaches and outdoor and open water areas that are used for recreational activities such as swimming, boating, fishing, surfing, picnicking and parking.
- AGRICULTURAL/GRAZING. This designation allows one dwelling unit for every 20 acres and includes land used for production of food and fiber.
- NATURAL AREAS. This designation is for land that should remain in its natural and undeveloped state. The land can be used for educational and recreational uses.

**TABLE 4.1-3**
**Existing General Plan Land Use Designation Acreages**

| Designation | Acres | | Percentage of Total Acres | |
|---|---|---|---|---|
| | | Subtotal | | Subtotal |
| RESIDENTIAL | | | | |
| ▪ *Very-Low-Density Residential* | 174 | | 2.1% | |
| ▪ *Low-Density Residential* | 2,442 | | 30.1% | |
| ▪ *Low-Medium-Density Residential* | 618 | | 7.6% | |
| ▪ *Medium-Density Residential* | 234 | | 3.9% | |
| ▪ *High-Density Residential* | 8 | | 0.1% | |
| ***Subtotal*** | | ***3,477*** | | ***42.8%*** |
| COMMERCIAL & INDUSTRIAL | | | | |
| ▪ *Neighborhood Commercial* | 14 | | 0.2% | |
| ▪ *Community Commercial* | 304 | | 3.7% | |
| ▪ *Regional/Visitor Commercial* | 198 | | 2.4% | |
| ▪ *Office* | 56 | | 0.7% | |
| ▪ *General Industrial* | 352 | | 4.3% | |
| ▪ *Coastal Dependent* | 132 | | 1.6% | |
| ***Subtotal*** | | ***1,056*** | | ***12.9%*** |
| COMMUNITY FACILITIES | | ***382*** | | ***4.7%*** |
| UCSC | | ***526*** | | ***6.5%*** |
| PARKS & OPEN SPACE | | | | |
| ▪ *Parks* | 490 | | 6.0% | |
| ▪ *Agriculture/Grazing* | 335 | | 4.1% | |
| ▪ *Natural Areas* | 1,746 | | 21.5% | |
| ***Subtotal*** | | ***2,571*** | | ***32.6%*** |
| **TOTAL** | | 8,118 | | 100% |

**SOURCE:** Design, Community & Environment, December 2006

The buildout estimates assumed that not all development will happen at the maximum possible intensity, and that not every parcel with development potential will be redeveloped by 2030. Consistent with past development patterns, the projections assume that on average, all new development will occur at 80% of the maximum permitted residential density or floor area ratio (FAR). Secondly, the following assumptions were made regarding the amount of development likely by the year 2030.

- Vacant Lands: 90% developed by 2030
- Reuse Potential Parcels: 75% developed by 2030
- Seabright LM/M Parcels: 10% developed by 2030

Based on these assumptions, it was estimated that buildout of the existing 1990-2005 General Plan would result in the following additional development as summarized on Table 4.1-4. The corresponding geographic areas are shown on Figure 2-3.

- 1,655 residential units
- 1,038,456 square feet of commercial development
- 942,101 square of office space;
- 877,447 square feet of industrial development.

**TABLE 4.1-4**
**Estimated Existing *General Plan 2005* Buildout**

| GENERAL PLAN AREA | DWELLING UNITS | COMMERCIAL SQUARE FOOTAGE | OFFICE SQUARE FOOTING | INDUSTRIAL SQUARE FOOTAGE |
|---|---|---|---|---|
| Beach Area | 54 | 21,872 | 0 | 0 |
| Carbonera Sphere | 0 | 0 | 0 | 0 |
| Downtown | 299 | 38,913 | 4,495 | 0 |
| Eastside Sphere | 82 | 52,925 | 106,522 | 0 |
| Golf Club | 117 | 0 | 0 | 00 |
| Harvey West | 27 | 158,303 | 106,490 | 262,645 |
| Lower Eastside | 141 | 40,066 | 60,367 | 24,706 |
| Lower Westside | 105 | 0 | 0 | 0 |
| Mission Street | 61 | 75,736 | 151,471 | 0 |
| Ocean Street | -1 | 327,489 | 69,483 | 0 |
| River St/Front Street | 328 | 64,697 | 82,130 | 0 |
| Soquel Avenue | 68 | 88,684 | 177,369 | 0 |
| Upper Eastside | 143 | 8,895 | 17,791 | 0 |
| Upper Westside | 171 | 658 | 1,316 | 0 |
| Water Street | 27 | 43,390 | 86,780 | 0 |
| Westside Industrial | 34 | 116,828 | 77,886 | 194,714 |
| **Subtotal** | **1,655** | **1,038,456** | **942,101** | **482,065** |
| Other Pending Development | 161 | 310 hotel rooms | 0 | 395,382 |
| **TOTAL** | **1,816** | **1,038,456 & 310 hotel rooms** | **942,101** | **877,447** |

**SOURCE:** Design, Community & Environment, October 29, 2009 and City of Santa Cruz Planning and Community Development Department

As indicated in the PROJECT DESCRIPTION (Chapter 3.0) section of this EIR, these buildout estimates do not account for some major pending or approved projects (Design, Community & Environment, October 2009), most notably the Delaware Mixed Use Project, the Tannery Arts

Center, the La Bahia project and several other projects shown on Table 3-4 of the PROJECT DESCRIPTION (Chapter 3.0) section of this EIR. These projects have been added to the buildout projections to ensure that all potential development that could occur under the existing General Plan are considered, as these projects have already been approved.

## CITY PLANS

The City has adopted 14 area and/or resource management plans as summarized on Table 3-5 in Chapter 3. The following section summarizes plans related to land use matters. Other relevant plans are discussed in the following sections of this EIR: AESTHETICS (Chapter 4.3); TRANSPORTATION & TRAFFIC (Chapter 4.4); PUBLIC SERVICES – Parks and Recreation (Chapter 4.6); and BIOLOGICAL RESOURCES (Chapter 4.8).

### Housing Element

The Housing Element, which is a required General Plan element pursuant to state law, is prepared as a separate volume to the City's General Plan as it requires updates every seven years in accordance with State law. The City's existing Housing Element, which covers the years 2007 to 2014, was adopted in 2010 with final adoption and approval by the State Housing and Community Development Department in 2011. Given the shorter timeframe requirements for housing elements, the City's Housing Element is not part of the *General Plan 2030* document and not included in this environmental review for the draft *General Plan 2030*.

### Local Coastal Program

The Local Coastal Program (LCP) consists of a land use plan, implementing ordinances and maps applicable to the coastal zone portions of the City to manage and protect coastal resources in accordance with requirements of the California Coastal Act. The City prepared and adopted its LCP as a part of the *1990-2005 General Plan and Local Coastal Program document*. The City is currently updating the LCP as a separate document, while coordinating closely with the *General Plan 2030* process.

### Land Use & Area Plans

Some City plans have been adopted as part of the General Plan, and some have been prepared as "Area Plans". Area plans provide a more focused review of a specific area than provided in the General Plan. Summaries of these plans are provided below

#### BEACH AND SOUTH OF LAUREL COMPREHENSIVE AREA PLAN

The Beach and South of Laurel Comprehensive Area Plan (B/SOL Area Plan) was adopted by the City Council in October 1998. The California Coastal Commission certified policy revisions as an amendment to the City's General Plan/Local Coastal Plan in October 2002, but the B/SOL Plan is not part of the LCP. The purpose of the B/SOL Area Plan is to guide future development and redevelopment of visitor serving and residential neighborhood uses in terms of land use, circulation, and design (Santa Cruz 1998a). The Plan includes the commercial

Beach Boardwalk area, the residential Beach Hill and Beach Flats areas, and the area south of Laurel Street, generally between the San Lorenzo River on the east and neighborhoods off of Myrtle and Chestnut Streets on the east. The Plan's purpose is to:

- Propose a sensitive and realistic program for neighborhood preservation and revitalization in the beach flats, beach hill and south of laurel areas;
- Establish a comprehensive program for managing traffic and transportation, tourism and maritime assets, and linkage with the downtown; and
- Enhance the historic resort attributes of the beach area for residents and visitors.

The B/SOL Plan provides policy and land use recommendations for four areas: Beach Flats, Beach Hill, Beach Commercial area (i.e., Boardwalk), and South of Laurel area. The Plan also addresses housing strategies, circulation and parking, urban design, economic development and public and community facilities.

The Plan seeks to maintain and improve housing in the Beach Flats area to create a "diverse, quality residential neighborhood serving all income groups at urban densities and pedestrian scale." The Plan also recommends a neighborhood conservation overlay for residential areas in Beach Flats. A historic preservation district and conservation neighborhood are recommended for Beach Hill with policies designed to improve the Beach Hill quality of life and to protect and enhance its historical resources. Recommendations for the Beach Commercial Area are aimed at stimulating appropriate economic development, including significant upgrading and redevelopment of lodging and attracting a conference center; expanding the lodging operational season; developing linkages with downtown; and expanding educational opportunities of the Monterey Bay National Marine Sanctuary. The South of Laurel Area recommendations seek to create a diverse, urban density residential neighborhood that is pedestrian friendly.

The B/SOL Plan calls for major improvements and additions of commercial space, hotel facilities, residential uses, open space and infrastructure improvements necessary to accommodate existing and new development. The major components of development and/or land use intensification envisioned in the Plan are summarized below:

- 250-275 room conference hotel facility at the La Bahia site.[2]
- Approximately 125,000 square feet of new specialty retail/entertainment development.
- 157,000 square of commercial uses along major transportation corridors primarily along Pacific Avenue.
- 400+ new infill residential units at a variety of densities.
- Rehabilitation and redevelopment of existing residential, commercial and hotel properties (139 new hotel rooms in addition to the conference hotel).

[2] The B/SOL Plan supports a 250-275 room hotel with conference center on the La Bahia site and an adjoining property. However the City approved a 125-room hotel for the La Bahia site in 2009, which does not include a conference facility or development on the adjoining property, and thus, the approved project is smaller than what was supported in the B/SOL Plan.

- Multi-modal transit hub (Depot Park);
- 2-acre active recreation park in the South of Laurel area.
- Marine Sanctuary visitor center.

### DOWNTOWN RECOVERY PLAN

The *Downtown Recovery Plan* was written to guide the rebuilding of Downtown Santa Cruz, which was devastated by the 1989 Loma Prieta earthquake. The plan was adopted by the City Council in 1991 as a specific plan with a General Plan amendment. The Plan covers the mixed-use area between the eastern banks of the San Lorenzo River, Center Street to the west, Laurel Street to the south and the blocks just north of Water Street. The Plan recognizes the Downtown as a place of commerce, cultural and recreation, as well as a place to live and work. The Plan seeks to strengthen the downtown area as a vital retail center and addresses land use, development standards and guidelines, circulation and parking, and open space.

The Plan proposes intensive mixed-use and pedestrian-oriented development along Pacific Avenue with ground-floor commercial uses that activate the street frontage, such as restaurants and galleries. A mix of housing types and offices is to be provided on upper levels, with parking located off-site. Along Front Street and the riverfront, the Plan calls for somewhat less intensive mixed-use development. The Plan envisions Cedar Street as a transition into a lower-intensity area, with a horizontal mix of uses. North Pacific Avenue is also seen as a lower-intensity area, though it would include ground-floor commercial uses and upper-level residential uses (Design, Community and Environment, December 2006).

### SANTA CRUZ HARBOR DEVELOPMENT PLAN

The purpose of the Santa Cruz Harbor Development Plan is to increase the Harbor's capacity to serve recreational and commercial maritime uses. Land use policies specify that facilities that support boating, fishing, coastal recreation and visitor-serving uses will be favored over general office or retail uses. In addition, the Plan seeks to promote the intensification of these uses.

### SAN LORENZO URBAN RIVER PLAN

The *San Lorenzo Urban River Plan* is the outcome of a planning process initiated by City Council in 1999 to update plans for the San Lorenzo River, Jessie Street Marsh, and Branciforte Creek. The plan serves as a guide for restoring and managing natural resources, riverfront development, and public access improvements for the lower San Lorenzo River, Jessie Street Marsh, and Branciforte Creek. The San Lorenzo River Urban River Plan promotes conservation of the river as a wildlife area, with complementary recreational uses. The *Urban River Plan* provides recommendations for specific public improvements and establishes design guidelines for redevelopment opportunity areas surrounding the river. New development proposed along the lower San Lorenzo River is subject to the guidelines of that *Plan*. Adjacent properties would be reviewed for their conformance to the *San Lorenzo Urban River Plan*.

The Plan also includes conceptual ideas to promote river-oriented development, site-specific recommendations for public areas along the river, and restoration recommendations. The Plan identifies Front Street and River Street as the best places to improve Santa Cruz's connection to

the river. Urban interface connections are envisioned as "fingers of green" that expand and connect the Riverway corridor into the adjoining community and neighborhoods. Recommended improvements include plazas, entry features, trail connections, interpretive features, seating, directional and informational signage, public art, tree planting, pavement treatment, and other design improvements. The Plan also identifies opportunities for redevelopment of specific sites. For example, it recommends redeveloping the Riverwalk Plaza site at Front Street and Soquel Avenue with smaller parking areas and buildings that have a stronger orientation to the river.

#### SEABRIGHT AREA PLAN

The Seabright Area Plan is intended to improve and preserve this historic, small-scale residential neighborhood in Santa Cruz's Eastside. The Seabright Area Plan does not address the area between Soquel Avenue and Clinton Street. The Plan proposes land use changes that are reflected in the City's current General Plan. The majority of Seabright is designated for single-family residential uses. Multi-family residential uses are concentrated near Seabright State Beach, a major visitor attraction, and along Seabright Avenue and Murray Street, two of the area's major streets. The Plan recommends retaining the historic commercial node at the intersection of Seabright Avenue and Murray Street (Design, Community and Environment, December 2006).

## Other Adopted Land Use Plans

#### EASTSIDE BUSINESS AREA IMPROVMENT PLAN

The purpose of the Eastside Business Improvement Plan, which addresses the Soquel Avenue and Water Street commercial corridors, is to bring beneficial change to the area through economic development and the creation of a distinctive physical environment. Most of the Plan's recommendations focus on improvements for circulation, streetscapes and building façades. The Plan's objectives include establishing a coordinated strategy for circulation, parking and streetscape improvements; developing a design program for buildings to improve aesthetics while retaining individual character in the area; developing a strategy to improve linkages between the eastern and western portions of the area; and developing a retail and promotional strategy. The Plan also refers to a 1996 market analysis that identifies the types of businesses with the best sales performance in this area that includes: auto dealers and suppliers, building materials, eating and drinking establishments, food stores, and home furnishings and appliances (Design, Community and Environment, December 2006).

#### WESTERN DRIVE MASTER PLAN

The Western Drive Master Plan, prepared in 1979, includes lands along Western Drive, generally between Arroyo Seco Creek on the east and Moore Creek on the west from Highway 1 to High Street. The Plan seeks to improve the Western Drive right-of-way; retain the rural character of the area, protect Moore Creek and Arroyo Seco Canyons; and provide public access to them. The following goals and objectives are identified in the Plan; however, the plan was accepted in concept by the City Council on September 11, 1979. It is, however, included in the City's existing *General Plan/Local Coastal Plan 1990-2005*.

1. Preserve the rural character of the area where it now exists.
2. Establish criteria to continue the rural character as the area develops.
3. Preserve the existing trees.
4. Protect the quality of the adjacent canyons
5. Provide access to the canyon areas.
6. Maintain safety for motorists, pedestrians and cyclists with minimum impact to development and landscaping.
7. Rehabilitate disturbed areas.

The Plan establishes road, access, land use, design, landscaping and drainage recommendations for both publicly- and privately-owned lands to achieve these objectives.

## Draft Plans

### OCEAN STREET AREA PLAN

In May 2007, the City Council authorized staff to initiate Early Action Programs for the *General Plan 2030*, including the development of an Ocean Street Area Plan. A draft plan has been prepared that provides a background summary of existing conditions and details an overall vision and land use map for Ocean Street. The draft plan also includes goals, policies and actions,, as well as urban design guidelines. The proposed land use designations are the same as those portrayed on the Land Use Map in the draft *General Plan 2030*.

### RIVER/FRONT & LOWER PACIFIC DESIGN GUIDELINES AND DEVELOPMENT INCENTIVES

A Design Guidelines & Development Incentives Study is being prepared for the River/Front & Lower Pacific area adjacent to the downtown area. Although envisioned as an important complement to the Downtown, the area continues to lag economically behind Santa Cruz's Downtown core on upper Pacific Avenue. It generally has higher vacancies, lower commercial rents, underutilized parcels, inconsistent development character and a lower quality pedestrian environment. The intent of the Study is to identify design guidelines and incentives that the City might implement to help remedy these issues by spurring development activity along the River Street, Front Street, and Lower Pacific Avenue corridor (WRT-Solomon E.T.C. February 2009).

A series of recommendations and alternative strategies for redevelopment have been developed and will be considered by the City Planning Commission and City Council, although the study is not a plan that will be adopted by the Council. General guidelines for redevelopment of the area emphasize promotion of mixed-use, river-oriented development with housing and visitor uses in some areas and preservation of commercial uses in other areas. The study also considers strategies and incentives to enhance cross-river connections, strengthen the riverway as a regional open space and recreational facility, enhance pedestrian and public access, support redevelopment and infill, as well as "catalyst" projects on key sites that would serve as an example of the type of development the City is seeking for the area. Circulation, shuttle, parking and streetscape improvements are addressed.

The study reviews two potential redevelopment sites. One site included a series of contiguous riverfront parcels just south of Soquel Avenue (Site #1), and the other was a large single parcel at the junction of Pacific Avenue and Front Street (Site #2). Mixed-use development concepts were developed for each site consistent with the vision for the area, including a strong orientation to the River at Site #1 and a strong definition of the southern gateway to Downtown at Site #2. Site 1 was found suitable for mixed-used housing (approximately 100 units) and commercial (approximately 40,000 square feet). Approximately 100 residential units also were identified for Site 2 with approximately 10,000 square feet of commercial uses (WRT-Solomon E.T.C. February 2009).

### STATE-ADOPTED PLANS

The California Department of Parks and Recreation and the University of California have developed plans they administer as shown on Table 3-5 in Chapter 3. The three State Park plans are discussed in the Chapters 4.6 – PUBLIC SERVICES (Parks and Recreation) and 4.8 – BIOLOGICAL RESOURCES – of this EIR. The University plans and planned campus development and growth are summarized and analyzed as part of the "Cumulative Impacts" subsection of the CEQA CONSIDERATIONS (Chapter 5.1) section of this EIR. As state agencies, neither the California Department of Parks and Recreation nor the University of California are required to obtain local use permits from the City or County.

## 4.1.2 RELEVANT PROJECT ELEMENTS

### SUMMARY OF LAND USE GOALS & POLICIES

The proposed *General Plan 2030* includes goals, policies and actions that address land use and future development. The LAND USE chapter is the "land use element" required by California Government Code Section 65302(a), and Public Resources Code Section 2762(a). The LAND USE chapter addresses: a) the distribution, location, and extent of the uses of land for housing, business, industry, open space, natural resources, recreation and enjoyment of scenic beauty, education, public buildings and grounds, and other categories of public and private uses of land; and b) standards of population density and building intensity for the land use designations.

The LAND USE chapter sets forth the following four goals with 24 associated policies and 61 accompanying actions that address land use.

| | |
|---|---|
| GOAL LU1 | *Sustainable land use.* |
| GOAL LU2 | *A compact community with boundaries defined by the city's greenbelt and Monterey Bay.* |
| GOAL LU3 | *Complementary balance of diverse land uses.* |

GOAL LU4 *Land use patterns that facilitate alternative transportation and/or minimize transportation demand.*

The Land Use policies and actions address land use intensities, provision of services, and land use patterns, including preservation of open space. Several policies address job creation and commercial uses, as well as residential uses. Goal LU4 and its supporting policies and actions also seek land use patterns that facilitate use of alternative transportation and/or minimize transportation demand. (See also the TRANSPORTATION & TRAFFIC [Chapter 4.4] section of this EIR.) In addition, GOAL CD5 in the Community Design section of the draft general plan strives toward "*Walkable neighborhoods and districts of compatible uses and buildings*."

In addition, the draft policies and actions in the *General Plan 2030* also support updating or amending some land use or area plans and preparation of a new Ocean Street Area Plan. The Plan also calls for updating the City's Area Plans as necessary to reflect new development, improvements and potential opportunities (CD2.1.1). The proposed plan updates include:

- Prepare Ocean Street Plan: CD.1.5, CD3.1.3, CD4.4.1
- Update Seabright Area Plan: CD2.1.6, LU3.9.1
- Update Downtown Recovery Plan: CD2.1.7
- Update San Lorenzo River Urban Plan: CD3.1.2

## LAND USE MAP

The proposed *General Plan 2030* also includes a Land Use Map as required by State law that identifies land use designations throughout the City as shown on Figure 2-2. These designations include residential, commercial, mixed use, industrial, public and institutional, and parks and open space designations as summarized on Table 3-2 in the PROJECT DESCRIPTION (Chapter 3.0) section of this EIR (see page 3-11). The *General Plan 2030* includes allowable development densities for residential land use that are the same as residential densities under existing land use designations.

For commercial and industrial land use designations, the proposed general plan eliminates dwelling units and employees per acre limits that are specified in the existing 1990-2005 General Plan, as the underlying zone districts generally permit residential uses under specified conditions. Instead, the *General Plan 2030* proposes average Floor Area Ratios (FAR) for non-residential uses. FAR is a measure of the total building floor area in proportion to the size of the building's lot. Specifically, FAR is the gross floor area permitted on a site divided by the total net area of the site, expressed in decimals. Residential density is, however, specified for the new mixed use land use designations.

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan and Local Coastal Program, except for three new mixed use designations and changes in land use designations for three specified properties/areas as described below.

- **NEW MIXED USE DESIGNATIONS & APPLICATION:** Three new mixed use land designations have been developed and applied to the following areas.

- Mixed use high density (MXHD) designation is applied to segments of Soquel Avenue and Water Street that are designated Community Commercial in the existing General Plan. The MXHD designation allows a maximum FAR of 1.75, including a maximum of 30 dwelling units per acre. However, a project that meets a number of specific criteria, as determined by the Planning Commission, may have an FAR of up to 2.75, including up to 55 dwelling units per acre. Details would be included in the Zoning Ordinance.
- Mixed use medium density (MXMD) designation is applied to segments of Mission Street and Ocean Street that are designated Community Commercial in the existing General Plan. This new district would allow a FAR of 0.75 to 1.75 and a residential density of 10 to 30 dwelling units per acre.
- Mixed use visitor commercial (MXVC) designation is applied to segments of Ocean Street that is designated Community Commercial in the existing General Plan. The *General Plan 2030* also indicates that the designation may be applied to sites within 1,000 feet of Ocean Street's centerline and which front on Water Street, Soquel Avenue, May Avenue, or Broadway. The designation is intended to encourage high-quality visitor-serving commercial development along Ocean Street, particularly hotels and motels. However, it also accommodates other multi-story commercial development, such as office buildings. The MXVC designation allows a maximum FAR of 2.75. It does not allow any dwelling units; however, a project that meets specific criteria, as determined by the Planning Commission, may include up to 55 dwelling units per acre within this FAR. Details will be included in the Zoning Ordinance.

❑ **LAND USE MAP CHANGES FOR SPECIFIC AREAS:**

- Golf Club Drive Property: Change the existing General Plan land use designation from Low Density Residential (1.1-10 DU/acre) to Very Low Density Residential (.1-1 DU/acre). However, a residential density of 10.1-20 dwelling units per acre could be applied to the 20-acre area with preparation and adoption of an area plan. This could result in more residential units (200+) than allowed in the existing General Plan (up to 100 units).
- Swenson Property: The existing General Plan land use designation is Low Density Residential (1.1-10 DU/acre). The draft *General Plan 2030* would allow Low Medium Density Residential (10.1-20 DU/acre)/Neighborhood Commercial/Office designations with preparation of a Specific Plan.
- Landfill and Resource Recovery Center: A 5.5-acre property adjacent to facility's entrance was recently acquired by the City and is proposed to be designated as "Community Facilities." It is expected that future uses would be ancillary to the landfill and Resource Recovery Center uses; specific uses have not yet been identified and will be determined in the future. However, the parcel is not planned for expansion of the landfill disposal operations (Arman, personal communication, April 2010).

According to the draft *General Plan 2030*, the mixed-use designations support the General Plan's goals and policies by encouraging new housing in places well served by transit. Each

mixed-use designation specifies the infill areas along Santa Cruz's transit corridors where the designation may be applied. Because these transit corridors also supply much of the City's commercial land, the mixed-use designations afford additional opportunities for the City's residents to live near their workplace. The draft plan also indicates that any site that is within one of these infill areas, and which also has a Community Commercial (CM) designation, may apply for a General Plan amendment to obtain a mixed-use designation. The City may choose to grant the mixed-use designation if it would support the General Plan's goals, policies, and actions.

## FUTURE DEVELOPMENT POTENTIAL

### Buildout Estimates

As described in the PROJECT DESCRIPTION (Chapter 3.0) section of this EIR, to aid the environmental analysis related to potential impacts of new development accommodated by the draft General Plan, the City considered whether to use the AMBAG population forecasts as a measure of potential future growth or to develop estimates related to land uses envisioned in the draft plan. It was determined that a "buildout" projection would be more closely linked with potential land uses supported in the plan, and therefore, a projection was developed for the City's Planning Department by Design, Community and Environment (DC&E). The projection considers the development potential under the proposed *General Plan 2030* that is estimated to occur in Santa Cruz by the year 2030. The projections are based on the draft Land Use Map, taking into account land use map changes, vacant lands, sites subject to reuse or redevelopment, and underutilized parcels, assuming that not all development will occur at maximum density. On the average it is assumed that all new development will occur at 80% of the permitted residential density or floor area ratio. The estimates also assume approximately 7.7 acres of land in the Harvey West area are designated Community Commercial in accordance with proposed Action LU3.2.8 that calls for directing large regional retail uses to the Harvey West area. The estimates are based on the following assumptions; a memo further explaining the assumptions and methodology is included in Appendix B.

- Vacant Lands. Existing vacant lands, including land use designation changes on Swenson and Golf Club Drive properties.
- Underutilized and Mixed Use Designations. Redevelopment and mixed use development given existing underutilized parcels and new mixed use land use designations and supporting policies as follows:
  - New Mixed Use Designations along Mission, Ocean, Soquel and Water.
  - Policies that encourage mixed-use development along the City's transit and commercial corridors (LU3.3.1 and LU4.1).
- Development in Sphere of Influence. Lands within the City's existing Sphere of Influence (SOI) were also considered. The draft General Plan policies do not support expansion of the City's Sphere of Influence (SOI) or annexation except for a small area in the Carbonera neighborhood and the north campus of UCSC. The City's existing adopted SOI includes the Carbonera area, as well as, an area along 7th Avenue. Since owners of lands within the existing SOI includes could apply directly for annexation to LAFCO, some limited development/growth has been

accounted for these areas that are within the City's existing SOI. (Potential development at UCSC is not subject to City land use regulations, and is discussed in the "Cumulative Impacts" subsection of the CEQA CONSIDERATIONS (Chapter 5.0) section of this EIR.

- Major Approved Projects. As discussed in the PROJECT DESCRPTION (Chapter 3.0) section of this EIR, major pending or recently approved projects were not included in the buildout projections (Design, Community & Environment, October 2009), and were added to ensure that all potential development anticipated to occur during the General Plan timeframe is included in the estimate and considered in the EIR impact analyses. These developments include the Delaware Mixed Use Project, the Tannery Arts Center non-residential uses, the La Bahia Hotel Project, Marriott Hotel Project, and an addition to an existing hotel on Second Street.

Table 3-3 in the PROJECT DESCRPTION (Chapter 3.0) section of this EIR, summarizes buildout estimates by planning area. As indicated, the projections estimate the following level of new development by the year 2030:

- 3,350 residential units
- 1,087,983 square feet of commercial development and 311 hotel rooms
- 1,273,913 square of office space;
- 776,926 square feet of industrial development.

The proposed *General Plan 2030* results in higher residential, commercial and office land uses, but slightly reduced industrial uses than would occur under the existing General Plan that is shown on Table 4.1-4. This is due to changes in land use designations for the Swenson and Golf Club Drive properties, addition of new mixed-used designations on segments of Mission Street, Ocean Street, Soquel Avenue and Water Street, and a future redesignation of industrial land in the Harvey West area to accommodate commercial uses (Design, Community & Environment, October 2009).

## Policies Supporting Development / Intensification

Some of the draft *General Plan 2030* policies and actions support certain types of land uses and/or development, including new mixed-use use districts and/or intensified redevelopment. Specifically, as indicated above, new mixed-use districts are proposed along the City's four major transportation corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. A new Mixed-Use River District (L3.6) also is proposed. Some policies support higher densities, infill and/or intensification of use. Policy LU1.1 seeks optimum utilization of infill parcels and consolidation of underdeveloped parcels (LU1.1.2). Another policy (LU3.8) allows maximum residential densities to be exceeded for the following uses: single-room occupancy (SRO) units; small ownership units (SOU); accessory dwelling units (ADU); density bonus units; and residential uses within areas designated High-Density Overlay District (HD-O). Intensified office development is encouraged in the downtown area (LU3).

Additionally, several General Plan actions support specific types of land uses or development, although site-specific locations are not identified. These facilities include arts and cultural facilities in a variety of zone districts (HA2.2.4), a performing arts center (HA2.2.5), high-end lodging (ED1.5, ED1.5.1), large regional retail uses in the Harvey West area (LU3.2.8), and

artist live-work units (HA4.4). Some policies address specific land uses in specific areas. For instance, neighborhood commercial uses are encouraged for the Prospect Heights neighborhood. Policy LU3.2 supports maintaining lands currently designated for industrial and office in land use designations that promote job creation and retention, and its accompanying actions seek employment-intensive uses (LU3.2.1) and support of uses in the Harvey West and Westside industrial areas. Public facilities supported by the draft plan include parks, schools, a transit center along the railroad, and a desalination facility (CC3.1.3) as part of the actions outlined to implement the City's adopted *Integrated Water Plan*, but specific sites are not identified for these uses.

Table 4.1-5 summarizes key proposed policies and actions related to land uses, density and intensity, and potential development. While most of these are in the "Land Use" chapter of the draft plan, some are in other chapters, including "Community Design" and "Economic Development."

**Policies Related to City Expansion and Annexation**

The draft General Plan policies do not support expansion of the City's Sphere of Influence (SOI) or annexation except in the Carbonera Area (LU2.2.1), the UCSC north campus area pursuant to the UCSC/City Comprehensive Settlement Agreement (LU2.2.2), and a 5.5-acre addition to the City's Landfill and Resource Recovery Center (LU2.2.3). As indicated above, owners of lands within the existing adopted SOI could apply directly for annexation to LAFCO.

## 4.1.3 IMPACTS AND MITIGATION MEASURES

### CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

1a Physically divide an established community;

1b Introduce new land uses or alter the intensity of land uses, which could be considered incompatible with the surrounding land uses or with the general character of the area;

1c Conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or

1d Conflict with any applicable Habitat Conservation Plan or Natural Community Conservation Plan.

## TABLE 4.1-5
## Summary of Proposed *General Plan 2030* Policies & Actions Related to Land Use Intensity and/or Development

| | |
|---|---|
| **Increased Density and/or Land Use Intensity** | • Expand HDO (amend Downtown Recovery Plan) to include Front Street and portions of lower Pacific: LU3.6.1<br>• Encourage transition to higher densities along transit and commercial corridors: LU4.1<br>• Amend ZO to increase number of stories allowed within existing height limits in Westside Industrial area: LU3.2.6<br>• Encourage higher intensity residential & maximum densities: LU3.7, LU3.7.1<br>• Allow specified residential uses to exceed maximum densities (i.e., SRO, SOU, ADU): LU3.8<br>• PD changes & incentives for underutilized lands: LU1.1.1, 1.1.2<br>• Pursue employment-intensive uses: LU3.2.1 |
| **Mixed Uses** | • Increased development in new mixed use districts: LU3.3.2 (Revise ZO), LU4.2, LU4.2.2, LU4.2.3<br>• Mixed Use River District: L3.6<br>• Support mixed-use development in Downtown, along primary transportation corridors and in employment centers: LU4.1.1, LU4.1.3, LU3.3.1, CD3.3 (encourage assembly of small parcels), ED5.3<br>• Encourage mix of uses, including public facilities along Lower Pacific: LU3.5<br>• Revise ZO to allow live-work units: LU4.1.4 |
| **Expand Land Uses** | • Amend ZO to allow development of arts and cultural facilities in wide variety of designations: HA2.2.4, HA3.1, HA3.1.2 (Art & Entertainment District)<br>• Amend Downtown Recovery & BSOL Plans to allow additional public & commercial uses along Lower Pacific Avenue & Front Street: LU3.5.1<br>• Expand Beach Area services and employment: ED5.1.2 |
| **Support of Specific Land Uses** | *HOUSING*<br>• Encourage a variety of housing types, when appropriate: LU3.1.1<br>• Encourage development of artist studios and artist live-work units: HA4.4<br>*VISITOR-SERVING*<br>• Develop new lodging & attract top-end, full-service hotel: ED1.5, ED1.5.2<br>• Promote eco-tourism (ED1.3, ED1.3.1)<br>• Promote City as conference destination (ED1.4) and support new conference center (ED1.4.1)<br>*COMMERCIAL - INDUSTRIAL*<br>• Encourage light industrial and creative industry: LU3.2.3<br>*PUBLIC FACILITIES*<br>• Encourage neighborhood facilities – parks, schools, daycare centers & neighborhood commercial services: LU4.3, LU4.3.1<br>• Develop Desalination Plant: CC3.1.3, LU3.10.2 (Initiate GP amendment with selection of desal plant site)<br>• Transit Center along rail corridor: LU4.5, LU1.1.4 (Golf Club Drive area)<br>• Encourage and allow arts and facilities in variety of zones: HA2.2.4<br>• Countywide Emergency Operations Center: HZ1.1.5 |
| **Site or Area-Specific Development Support** | • Support Tannery Arts Center development: HA2.2.3<br>• Downtown performing arts center or expansion of Civic: HA2.2.5<br>• Revitalize lower Pacific area (south of Cathcart): ED5.5.7<br>• Harvey West - Direct large regional retail uses to Harvey West: LU3.2.8;<br>• Westside - Allow incubator uses in employment intensive areas: LU3.2.4<br>• Eastside – Retain/strengthen medical offices: ED2.2.5<br>• Depot Part - Further develop as a multi-modal center: LU3.5.2<br>• Prospect Heights - Encourage neighborhood commercial: ED5.2.3<br>• Seabright - Support redevelopment of LI properties on Murray (ED5.3.2); consider infill/intensification in Area Plan update (CD2.1.6); promote beaches (ED1.8.13); provide shopping services (ED1.8.14)<br>• Encourage the location of University-serving shopping and services on University lands: LU4.2.5 |

## IMPACT ANALYSIS

Based on the significance criteria identified above, the following impact analyses address: the potential to divide an established community (1a), introduction of incompatible land uses (1b), and potential conflicts with plans, policies or regulations adopted for the purpose of avoiding or mitigating an environmental effect (1c). There are no existing adopted Habitat Conservation Plans or Natural Community Conservation Plans within the City of Santa Cruz. The City is in the process of developing a HCP to cover incidental take of listed species associated with City] projects and operations, including water supply, flood control, and landfill improvements. A draft has not been completed, and this is addressed in the BIOLOGICAL RESOURCES (Chapter4.8) section of this EIR. Thus, the proposed *General Plan 2030* goals, policies and planned land uses would not conflict with such plans (1d).

**Impact 4.1-1: Divide an Established Community**
Adoption and implementation of the *General Plan 2030* would not result in development or expansion of municipal boundaries that would result in a physical division of an established community. Therefore, there would be *no impact*.

The City of Santa Cruz is a compact urban community that is surrounded by natural barriers to outward expansion including the Santa Cruz Mountains, the Pacific Ocean and a designated greenbelt. The City is primarily built out and is surrounded on the west and north by mostly greenbelt, agricultural or open space lands and on the south by Monterey Bay. Thus, the City's western and northern borders are mostly defined by publicly- and privately-owned open space, agricultural, and park lands, which in conjunction with the Monterey Bay on the south, serve to limit the City's expansion. The Arana Gulch greenbelt property and the Santa Cruz Small Craft Harbor define the City's eastern boundary.

As an established community, new development accommodated by the proposed *General Plan 2030* would be considered infill development, both on limited remaining vacant lands, as well as, intensification and/or redevelopment on underutilized parcels. Thus, development would be within an established community and would not result in a physical division of an established community.

Furthermore, proposed goals, policies and actions in the draft *General Plan 2030* limit potential expansion of the City's boundaries. Land Use Goal LU2 envisions a "compact community with boundaries defined by the city's greenbelt and Monterey Bay." Supporting policies seek to maintain the City's urban development line and also include working with the County to preserve open space and agricultural land uses at the edge of the City. The proposed policies and actions also limit expansion of the City's Sphere of Influence (or annexation), except for three specified areas. These include: consolidation of a small area within the existing residential Carbonera neighborhood, most of which is included within city limits; the north campus area of UCSC pursuant to the terms of the UCSC/City Comprehensive Settlement Agreement; and a 5.5-acre parcel adjacent to the Dimeo Lane landfill and Resource Recovery Center.

A narrow band of land between the City's eastern city limit and Seventh Avenue is included within the City's existing Sphere of Influence, and, as such, property owners could apply for annexation. Currently within the unincorporated Live Oak area, this area is primarily residential with some commercial uses and many underutilized parcels. If annexation were approved in the future, this area would continue to be designated for residential uses and would be a logical expansion of the City without dividing an established community, as it is at the western edge of the unincorporated area known as Live Oak, which is also a developed area similar to the City.

Table 4.1-6 summarizes the proposed policies and actions that ensure that future development accommodated by the *General Plan 2030* would not result in physical division of an established community.

**TABLE 4.1-6**
**Proposed General Plan Policies and Actions that Avoid Land Use Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| SUPPORT INFILL | • Ensure optimum utilization of infill parcels: LU1.1 |
| LIMIT URBAN LIMITS | • Maintain City's urban development line at Moore Creek Preserve (east branch above Highway 1) and along the city limits below Highway 1: LU2.1 |
| NO EXPANSION OF SPHERE OF INFLUENCE | • No expansion of SOI (LU2.2) except for three areas – a small area within the existing residential Carbonera neighborhood (LU2.2.1); the north campus area of UCSC pursuant to the terms of the UCSC/City Comprehensive Settlement Agreement (LU2.2.2); and a 5.5-acre addition to the City's Landfill and Resource Recovery Center (LU2.2.3) |
| SUPPORT PRESERVATION OF OPEN SPACE & AGRICULTURAL LANDS AT CTIY'S EDGE | • Preserve open space at edges of City: LU2.3<br>• Work with County to maintain lands in open space west of City: LU2.3.2<br>• Support County policies for agricultural and grazing uses within the Planning Area and on the North Coast: LU2.3.5 |

**Conclusion**. The City of Santa Cruz is primarily built out and as an established community, new development accommodated by the proposed *General Plan 2030* would be considered infill development. Thus, development would be within an established community and would not result in a physical division of an established community. Furthermore, proposed goals, policies and actions in the draft *General Plan 2030* limit potential expansion of the City's boundaries and seek to maintain the City's urban development limits. Thus, the project would not result in an impact related to division of an established community.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.1-2: Introduce Incompatible Land Uses**
The proposed *General Plan 2030* does not introduce new land uses that would be incompatible with existing land uses or land use designations, although residential densities may increase in limited areas. However, with implementation of proposed *General Plan 2030* policies and actions, compatibility between new higher density residential uses with adjacent lower density residential neighborhoods would be ensured. Therefore, this is considered a *less-than-significant impact*.

The proposed *General Plan 2030* introduces three new mixed-use designations, which are applied to segments of the City's four major transportation corridors: Mission Street, Ocean Street, Soquel Avenue and Water Street. The designations include residential and non-residential land uses. However, the areas are currently zoned "Community Commercial," and residential uses are currently permitted with approval of a use permit or special use permit, subject to the a minimum net land area of the R-M (Multiple Residence-Medium Density District), which currently is 1,450 square feet. This represents a density of 30 units per acre under existing regulations. The proposed medium density mixed use designation maintains a residential density limit of 30 units per acre. However, the high density mixed use designation would allow up to *55* units per acre under specified conditions. The mixed use visitor designation (only along Ocean Street) also could allow up to *55* units per acre under specified conditions. Generally, existing lower density residential neighborhoods are situated adjacent to Water Street to the north of the proposed high density mixed use designation. However, the proposed segments along Soquel Avenue and Ocean Street that are designated for high density mixed uses generally are located adjacent to areas that are designated commercial and medium density residential. The medium density residential designation does allow up to *55* units per acre.

Thus, the new mixed use districts would not result in new land uses that could be considered incompatible with another land use, although the residential density could be increased in relation to existing adjacent uses in one area along Water Street. However, draft *General Plan 2030* policies and actions prevent potential land uses incompatibilities, as summarized in Table 4.1-*7* below, in that it seeks to protect existing residential uses (LU3.9), seeks to ensure that infill and intensified development is sensitive to existing neighborhoods (LU4.1.2), restricts uses that are incompatible with industrial uses within industrial areas (LU2.3.6), and seeks to ensure appropriate land uses adjacent to open spaces (LJU3.11.2). The development permitted within the new mixed use designations may result in increased density or land use intensity, which may result in aesthetic or noise impacts to adjacent uses. These issues are discussed in the AESTHETICS (Chapter 4.3) and NOISE (Chapter 4.13) sections of this EIR. However, the proposed General Plan specifically calls for development of design guidelines to address the visual transition between areas of higher density and/or intensified development (i.e., along corridors such as Water and Soquel Streets) and adjacent existing developed neighborhoods with less intense development (CD2.1.3). The proposed Plan also indicates that development standards will be included in the Zoning Ordinance amendment to establish mixed use districts, which will ensure that siting, massing, and scale of infill and intensified development are sensitive to existing neighborhood and business districts (CD2.1.4).

The proposed General Plan does add new floor area ratios for the non-residential land use designations and eliminates residential densities in on-residential zones. The floor area ratios

would limit building mass, which is not currently regulated through floor area ratios in the existing General Plan.

Policy LU3.10 would allow community services facilities to be located in all land use designations, and its companion Action LU3.10.1 calls for amending the Zoning Ordinance to achieve this. This could result in incompatible land uses depending on what type of "community service facility" would be proposed, especially within residential districts. Currently public facilities are not permitted in R-1 or Residential Suburban districts. In RL, RM, and RH districts, educational, religious, cultural, public utility or public service buildings and uses are permitted, except for corporation yards, storage or repair yards, and warehouses. The General Plan does support development of a desalination plant (CC3.1.3), and Action LU3.10.2 calls for initial of a General Plan amendment when a specific site is selected. The proposed General Plan also calls for a potential transit center along the rail line in the Golf Club Drive area. Thus, the major public facilities that may be supported by the Plan are already addressed in other policies and actions. Furthermore, the existing zone districts generally allow other use or service establishments determined by the zoning board if they are in the same character as the permitted and allowed uses, subject special use permit approval.

**TABLE 4-1-7**
**Proposed General Plan Policies and Actions that Avoid Incompatible Land Uses**

| Type of Measure / Action | Policies / Actions |
|---|---|
| ENSURE LAND USE COMPATIBILITY WITH EXISTING NEIGHBORHOODS | • Protect existing residential areas: LU3.9<br>• Ensure intensified development is sensitive to existing neighborhoods: LU4.1.2<br>• Design principles and new guidelines for transition between higher density corridors and adjacent development: CD 2.1.3, CD2.1.4<br>• Support more intensive commercial uses along commercial corridors, provided they are compatible with or transition to adjacent residential areas: EDD5.3.1<br>• Appropriate land uses adjacent to open spaces: LU3.11.2<br>• Compatible development within historic districts: HA1.9, 1.9.1-1.9.3<br>• Restrict uses that are incompatible with industrial uses within industrial areas: LU3.2.7<br>• Ensure appropriate land uses and development standards that do not adversely impact adjacent open spaces: LU3.11.2 |

**Conclusion**. The proposed *General Plan 2030* introduces three new mixed-use designations, which are applied to segments of the City's four major transportation corridors in areas where mixed-use development is currently permitted with applicable development standards. Thus, the new mixed use districts would not result in new land uses that could be considered incompatible with another land use, although the residential density could be increased in relation to existing adjacent uses in one area along Water Street. However, with implementation of the proposed general plan, siting of future development would not be permitted if it were potentially incompatible with existing uses. Therefore, the project would not result in a significant impact related to

introduction of incompatible land uses. As currently written, LU3.10 and LU3.10.1 are somewhat broad, and subject to future interpretation that may allow potentially incompatible facilities within a residential neighborhood. Community service facilities are not defined in the General Plan; Action LU3.10.2 references a desalination facility. For clarity and to avoid confusion, LU3.10 and LU3.10.1 would benefit from being rewritten to be more specific as to the type of community service facilities that would be envisioned or eliminated as there are specific policies and actions addressing facilities specifically supported in the Plan – a desalination facility and rail transit center.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified. However, revision of the following *General Plan 2030* policies and actions are recommended to avoid confusion regarding location of community service facilities.

**Recommended Revisions to the *Draft General Plan 2030***

Revise LU3.10 and LU3.10.1 to better define community service facilities OR delete as shown below.

~~LU3.10 Allow community services facilities to be located in all land use designations.~~

~~LU3.10.1 Amend the Zoning Ordinance to allow community service facilities and uses in all land use designations as of right. Cf. HA2.2.4.~~

**Impact 4.1-3 Conflict with Applicable Land Use or Other Plans**
Goals, policies and actions of the draft *General Plan 2030* would not conflict with other adopted plans. The plan consistency analysis has not found any plan inconsistencies with the Draft General Plan that would result in adverse physical impacts. Therefore, there would be *no impact*.

The following subsection provides a review of consistency of the proposed *General Plan 2030* with local plans and policies. In accordance with State CEQA Guidelines, Appendix G, the review focuses on policies or regulations adopted for the purpose of avoiding or mitigating an environmental impact. The City's existing adopted plans (see Table 3-5 in Chapter 3.0 of this EIR) are not part of the *General Plan 2030*, except for four plans (Downtown Recovery, Moore Creek Corridor, San Lorenzo Urban River, and Santa Cruz Harbor Development Plans). Review of consistency of the draft *General Plan 2030* with adopted plans is provided below. The focus will be on portions of those plans that serve to mitigate environmental impacts. Consistency with adopted Master Plans for the City's greenbelt lands is provided in the BIOLOGICAL RESOURCES (Chapter 4.8) section of this EIR.

## Regional Plans

AMBAG has prepared "Envisioning the Monterey Bay Area – A Blueprint for Sustainable Growth and Smart Infrastructure" that is a blueprint for the future describing how the communities of the Monterey Bay area might grow in a sustainable fashion over the next 25 years. Regional and local agencies worked together to evaluate current trends regarding the distribution of population and employment in comparison to: 1) improving mobility; 2) reducing GHG emissions; 3) providing housing and employment opportunities; and 4) protecting natural and cultural resources. The study develops a preferred growth scenario that maximizes the achievement of these outcomes that will serve as the basis for SB 375's Sustainable Communities Strategy that will demonstrate how the region will reduce per capita greenhouse emissions by 5% from the automobiles and light trucks by 2035 (AMBAG, March 2011).

Under the "Sustainable Growth Patterns" scenario developed as an alternative to current growth patterns, the region's urban footprint would increase by 20,000 acres by 2035, which is less than half of the approximately 43,000 acres that are projected to otherwise be developed. Under this scenario, the majority of the region's forecast growth occurs within a comfortable walking distance to transit corridors and neighborhood centers within "Blueprint Priority Areas" identified in the study that are primarily higher density lands within cities in proximity to transit and walking opportunities. The City of Santa Cruz is as a "Blueprint Priority Area." Consideration of policies and specific actions to see this sustainable pattern become a reality would be within the purview of individual agencies.

The proposed *General Plan 2030* is consistent with the planning principles in included in the draft blueprint plan. The draft General Plan includes new mixed use designations along the City's major transportation corridors and supports infill and high density development.

## City Plans

Generally, the City's adopted area and other land use plans provide guidance for land uses, development siting and design, and circulation, but do not include policies related to environmental issues. The Downtown Recovery Plan includes a land use plan and development and street design guidelines, but not policies. Similarly, the Eastside Redevelopment Plan addresses land use and business improvements with a focus on design guidelines for improvements to streets, parking and building facades. The San Lorenzo Urban River Plan also does not contain specific policies, but generally presents recommendations for land use and development design improvements, access, and urban interface connections for focus sites and improvements along specified reaches of the river.

While the Seabright Area Plan includes policies, they address primarily development design, circulation and housing issues. The proposed *General Plan 2030* policies and actions that seek to protect existing neighborhoods and heritage trees are consistent with policies in the Seabright Area Plan that also seek to protect heritage trees and to maintain a scale of development consistent with the existing neighborhood.

The Western Drive Master Plan provides road, access, land use, design, landscaping and drainage recommendations for both publicly- and privately-owned lands to preserve the rural character of the area, provide access to the canyon area and preserve existing trees. The

proposed *General Plan 2030* does not conflict with these goals and recommendations, does not change the land use density in this area, and includes policies and actions to maintain the City's Heritage Tree Ordinance and protect heritage trees.

The Santa Cruz Harbor Development Plan includes policies and programs that address environmental quality, design, land use, circulation and parking, and parks, recreation and public access. The Environmental Quality policies seek to avoid the adverse impacts on the marine habitat within the Harbor, including management of dredging and disposal and water quality controls to protect water quality. The proposed *General Plan 2030* does not specifically address Harbor issues and does not include any policies or actions that would conflict with those in the Harbor Development Plan. The proposed General Plan policies related to protection of water quality, including Implementation of stormwater quality & water pollution prevention programs, would support and complement Harbor policies.

The B/SOL Plan primarily provides policy guidance for land use, development, design and circulation issues. Proposed Policy LU3.4 seeks to give priority to uses that serve both visitors and residents in neighborhoods near visitor areas and support improved recreational and economic opportunities at the Municipal Wharf (LU3.5.3). The proposed *General Plan 2030* also supports protection of historical structures, which is also advocated in the B/SOL Plan. It is noted that the estimate buildout projections for the Beach Area show about one fifth of new commercial development envisioned in the B/SOL Plan (approximately 22,000 square feet compared to 125,000 square feet).

Therefore, there are no apparent conflicts between the proposed project and applicable plans, policies or regulations adopted for the purpose of avoiding or mitigating an environmental.

**Conclusion**. There are no apparent conflicts between the proposed project and applicable plans, policies or regulations adopted for the purpose of avoiding or mitigating an environmental effect as discussed above. Therefore, the project would not result in an impact related to conflicts with local plans and polices.

**Mitigation Measures**

None are required as a significant impact has not been identified.

## REFERENCES

City of Santa Cruz.

- Adopted October 1998. *City of Santa Cruz Beach and South of Laurel Comprehensive Plan*. Prepared by City of Santa Cruz Department of Planning & Community Development.
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- October 29, 2009. "Methodology for General Plan 2030 Buildout Projections."
- December 11, 2006. "Land Use Background Report."

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# 4.2 POPULATION & HOUSING

## 4.2.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Regional Setting
- Regulatory Setting
- Population Trends & Forecasts
- Housing Trends & Forecasts
- Employment Trends & Forecasts
- UCSC Population and Housing

### REGIONAL SETTING

Santa Cruz is the largest city within Santa Cruz County in terms of population, followed by Watsonville, Scotts Valley and Capitola. The City's current population represents approximately 22% of the total County population, and it also accommodates approximately 22% of the County's total housing stock (California Department of Finance, May 2008). According to AMBAG data, the City provides 20% of the jobs found within the County (AMBAG, June 11, 2008a).

### REGULATORY SETTING

#### Regional Population, Housing and Employment Forecasts

There are no federal, state or local agency regulations regarding population. The Association of Monterey Bay Area Governments (AMBAG) prepares and updates population, housing and employment forecasts for the Monterey Bay region, which includes Santa Cruz, Monterey and San Benito Counties. These forecasts are used in other regional planning efforts, including but not limited to, air quality management plans and housing elements.

#### California Housing Element Requirements

Pursuant to State law (Government Code section 65580 et seq.), each city and county must prepare and adopt a Housing Element in its General Plan. The Housing Element must identify and analyze existing and projected housing needs and prepare goals, policies, programs and quantified objectives to further the development, improvement, and preservation of housing. Unlike other elements of the General Plan, Housing Elements are mandated by State law to be prepared for seven-year intervals (formerly 5-year intervals) and must include quantified objectives to meet identified housing needs.

State law requires that the housing element:

- Identify adequate sites to facilitate and encourage housing for households of all economic levels, including persons with disabilities;
- Remove, as legally feasible and appropriate, governmental constraints to housing production, maintenance, and improvement;
- Assist in the development of adequate housing for low and moderate income households;
- Conserve and improve the condition of housing, including existing affordable housing; and
- Promote housing opportunities for all persons.

The City's current Housing Element, which covers the period from 2007 to 2014, was updated and adopted in 2010 with final approval by the State and adoption by the City in 2011. It sets forth goals, policies, quantified objectives and programs for the production, rehabilitation and conservation of housing, and addresses affordable housing and special housing needs. The Housing Element includes objectives to construct 672 new housing units, rehabilitate 50-75 housing units for low income households, and conserve 594 affordable housing units between the years 2007 and 2014. The Housing Element indicates that the above housing production goal has almost been met by housing units constructed and approved since January 2007, except 170 additional housing units are needed for extremely low, low and moderate income households to fully meet the above housing production objectives once constructed and approved units are considered.

### Regional Housing Needs Allocation

Housing Elements must also describe programs for meeting its "fair share" of regional housing needs based on seven-year projections developed by the State and AMBAG. The State of California requires the Department of Housing and Community Development (HCD) to identify housing needs for each region of the State in response to projected population and household, and state law (Government Code 65584) further mandates that each Council of Governments (COG) distribute the regional housing needs allocation (as determined by the State) to each jurisdiction within the COG's region. AMBAG is the COG charged with overseeing the Regional Housing Needs Allocation (RHNA) process for jurisdictions in Monterey and Santa Cruz counties, and is responsible for determining the "fair share" of regional housing need for each jurisdiction in Monterey and Santa Cruz counties (AMBAG, June 11, 2008b).

### City of Santa Cruz Affordable Housing Provisions

The requirements provision of affordable housing to moderate, low or very-low income households as a part of new residential development are included in the City's Municipal Code, Chapter 24.16 – "Affordable Housing Provisions." The purpose of the inclusionary housing requirements is to enhance the public welfare by adopting policies to utilize remaining developable land in the city in a manner consistent with state and local housing policies and needs, meet the city's share of regional housing needs, implement the housing element's goals and objectives, improve the feasibility of rental housing development, assure compatibility

between market rate units and inclusionary units, and make housing available for households of all income levels. Chapter 24.16 also addresses accessory dwelling units, density bonuses for residential units, and fee waiver for affordable units.

## POPULATION TRENDS & FORECASTS

### Population and Household Trends

#### POPULATION TRENDS

As of January 1, 2009, the City of Santa Cruz supported a population of 58,982 (California Department of Finance (DOF), May 2009).[1] This is an increase of 9,271 City residents over the City's 1990 population of 49,711 residents when the existing *General Plan and Local Coastal Plan 1990-2005* was prepared. Overall, this population increase represents an annual average growth rate of approximately 1% (0.98) between 1990 and 2009. The City's 2009 existing population is slightly less than what was forecast by AMBAG and included in the City's existing General Plan for both the years 2005 (59,700 total forecast population) and 2010 (60,800 total forecast population).

Population increases and growth trends within the City have fluctuated over the years. Spurred in part by the establishment of the University of California Santa Cruz (UCSC) campus, the City's population increased 29% during the 1970s, which represented an annual average growth rate of approximately 2.9%. Growth slowed to an average annual rate of about 2% during the 1980s. Between 1990 and 2008, City population grew at an average annual growth rate of about 1%.

In comparison, the State of California grew at an average annual rate of approximately 1.4% during the 1990s and 1.5% between 2000 and 2006. City growth rates have been lower than the Bay Area Consolidated Metropolitan Statistical Area (CMSA, which includes Santa Cruz County), which grew 2.3% between 2000 and 2006 (Bay Area Economics, June 2006). Table 4.2-1 compares City, County and State population and growth trends.

The 2010 U.S. Census data became available during the preparation of this EIR. It shows the City's population in 2010 as 59,946, which is slightly higher than the City's population reported for January 1, 2009 by the California DOF. However, the EIR analyses utilize the City's population as of 2009 when the NOP was published.

[1] California CEQA Guidelines section 15125(a) requires that existing environmental conditions be described as they exist at the time the Notice of Preparation (NOP) is published. The NOP for this EIR was published in March 2009, and thus, population figures available from the State as reported by January 1, 2009, are used in this analysis.

**TABLE 4.2-1**
**City, County, and State Population Growth**

| | CITY | | COUNTY | | STATE | |
|---|---|---|---|---|---|---|
| Year | Population | Average Annual Growth Rate | Population | Average Annual Growth Rate | Population | Average Annual Growth Rate |
| 1960 | 26,600 | | 84,200 | | 15,720,860 | |
| 1970 | 32,100 | 2.06% | 123,800 | 4.70% | 19,957,304 | 2.69% |
| 1980 | 41,500 | 2.92% | 188,100 | 5.19% | 23,668,145 | 1.85% |
| 1990 | 49,711 | 1.97% | 229,700 | 2.21% | 29,473,000 | 2.452% |
| 2000 | 54,593 | 0.98% | 255,602 | 1.13% | 33,873,086 | 1.49% |
| 2009 | 58,982 | 0.9% | 268,637 | 0.5% | 38,292,687 | 1.45% |

**Source:** U.S. Census 2000 and California Department of Finance, 2009

### HOUSEHOLD TRENDS

The average household size in the City dropped slightly from 2.5 in 1990 to approximately 2.44 in 2000 (City of Santa Cruz, October, 2003). As of January 1, 2009, the City of Santa Cruz had a reported household size of slightly less than 2.4 (2.395) (California Department of Finance, May 2009). Based on California Department of Finance estimates, there were approximately 22,243 households within the City of Santa Cruz as of January 1, 2009.

The City of Santa Cruz, similar to many communities with large university campuses, has a higher proportion of non-family households (e.g., unrelated individuals) than the County or the region. In 2005, approximately 50% of the City's households were non-family, compared to 38% Countywide and just 36% for the region (Bay Area Economics, June 2006).

## Demographic Trends

According to 2000 Census data, 72% of the City of Santa Cruz reported their ethnicity as white, followed by 17.5% reporting Hispanic ethnicity (Bay Area Economics, June 2006). Ethnic diversity has increased slightly in the City since 1990 when the proportion of white ethnicity was 79%.

The City's estimated median age in 2005 was slightly lower, at 34.1 years, than either the County or the region (Bay Area Economics, June 2006). The City also has a lower concentration of children age 0 to 17 (16.8%) than the County (22.7%) or the region (23.3%), and higher proportions of college-age residents from age 18 through 24 (17.4%) than the County (11.3%) or the region (8.4%). Additionally, the City also has a relatively high proportion of young adults age 25 to 34, with more than 17% of population in this age range, compared to 14% or less for the region and County. In every age cohort above age 35, the City has slightly lower proportions than the County or region, including seniors age 65 and over (Bay Area Economics, June 2006). In 2000, 30% of the City's population was between the age of 35 and 54 years, and 14.8% were 55 years and older. From 1990 to 2000 the City experienced a 2% population decline in 25 to 44 years of age group, but the age 45 to 64 population increased by 76% (City of Santa Cruz Department of Planning and Community Development, April 2004).

Residents of the City of Santa Cruz are highly educated, with more than 44% of the residents over age 25 having achieved a bachelor's degree or higher as of 2000. This level of educational attainment in the City of Santa Cruz is substantially stronger than countywide (34%) or regionally (just under 27%) (Bay Area Economics, June 2006).

The median household income for the City of Santa Cruz in 2005 was an estimated $60,273, compared to $63,919 for the County and $72,260 for the region. This somewhat lower median household income for the City reflects the younger population and smaller average household size. (Bay Area Economics, June 2006).

AMBAG projections indicate that decreases are anticipated in young children and school-age populations in Santa Cruz County, comprising a 5% loss countywide by 2035 (AMBAG, June 2008a). Population growth among working-age residents is also slow at about 8%. Similar to the regional projections, the fastest growth sector of the population are residents over 85 years, which is expected to more than double by 2035. The population of seniors between 65-84 years is also predicted to almost double to over 41,600 residents (Ibid.).

## Population Forecasts

AMBAG prepares and regularly updates population, housing and employment projections for the cities and counties in its region. The forecasts are made in five-year increments. The current forecast was adopted by AMBAG in June 2008 and covers the years from 2005 to 2035.

Population projections for the City through the year 2030 are outlined in Table 4.2-2. Population is projected to increase to 65,884 in 2030. This represents an increase of 6,902 people between 2009 and 2030. AMBAG population projections reflect an average annual increase of about 0.7% between 2005 and 2030, and about 0.6% based on existing population estimates provided by the State (1-1-09). It should be noted that the AMBAG forecast includes population increases at UCSC based projections contained in the UCSC 2005 Long-Range Development Plan adopted by the UC Regents in 2006. UCSC population changes are discussed further below.

**TABLE 4.2-2**
**Current Population Projections for City of Santa Cruz**

| Year | Population |
|---|---|
| 2005 | 56,421 |
| 2010 | 58,919 |
| 2015 | 62,480 |
| 2020 | 63,265 |
| 2025 | 64,649 |
| 2030 | 65,884 |

**Source:** AMBAG, 2008a

Actual City population since 1990 has been below AMBAG projections as summarized in Table 4.2-3. The current AMBAG projections yield an anticipated average annual growth rate of slightly less than 0.6% between 2010 and 2030. This growth rate is less than AMBAG's former population projections which resulted in an average annual growth rate of 1.3% between 1990 and 2005. The average annual population growth rate based on current AMBAG projections is also slightly less than the actual rate of growth (0.9%) the City experienced between 1990 and 2009. Table 4.2-4 compares the average annual growth rates that the City experienced over 5- and 10-year increments since 1960.

**TABLE 4.2-3**
**Comparison of Population Forecasts & Actual Population Increases**

| | AMBAG Estimate | Actual |
|---|---|---|
| 1990 | 49,711 | 49,711 |
| 1995 | 54,300 | 51,373 |
| 2000 | 57,200 | 54,593 |
| 2005 | 59,700 | 56,394 |
| *Increase* | *9,989* | *6,683* |

BASED ON AMBAG PROJECTIONS INCLUDED IN THE CITY'S 1990 GENERAL PLAN/LCP

As previously indicated, the 2010 U.S. Census population data became available during the preparation of this EIR. It shows the City's population in 2010 as 59,946, which is slightly higher than AMBAG's current projection of 58,919 for 2010 as seen in Table 4.2-2. It is also noted that the 2010 Census population is slightly below the 2010 population forecast for the City by AMBAG in 1992, which estimated a population of 60,800 that is included in the City's existing General Plan (1990-2005).

**TABLE 4.2-4**
**Historical City of Santa Cruz Growth Rates**

| Year | Population | For Years: | Actual Average Annual Growth Rate |
|---|---|---|---|
| 1960 | 26,600 | | |
| 1970 | 32,100 | 1960-1970 | 2.06% |
| 1980 | 41,500 | 1970-1980 | 2.92% |
| 1990 | 49,711 | 1980-1990 | 1.98% |
| 1995 | 51,373 | 1990-1995 | 0.67% |
| 2000 | 54,593 | **1990-2000** | **0.98%** |
| | | 1995-2000 | 1.25% |
| 2005 | 56,394 | 1995-2005 | 0.98% |
| | | 2000-2005 | 0.66% |
| 2009 | 58,982 | **2000-2009** | **0.89%** |
| | | 1990-2009 | 0.98% |
| 2010 | 59,946 | **1990-2010** | **1.0%** |
| | | **2000-2010** | **0.98%** |

## HOUSING TRENDS & PROJECTIONS

As of January 1, 2009, the City of Santa Cruz had a total of 23,530 housing units within city limits (California Department of Finance, 2009). New housing units increased at an average annual rate of approximately 1.0% from 21,460 total housing units in 2000. The City's housing stock increased by 4,166 units from 19,364 units in 1990. This represents an average annual increase in housing units of approximately 1.1% between 1990 and 2009 or approximately 210 units per year.

AMBAG's long-term forecasts estimate that approximately 25,943 total housing units would be accommodated in the City in the year 2030 as summarized on Table 4.2-5 (AMBAG, June 2008). This represents an increase of 2,413 housing units between 2009 and 2030, which reflects an average annual growth rate of 0.5% per year or approximately 115 units per year. Similar to population growth, the average growth rate in new housing units between 2010 and 2030 (based on current AMBAG projections) is also less (0.5% per year) than the actual rate of growth (1.1%) the City experienced between 1990 and 2009.

**TABLE 4.2-5**
**Housing Projections for City of Santa Cruz**

| Year | Total Housing Units |
|---|---|
| 2005 | 23,133 |
| 2010 | 23,633 |
| 2015 | 24,133 |
| 2020 | 24,794 |
| 2025 | 25,390 |
| 2030 | 25,943 |

**Source:** AMBAG, 2008a

Based on AMBAG's projection of 25,943 housing units in 2030 and existing units in 2009, approximately 2,413 new units would be constructed. This would result in a population increase of 5,791 people in the year 2030 based on the City's average household size of 2.4. The City's total population is forecast to increase by 6,902 residents between 2009 and 2030 according to AMBAG's forecasts, which is higher than the population supported by the forecast housing unit increase. It is assumed that this difference would account for increased student population on the UCSC campus.

AMBAG's *Regional Housing Needs Allocation (RHNA) Plan* for 2007 to 2014 identifies the need for 672 new housing units during this timeframe for the specified income groups as identified below:

- Very Low Income (22%): 150 units
- Low Income (17%): 113 units
- Moderate Income (19%): 127 units
- Above-Moderate Income (42%): 282 units

## EMPLOYMENT TRENDS & PROJECTIONS

According to U.S. Census information, there were 36,804 jobs within the City 2000, 42% of which (15,550 jobs) were held by City residents. Of the total employed residents within the City, 54% worked within the community. This results in an overall jobs-to-employed resident

ratio of 1.27 that shows a strong positive balance of jobs to employed residents (even if not all City residents held these jobs), and that without additional housing construction, in-commuting would need to occur to fill all existing jobs (Bay Area Economics, June 2006). According to information presented in the draft *General Plan 2030*, there were 38,604 jobs in Santa Cruz and 28,869 employed residents in 2007, which represents a ratio of 1.27 local jobs per employed resident.

As of 2004, jobs by sector within the City included:

| | | |
|---|---|---|
| ▪ Retail / Lodging / Entertainment | 10,962 | 30% |
| ▪ Educational Services | 6,494 | 18% |
| ▪ Technology & Business Services | 6,321 | 17% |
| ▪ Health Care & Social Assistance | 5,463 | 15% |
| ▪ Logistics & Utilities | 2,208 | 6% |
| ▪ Manufacturing | 2,171 | 6% |
| ▪ Construction & Real Estate | 2,039 | 5% |
| ▪ Public Administration | 941 | 2% |
| ▪ Agriculture / Forestry | 306 | 1% |
| TOTAL | 36,981 | 100% |

**SOURCE:** BAY AREA ECONOMICS, JUNE 2006

AMBAG's forecasts estimate employment growth to 41,548 jobs in the year 2030 as summarized on Table 4.2-6 (AMBAG, June 2008a). According to AMBAG data, this represents an increase of about 7,722 jobs between the years 2010 and 2030, which reflects an annual average growth rate of approximately 1.1%.

**Table 4.2-6**
**Employment Projections for City of Santa Cruz**

| Year | Employment |
|---|---|
| 2005 | 34,016 |
| 2010 | 33,826 |
| 2015 | 35,527 |
| 2020 | 37,411 |
| 2025 | 39,423 |
| 2030 | 41,548 |

**Source:** AMBAG, 2008a

Review of AMBAG data by City staff indicates that 45% of the new jobs created by the year 2030 will be in the service section, 27% in the public section, 12% in the retail sector, and 11% in the industrial section (City of Santa Cruz, November 2008). The remaining 5% of new jobs will be construction and agriculture related (Ibid.). Based on the AMBAG forecasts, in 2030, the City will have a ratio of approximately 1.6 jobs per housing unit. The existing ratio for 2010 is approximately 1.4 based on AMBAG forecasts. This projection follows the historic trend that the City provides more jobs than housing; more housing would be required to accommodate all of the Santa Cruz workers within city limits (Ibid.).

## UCSC POPULATION AND HOUSING

The University of California Santa Cruz campus is partially located within the City of Santa Cruz and partially located in the unincorporated portion of the County. All of the developed campus is currently within City limits, except for a small portion of College 9/10 and the Crown Merrill Apartments. As such, campus population is included within City population counts and forecasts. For this reason, background on UCSC population and housing is provided separately.

In 2008-2009[2], UC Santa Cruz main campus three-quarter average enrollment[3] totaled 15,823 full-time equivalent (FTE) on-campus students (University of California Santa Cruz, October 14, 2008). Student population has grown at a faster rate than the City's overall population over the last 15 years. Student enrollment increased from approximately 9,750 students in 1994/1995 to 15,823 students in 2008/09. This represents an average annual growth rate of 4.5% compared to about 1.1% for the City during the same time period.

In 2007-08, UCSC supported a total on-campus residential population of 7,779 people in campus housing units, including students, faculty and dependents (University of Santa Cruz, California, July 2009). Approximately 380 students live in a small portion of UCSC's Colleges 9/10 and the Crown Merrill Apartment complex that are located within the unincorporated area of Santa Cruz County. Thus, approximately 7,400 residents live on-campus within City limits. Approximately 6,925 additional students, staff and faculty are estimated to reside in the City of Santa Cruz based on residency information provided in the University's 2005 Long-Range Development Plan EIR (Ibid.).[4] Therefore, it is estimated that approximately 14,325 UCSC-related people reside within the City, both on- and off-campus. This total is slightly higher than UCSC population forecasts of 12,100 for 2005 that were estimated in the City's existing 1990-2005 General Plan and Local Coastal Program. UCSC-related population (student, faculty, and staff households, excluding dependents) represents approximately 24% of the City's total population.

The University's adopted 2005 Long Range Development Plan (LRDP) forecast a student population of 19,500 in the year 2020. (See review of the 2005 LRDP in the "Cumulative Impacts" subsection (5.4) of the CEQA CONSIDERATIONS [Chapter 5.0] section of this EIR.) New on-campus residential population related to UCSC development and growth under the 2005 LRDP is estimated at approximately 3,340 new residents (including students, employees and dependents), who would be living on the UCSC campus by the year 2020 (City of Santa Cruz, July 2010). Of this amount, at least approximately 1,570 residents would be living in the Main Campus area within City limits. The remaining 1,770 residents may be expected to reside in the

[2] California CEQA Guidelines section 15125(a) requires that existing environmental conditions be described as they exist at the time the Notice of Preparation (NOP) is published. The NOP for this EIR was published in March 2009. Thus, campus population and employment figures for the 2008-09 academic school year are used for this discussion.

[3] Enrollment at UC Santa Cruz varies each quarter. The Campus uses an average of the student enrollment levels in the three primary quarters (fall, winter and spring) to track changes in enrollment from one year to another. That average is referred to as the three-quarter average enrollment.

[4] 7,990 students live off-campus, of which approximately 5,325 live in the City of Santa Cruz (excluding dependents); 3,155 faculty/staff live off-campus, of which approximately 1,600 live in the City (excluding dependents) (University of California, July 2009).

North Campus area, which is currently outside City limits.[5] With both on- and off-campus projections, approximately 3,010 to 3,800 additional UCSC-related population are estimated to live in the City of Santa Cruz by 2020 with approximately 1,570 persons living within the City limits on campus (City of Santa Cruz, July 2010).

The AMBAG population forecasts include enrollment growth as envisioned by the 2005 LRDP. UCSC-related population represents approximately 44-55% of the City's population increase forecast by AMBAG between 2009 and 2030. The higher level assumes that all new employees would move to the area.

## 4.2.2 RELEVANT PROJECT ELEMENTS

The proposed *General Plan 2030* includes goals, policies and actions that address economic development. The proposed General Plan does not include goals or policies that address population or housing. Housing is addressed separately in the City's Housing Element. However, the draft General Plan does include a few policies and actions that support mixed use districts and/or intensified redevelopment, including residential development. Other policies and actions support residential densities to be exceeded for the following uses: single-room occupancy (SRO) units; small ownership units (SOU); accessory dwelling units (ADU); density bonus units; and residential uses within areas designated High-Density Overlay District (HD-O) (LU3.8). The plan also encourages a variety of housing types (LU3.1.1) and seeks to improve and protect housing and neighborhoods (CD2.4, LU3.9.2).

The draft *General Plan 2030* includes an ECONOMIC DEVELOPMENT chapter that sets forth six goals and associated policies and actions that address economic growth and development within the City. Some policies and actions seek to create a land use mix within the City that balances economic, housing, and other needs (LU3.1.3) and to improve the region's jobs/housing balance (LU3.1.3).[6]

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan / Local Coastal Program, except for three new mixed use land designations have been developed and applied to the following major transportation corridors: Mission Street, Ocean Street, Soquel, Avenue, and Water Street. Some of the draft *General Plan 2030* policies and actions support certain types of land uses and/or intensified redevelopment.

[5] Concurrent applications filed by the City of Santa Cruz and the UCSC are pending before the Santa Cruz County Local Agency Formation Commission (LAFCO) to amend the City's Sphere of Influence (City application) to include the 374-acre portion of the UCSC campus known as "North Campus" for the purpose of providing extraterritorial water and sewer services (UCSC application). The City has no plans, nor does it see any future need, to annex North Campus into City limits.

[6] The draft General Plan 2030 defines "jobs/housing balance or jobs/housing ratio as the availability of affordable housing for employees. The jobs/housing ratio divides the number of jobs in an area by the number of employed residents. A ratio of 1.0 indicates a balance. A ratio greater than 1.0 indicates a net in-commute; less than 1.0 indicates a net out-commute.

# 4.2.3 IMPACTS AND MITIGATION MEASURES

## CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

- 2a Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
- 2b Result in removal of housing and/or displacement of residents.

## IMPACT ANALYSIS

The following impact analyses address population growth inducement (2a) and potential removal of housing or displacement of residents (2b).

### Potential Future Development & Buildout

The proposed General Plan would accommodate future development. As described in the PROJECT DESCRIPTION and LAND USE sections of this EIR (Chapters 3.0 and 4.1, respectively), buildout projections were estimated for the draft General Plan to provide an estimate of the amount of development that is expected to occur by the year 2030.[7] The projected development includes 3,350 additional residential dwelling units with an associated population increase of 8,040 residents (based on 2.4 persons per household). It is estimated that approximately 75% of the new residential units would be multi-family units and 25% would be single-family units based on existing trends and assumptions developed for the traffic and water demand analyses.

The buildout projections also estimate approximately 3,140,000 additional square feet of commercial, office and industrial uses by the year 2030. Based on the non-residential uses, it is estimated that approximately 8,665new jobs could be generated. This is based on an estimated 2.0 employees per 1,000 square feet of commercial and retail; 2.3 employees per 1,000 square feet for industrial space, and 3.3 employees per 1,000 square feet of office space, which results in approximately 4,460 commercial and industrial jobs and approximately 4,205 office jobs.

[7] The projections are based on the draft Land Use Map, taking into account land use map changes, vacant lands, sites subject to reuse or redevelopment, and underutilized parcels, assuming that not all development will occur at maximum density. On average it is assumed that all new development will occur at 80% of the permitted residential density or floor area ratio. See Appendix B for further discussion.

Based on buildout projections developed for the General Plan[8], the increased jobs compared to the potential increase in housing units would result in a ratio of 1.6, meaning there would be 1.6 jobs per residential unit. This is based on the AMBAG's job total for 2010, the city's existing number of housing units in 2009, and the potential increased employees and housing units estimated for the General Plan buildout as outlined above. Existing jobs would increase to 42,561 with the General Plan increased non-residential development, and the City's residential units would total 26,880 units in 2030. This is the same as the 1.6 ratio that is reflected by AMBAG in its population, housing and employment forecasts. However, it is slightly higher than the 1.4 ratio that has been estimated as currently existing in the City.

**Impact 4.2-1 Population Growth Inducement**
Adoption and implementation of the *General Plan 2030* could indirectly result in increased population associated with potential development that could be accommodated by the Plan. However, the estimated amount and rate of growth are consistent with historic population growth patterns and trends, and would not be considered substantial. Thus, this is considered a *less-than-significant impact*.

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased population. However, the draft General Plan includes policies and a land use map that support additional development and areas of increased intensification and density, thereby removing some barriers to future development consistent with the updated General Plan. Based on estimates provided by the City's land use consultant as described in the LAND USE (Chapter 4.1) section of this EIR and in Appendix B, potential residential development that could be accommodated in the draft *General Plan 2030* could result in a population increase of approximately 8,040 residents between 2009 and 2030 based on a buildout estimate of 3,350 new residential units during this timeframe and an average household size of 2.4.

The estimated increase in population would result in a total City population of 67,022 in the year 2030 over 2009 population levels. This population is slightly higher (about 1,140 residents) than the AMBAG forecast of 65,884 residents in the year 2030. AMBAG projections would result in a population increase of 6,902 persons between 2009 and 2030 compared to a potential increase of 8,040 persons as a result of anticipated buildout to that year under the draft *General Plan 2030*.

The General Plan buildout projections represent a worst-case estimate. However, the estimated population growth resulting from the estimated *General Plan 2030* buildout represents an average annual growth rate of 0.65% between 2009 and 2030. This is slightly lower than historical growth rates of approximately 0.9-1.0% experienced in the City since 1990 as summarized on Table 4.2-4. Thus, while the actual population increase is slightly larger than

[8] The projections are based on the draft Land Use Map that take into account land use map changes, vacant lands, sites subject to reuse or redevelopment, and assume that not all development will occur at maximum density; on the average it is assumed that all new development will occur at 80% of the permitted residential density or floor area ratio.

what is forecast by AMBAG, the average annual growth rate is lower than historical growth rates, and as such, the increase in population would not be considered substantial.

The regional population projections prepared by AMBAG are routinely updated to reflect population trends. Between 1990 and 2005, AMBAG projections were a bit higher than actual growth. As shown on Table 4.2-7, former regional population forecasts resulted in an average annual growth of a little more than 1% per year between 1995 and 2005. The actual average annual growth rates between 1995 and 2009 within the City have been approximately 0.9% (see Table 4.2-4), which is generally similar to the former AMBAG projections used in the City's 1990 General Plan/LCP update. AMBAG projections (adopted in 2008) also reflect a similar, but slightly lower average annual growth rate of 0.8% for the years 2000-2010, and an average annual growth rate of approximately 0.56% for the years 2010-2030. The variation and fluctuation of annual growth rates based on actual growth is shown on Table 4.2-4, and Table 4.2-7 summarizes the variation of average annual growth rates bases on adopted regional population forecasts over the last 15 years.

**TABLE 4.2-7**
**Comparison of Population Forecasts' Growth Rates**

| Year | Population Estimate | For Years: | Forecast Average Annual Growth Rate |
|---|---|---|---|
| 1995 [1] | 54,270 | 1990-1995 | 1.8% |
| 2000 [1] | 57,170 | 1990-2000 | 1.5% |
| | | 1995-2000 | 1.1% |
| 2005 [1] | 59,670 | 1990-2005 | 1.34% |
| | | 1995-2005 | 1.0% |
| | | 2000-2005 | 0.87% |
| 2010 [1] | 60,841 | 2000-2010 | 0.64% |
| 2015 [1] | 62,221 | 2005-2015 | 0.43% |
| | | | |
| 2005 [2] | 56,421 | 1990-2005 | 0.9% |
| 2010 [2] | 58,919 | 2000-2010 | 0.8% |
| 2015 [2] | 62,480 | 2005-2015 | 1.1% |
| 2020 [2] | 63,265 | 2010-2020 | 0.74% |
| 2025 [2] | 64,649 | 2015-2025 | 0.35% |
| 2030 [2] | 65,884 | 2020-2030 | 0.41% |
| | | 2010-2030 | 0.6% |

[1] AMBAG Estimates provided in City's 1990 General Plan/LCP.
[2] AMBAG 2008 Estimates through Year 2035.

**Conclusion.** The estimated General Plan buildout would result in a average annual population growth rate of 0.6%, which is slightly less than the historical rate experienced in the City since 1980 (0.9%), but only slightly higher than the AMBAG forecast rate (0.56%). These variations are not considered substantial, and the population increases supported by the proposed *General Plan 2030* would not be considered substantial. AMBAG projections are subject to updates every several years

at which time projected and actual growth can be compared, and forecasts adjusted if needed to reflect actual population growth trends. Therefore, the impact is considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.2-3 Removal of Housing and/or Displacement of People**

Adoption and implementation of the proposed *General Plan 2030* could indirectly result removal of existing housing and/or displacement of residents due to redevelopment of underutilized parcels. As most mixed-use and redevelopment areas include predominantly non-residential structures, and with adherence to City regulations and *Housing Element* policies, this is considered a *less-than-significant* impact.

Future development, either on underutilized properties or as part of new mixed-use developments, may be constructed on properties with existing development. Future development accommodated under the proposed General Plan would primarily occur on vacant infill sites, on underutilized properties that could redeveloped at higher densities and/or land use intensities, and in the new mixed-use districts along the City's four major street corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. Based on the estimated development occurring under the proposed plan,[9] approximately 55% of all new housing, 45% of new commercial development and 52% of new office development would be located along these corridors. The existing land uses in these areas are primarily non-residential.

The proposed *General Plan 2030* calls for applying the Neighborhood Conservation Overlay District when necessary to preserve and maintain the area's housing stock (LU3.9.2). In the event that existing residential units are found on a site proposed for redevelopment, these units are typically rented and would be vacated in accordance with state and local law prior to demolition to avoid displacement of people. Additionally, the redeveloped site would be expected to result in a net increase in housing units. Furthermore, the City requires developers to replace affordable housing proposed for demolition or conversion to other uses. The basic requirements are as follows: 50% to 100% of low or moderate-income bedrooms lost must be replaced (depending on the zoning district), those displaced must receive relocation assistance, and the developer must also meet the City's 15% inclusionary requirement. As an alternative to replacement housing, a developer can pay in-lieu fees for up to 50% of the total eligible bedrooms lost. These requirements have helped preserve affordable housing from recycling to market-rate projects. However, the ordinance has had the unintended impact of making it financially difficult to demolish and replace substandard housing that contributes to neighborhood decline without significant public subsidies (City of Santa Cruz Housing Element,

[9] See Table 3-3 in the PROJECT DESCRIPTION (Chapter 3.0) section of this EIR and Figure 2-3 for estimated distribution of new development per specific areas in the City.

2011[10]). The City's current *Housing Element* includes a Housing Plan with Program 5.5-Housing Replacement. The first year objective is "to modify demolition/replacement ordinance to allow for the replacement of substandard housing which otherwise would lead to neighborhood decline."

**Conclusion**. Future development that would be accommodated by the proposed *General Plan 2030* would primarily occur on vacant infill sites, or on underutilized properties in areas where non-residential land uses are predominant, mostly along the City's major transportation corridors. In the event that existing residential units are found on a site proposed for development, these units likely would be vacated prior to demolition in accordance with state and local law to avoid displacement of people, and they are required to be replaced if the existing units are affordable units. Additionally, the redeveloped site would be expected to result in a net increase in housing units. Therefore, potential indirect impacts related to displacement of people and removal of housing due to development accommodated by the draft Plan would be less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

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# 4.3 – AESTHETICS

## 4.3.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Regulatory Setting
- Existing Visual Setting
- Natural and Open Space Features
- Scenic Views and Resources
- Community Aesthetic Character
- Existing Design Guidelines

The following sections draw from information contained in the "Community Design Background Report" that was prepared for the City as part of the draft *General Plan 2030* update process by Design, Community and Environment (November 16, 2006).

### REGULATORY SETTING

Several City area and design plans include design guidelines, which are described later in this chapter. In addition, the City's Zoning Ordinance requires a "design permit" for most new construction in the City of Santa Cruz. This requires review of architectural and site development proposals to ensure the application of recognized principles of design, planning and aesthetics and qualities typifying the Santa Cruz community. Pursuant to the Design Permit requirements (Zoning Ordinance Section 24.08.430), findings must be made that address 17 identified criteria before the City issues a design permit. Chapter 24.12 of the Zoning Ordinance provides "Community Design Standards" that address general site design standards, parking, advertising and signs, underground utilities, historic preservation and other provisions for specific uses.

### EXISTING VISUAL SETTING

The visual character of the City of Santa Cruz is influenced by a blend of natural features and historic neighborhoods. Key natural and open space features include the coastline and beaches, the San Lorenzo River and other watercourses, parks and open space, and the background view of the Santa Cruz Mountains. The community of Santa Cruz is strongly characterized by its coastal location along Monterey Bay, which defines the city's entire southern boundary. Open space areas, including those that make up the City's greenbelt, also are significant contributors to Santa Cruz's natural setting. The Santa Cruz Mountains and its foothills on the north provide a backdrop of open space views, and offer panoramic views of the City and ocean.

The developed portion of Santa Cruz is a mix of historic buildings and newer buildings. From its early origins as a Spanish settlement in 1866, Santa Cruz's community and visual character was shaped by its role as a port city and seaside resort. The City has retained a distinctive look and feel, with a mix of small-scale residential neighborhoods, a more intensely-developed downtown with high-quality, distinctive buildings, and automobile-oriented commercial corridors.

## NATURAL AND OPEN SPACE FEATURES

The beauty of Santa Cruz's natural setting contributes significantly to the City's aesthetic and visual character. Key natural and open space features include:

- The coastline and beaches;
- The San Lorenzo River and other creeks;
- The Santa Cruz Mountains; and
- Open space lands that make up the City's greenbelt.

Santa Cruz has nearly four miles of coastline on the Monterey Bay, and much of the city sits above coastal cliffs, with beaches and a rocky shoreline below. A multi-use pathway extends along most of this distance along West Cliff Drive and portions of East Cliff Drive. City and state-owned beaches are prominent along the coastline, including from west to east: Natural Bridges State Beach, Lighthouse Field State Beach, the city's Main Beach, and Seabright Beach. Lighthouse Field State Beach also includes upland open space adjacent to West Cliff Drive, known as Lighthouse Field.

The San Lorenzo River is another important defining feature, serving as the dividing line between the City's Eastside and Westside areas. Most of the City's other creeks are not prominently visible, except for Branciforte Creek, which runs in a deep, narrow concrete channel (Design, Community & Environment, November 16, 2006).

The foothills of the Santa Cruz Mountains provide a backdrop of protected open space and afford panoramic views of the City and Monterey Bay. Santa Cruz's topography is influenced by the City's arroyos and steep coastal cliffs. Elevations increase from the coastal terraces north to the UCSC campus and Santa Cruz Mountains, and the City's varied topography creates striking views from many different locations. The City also has pronounced hills, most notably at Pogonip with smaller hills, such as Beach Hill and Mission Hill. Escalona Drive also marks a noticeable change in elevation, with steep hills to the north of the street.

The City's largest open spaces are those that make up its greenbelt, and generally include from west to east: Moore Creek Preserve, Pogonip, Delaveaga Park, and Arana Gulch (see Figure 1-2). Smaller neighborhood parks are distributed throughout the City. Additional open space

surrounds some of the creeks and ravines that cut through the foothills on their way to the coast. Prominent open space areas within the City that contribute to the visual character include:

- *University of California Santa Cruz*. The large expanses of open space provide a backdrop from certain viewpoints within the City, along the coastline, and from Highway 1. These views include some campus structural development.

- *Pogonip*. This hilly and wooded 614-acre area abuts UCSC, and forms part of the City's greenbelt. It also provides a visual backdrop from certain viewpoints in the City.

- *Moore Creek Preserve*. This 246-acre City-owned property forms part of the City's Greenbelt, defining Santa Cruz's western edge. The area has been preserved largely in its natural state, with wooded areas and creeks that run through steeply-sloped arroyos.

- *Arana Gulch*. Located in the far eastern edge of the City, this 67-acre, City-owned open space property, along with the adjacent Santa Cruz Small Craft Harbor, defines the City's southeastern border. However, Arana Gulch's visual prominence is limited to the immediately adjacent neighborhoods and the upper harbor area.

- *DeLaveaga Park*. This hilly and wooded City-owned park is on the northeast edge of Santa Cruz. The approximate 525-acre upper area provides a nearly uninterrupted forested backdrop from viewpoints on the eastern edge of the City, most notably from Morrissey Boulevard.

- *Neary Lagoon* is a City-owned 44-acre wetland and natural area situated in the central part of the City (see Figure 4.3-1). The 14-acre lagoon is adjacent to the City's wastewater treatment plant. The site provides a central open space area nearly within the center of the developed City, and views across the property. The wooded property is visible along Bay Street with panoramic background mountain and City views.

- *Santa Cruz Small Craft Harbor*. The Santa Cruz Small Craft Harbor, which was completed in 1964 and subsequently expanded in 1972, is a defining visual element along the City's southeastern border. The harbor, a major topographic and visitor-serving facility, encompasses approximately 38 acres of land and 52 acres of water, and functions as a gateway to the Monterey Bay National Marine Sanctuary.

## SCENIC VIEWS AND RESOURCES

Prominent scenic views mostly are those that are oriented toward Monterey Bay and the Pacific Ocean or toward the Santa Cruz Mountains that frame the northern boundary of Santa Cruz. Some prominent public views are shown on the next page. There are no designated scenic highways or roads within the City. The draft *General Plan 2030* defines a scenic highway or scenic route as "a highway, road, drive, or street that, in addition to its transportation function, provides opportunities for the enjoyment of natural and man- made scenic resources and access or direct views to areas or scenes of exceptional beauty or historic or cultural interest." Until the mid-1980s, general plans in California were required to include a Scenic Highways element.

West Cliff Drive is a popular scenic route along the coast, and is a primary location that offers prominent and panoramic views of the Monterey Bay. In addition to West Cliff Drive, other coastal viewpoints with prominent ocean views include: the Municipal Wharf, East Cliff Drive and the Santa Cruz Harbor jetties. Prominent public ocean views from upper elevations are most predominant at locations on the UCSC campus, Moore Creek Preserve and segments of City roads, including the Arroyo Seco and Miramar/Alta Vista areas in the western portion of the City and limited areas along Delaveaga Road.

Varied topography shapes the City's character and creates many striking public views throughout the community. Some of these views are focused on particular places within the City, such as Holy Cross Church. Other views provide a sweeping panorama of the entire City or of the Monterey Bay. The UCSC campus and greenbelt lands at the City's northern edge and the Santa Cruz Mountains to the east provide a scenic backdrop from certain viewpoints in the City, most notably from the Municipal Wharf and segments along West Cliff Drive. The Wharf and West Cliff Drive offer panoramic views of the bay with the Santa Cruz Mountains as a backdrop overlooking the City. The northbound descent of East Cliff Drive towards downtown offers a sweeping view of the San Lorenzo River, Boardwalk area and the developed City with UCSC as a backdrop. From eastbound Highway 1 toward Highway 17, the forested UCSC campus offers another scenic background view, while segments of southbound Highway 1 near River Street (Highway 9) offer scenic background views of the forested open space of Pogonip.

On the eastside, northbound Morrissey looks onto background views of the urban forest at DeLaveaga and surrounding area. Murray Street Bridge over the Santa Cruz Harbor offers views of the coast to the south and upland views of Arana Gulch to the north. Additionally, there are views of the Arana greenbelt site from Seventh Avenue, most notably from the intersection with Brommer Street at the northern entrance to the Harbor.

Landmarks are distinctive built and natural features that are highly visible or that help to define the identity of a particular place. In addition, to historical landmarks as discussed in the CULTURAL RESOURCES (Chapter 4.9) section of this EIR, the *General Plan 2030* defines "landmark" as a visually prominent or outstanding structure or natural feature that functions as a point of orientation or identification. The City has approximately 35 City-listed historic landmarks and approximately 600 listed historic structures, some of which may also be considered scenic resources depending on the visual prominence and the character of the building.

Because of the City's varied topography, Santa Cruz has few built landmarks that are visible from many different parts of town. The Holy Cross Church on Mission Hill is a notable exception; its tall, white steeple can be seen all over the City, even in low-lying areas such as the Harvey West District. The Santa Cruz Beach Boardwalk's brightly-painted roller coasters are even more distinctive, but since the Boardwalk is just a few feet above sea level, the roller coasters are not as widely visible. Other notable landmarks include the Santa Cruz Harbor, and the lighthouses at both Lighthouse Field and the Harbor.

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## COMMUNITY AESTHETIC CHARACTER

The City has retained a distinctive community character as a result of various historical periods, with a mix of small-scale residential neighborhoods of varied scales, styles and ages; widely-visited beaches; a more intensely-developed downtown with high-quality, distinctive buildings; and automobile-oriented commercial corridors, many of which provide connections to the highway (Design, Community & Environment, November 16, 2006).

Gateways are visual or physical elements that mark a transition from one place to another. Some of Santa Cruz's gateways are located at transitions between highways and City streets. For example, on both River Street and Ocean Street, special signs welcome visitors to the City as they leave the highway. Other gateways are created by pronounced changes in character from one area to another. For example, the Clock Tower acts as a gateway from North Pacific Avenue, which has relatively little character, to Pacific Avenue, which has a carefully designed streetscape and tall, distinctive buildings. The main entrance to the UCSC campus, at High Street and Bay Drive, is another notable gateway. On the Eastside, the entrance to Santa Cruz on Soquel Avenue is marked by a small sign that acts as a minor gateway. Gateways can also mark the entrance to a neighborhood, such as the sign at Riverside Avenue and Leibrandt Avenue welcoming people to Beach Flats (Design, Community & Environment, November 16, 2006).

Generally, the visual features of the developed City vary from area and neighborhood. Mixed use areas include the Westside industrial area, the Harvey West area, downtown and River Street, and the Beach/Boardwalk area. Four primary corridors contribute to the urban form and character of Santa Cruz: Mission Street Corridor, Ocean Street Corridor, Water Street Corridor, and Soquel Avenue Corridor. Mixed commercial and residential buildings are found in some of these areas, as well as in the downtown, where ground-floor retail and upper floor residential are the primary uses. There are also several SRO (single-room occupancy) buildings along Soquel Avenue and Water Street.

Neighborhoods are primarily residential areas that include few, if any, commercial or job-generating uses. A number of neighborhoods within the City are characterized by older, smaller

bungalow and historic structures, which contribute positively to the visual character in those areas. Neighborhoods are shown on Figure 2-3. Historic homes and older neighborhoods with visual interest include the following neighborhoods.

- *King Street Neighborhood*. The King Street neighborhood runs parallel to Mission Street to the north. The area's topography rises slowly and steadily toward Escalona Drive to the northwest.

- *California Street / Mission Hill Neighborhood*. The California Street/Mission Hill Neighborhood includes Mission Hill, Santa Cruz Mission and the current site of Holy Cross Church. While most parts of this area are relatively flat, Mission Hill is a prominent exception; its steep slopes set it apart from its surroundings. The Mission Hill Historic District is in this area. Holy Cross Church, with its tall steeple, white exterior and prominent hilltop location, is the most widely-visible landmark in Santa Cruz.

- *Downtown Neighborhoods*. The Downtown Neighborhoods include Downtown Santa Cruz's historic residential areas as well as more recently-built neighborhoods just west of Downtown. The City's Downtown Neighborhood Historic District is also part of a larger historic district designated in the National Register of Historic Places.

- *Beach Hill*. Beach Hill's buildings are a mixture of Victorian single-family homes and Mission Revival apartments, as well as an eclectic mix of more modern styles.

- *Seabright Neighborhood*. Most of the upper Seabright neighborhood was part of the town of Seabright until 1904, when Santa Cruz annexed the area. Buildings are a mixture of pre-WWII single-family, one- and two-story homes; post-WWII duplexes and multi-family dwellings; and newer, larger single-family homes. Structures built as summer homes are predominant in the lower Seabright neighborhoods. Notable features of these neighborhoods include the Santa Cruz City Museum, located in a 1915 Carnegie Library building, and the surrounding lawns and trees of Tyrrell Park.

Other areas of the City are mostly characterized by post-World War II ranch houses built on parcels that are generally larger than those in the City's older neighborhoods and newer development. The Lighthouse/The Circles Neighborhoods in the southernmost part of Santa Cruz are notable due to their proximity to West Cliff Drive and beaches. Paths and stairways link these neighborhoods with the beaches along West Cliff Drive. Notable buildings in these neighborhoods include a 1915 Carnegie public library in the Circles, designed by architect William Weeks, and the Shrine of St. Joseph on West Cliff Drive.

## EXISTING DESIGN GUIDELINES

### Mission Street Urban Design Plan

The Mission Street Urban Design Plan identifies redevelopment opportunities and creates design policies for the Mission Street commercial corridor, which is both a local street and a major

regional thoroughfare. Although most of the Plan's requirements are focused on issues related to community design, it recommends that the corridor retain its commercial mixed-use character and emphasize existing clusters of professional office, retail and service uses.

### Beach / South of Laurel Design Guidelines

The "Design Guidelines", adopted by the City in October 1998, is both an appendix to the Beach/South of Laurel Area Plan (B/SOL Plan) and General Plan. The Plan includes a wide range of recommendations that are intended to define neighborhood character through distinctive structures and streetscapes (Design, Community & Environment, November 2006). The intent of the Design Guidelines is to assist the City and development community to achieve a "high quality of aesthetic and functional design." Design guidelines are presented for treatments for streetscapes and entries, landscaping, amenities and lighting, as well as for site layout, pedestrian, parking and circulation improvements, and architectural compatibility.

### Downtown Recovery Plan

The Downtown Recovery Plan provides a framework for the public and private rebuilding of downtown Santa Cruz after the 1989 Loma Prieta earthquake. Recommendations are included to strengthen the pedestrian orientation of the area. Detailed design guidelines are included that address height, building mass and scale, materials and finishes, signage, awnings and lighting (Design, Community & Environment, November 2006).

### Eastside Business Area Improvement Plan

The purpose of the Eastside Business Improvement Plan, which includes the Soquel Avenue and Water Street commercial corridors, is to bring beneficial change to the area through economic development and the creation of a distinctive physical environment. The plan includes urban design and architectural design guidelines. The urban design guidelines include development, street and landscaping guidelines for specific areas along Soquel Avenue and Water Street. The architectural guidelines provide additional recommendations for building facades and signage.

### San Lorenzo Urban River Plan

The plan serves as a guide for restoring and managing natural resources, riverfront development, and public access improvements for the lower San Lorenzo River, Jessie Street Marsh, and Branciforte Creek. It includes conceptual ideas to promote river-oriented development, site specific recommendations for public areas along the river, and restoration recommendations. In particular, the Plan recommends a series of gateway plazas leading to improved multi-use nature trails and pedestrian bridges crossing the river. The Plan includes conceptual site plans for new development at several key locations near the river, but does not provide detailed design guidelines for private development.

**Western Drive Master Plan**

The Western Drive Master Plan, prepared in 1979, includes lands along Western Drive, generally between Arroyo Seco Creek on the east and Moore Creek on the west from Highway 1 to High Street. The Plan seeks to improve the Western Drive right-of-way; retain the rural character of the area, protect Moore Creek and Arroyo Seco Canyons; and provide public access to them. The Plan was adopted in concept. The Plan seeks to protect identified view corridors and the wooded character of the area, and establishes road, access, land use, design, landscaping and drainage recommendations for both publicly- and privately-owned lands to achieve these objectives.

## 4.2.2 RELEVANT PROJECT ELEMENTS

### PROPOSED GOALS, POLICIES & ACTIONS

The proposed *General Plan 2030* includes goals, policies and actions that address community design, scenic views, and aesthetics. The COMMUNITY DESIGN chapter of the *General Plan 2030* addresses natural features, the built environment and linkages between the two, including neighborhood integrity. The chapter includes five goals and associated policies and actions that address: 1) preservation of natural features that visually define areas with a built environment in harmony with its natural setting; 2) diverse neighborhoods and business districts with well-defined character; 3) design and linkages between key areas; 4) attractive gateways, roadways and landscaping; and 5) walkable neighborhoods and districts with compatible uses and buildings.

The COMMUNITY DESIGN chapter sets forth the following four goals with 19 associated policies and accompanying actions that address scenic views, scenic resources, and visual qualities of the built environment. Goal CD5 seeks to achieve walkable neighborhoods and districts of compatible uses and buildings with associated policies and actions that mostly address providing pedestrian facilities and amenities, and achieving a pedestrian scale with new development.

| | |
|---|---|
| GOAL CD1 | *A built environmental in harmony with its natural setting.* |
| GOAL CD2 | *Diverse neighborhoods and business districts with well-defined character.* |
| GOAL CD3 | *High quality design that reinforces the community's unique characters.* |
| GOAL CD4 | *Attractive gateways, roadways, and landscaping.* |

Taken together, these policies and actions support preservation of natural features that visually define areas within the City (CD1.1), development that preserves important public scenic views and vistas (CD1.2) and sensitive design in accordance with natural features and open space (CD1.3, CD1.4). Specific policies and actions identify preparation of design guidelines, providing visual linkages throughout the City and providing attractive gateways and roadways. Additionally, some policies and actions in the LAND USE chapter seek to protect open spaces

that provide scenic be benefits (LU3.11) and prohibit land divisions that would degrade natural features (LU2.3.5).

Policy CD2.1 seeks to protect and enhance the "distinctive physical and design characteristics" of neighborhoods and districts throughout the City. CD2.1.3 and CD2.1.4 call for development of design guidelines and development standards to address the visual transition between areas of higher density and/or intensified development. A number of policies and actions also seek to ensure that development is sensitively designed in relation to open space and scenic resources, as well as existing development. In particular, LU4.1.2 seeks to ensure that intensified development is sensitive to existing neighborhoods.

### POTENTIAL FUTURE DEVELOPMENT

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan / Local Coastal Program, except for three new mixed use land designations have been developed and applied to the following major transportation corridors: Mission Street, Ocean Street, Soquel, Avenue, and Water Street. Additionally, some policies and actions also support other mixed use districts and/or intensified redevelopment, such as a Mixed Use River District (LU3.6), expansion of the High Density Overlay on Front and lower Pacific (LU3.6.1), continued mixed uses in the downtown area LU4.1.1) and support of live-work units (LU4.1.4). Higher and maximum density residential development is encouraged (LU3.7) with allowance of maximum densities to be exceeded for specified residential uses, such as single-room occupancy and accessory dwelling units (LU3.8). Revitalization of the lower Pacific Avenue area also is encouraged (ED5.5.7)

Land Use actions LU1.1.4 and LU1.1.5 address development and land use for specific sites: the Swenson property and the Golf Club Drive property, respectively. LU2.2.3 also includes addition of a 5.5-acre parcel adjacent to the Dimeo Lane landfill and Resource Recovery Center, but specific uses haven't been identified, although the site will not be used as part of expansion of the landfill disposal area. In addition, several specific types of development are supported in the draft Plan, including: development of a desalination plant as part of the actions outlined to implement the City's adopted *Integrated Water Plan* (Policy CC3.1.3), although a specific site is not identified; a transit center along the rail corridor (LU4.5); including a potential location in the Golf Club Drive area (LU1.1.5), a downtown performing arts center or expansion of the Civic Center (HA2.2.5); and multi-story parking lots (ED5.4.1).

## 4.2.3 IMPACTS AND MITIGATION MEASURES

### CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

3a Eliminate or substantially adversely affect, modify or obstruct a visually prominent or significant public scenic vista, viewing area or view corridor, including views of the ocean, to and along the shoreline, and panoramic background mountain views;

3b Eliminate or substantially adversely effect significant scenic resources along a scenic highway or designated scenic roadway, including, but not limited to, visually prominent trees, rock outcrops or historic buildings, or visually prominent trees or historic-landmark buildings in other locations within the City;

3c Substantially degrade the existing visual character or quality of the surrounding area, i.e., be incompatible with the scale or visual character of the surrounding area or substantially detract from the integrity, character and/or aesthetic character of the neighborhood; or

3d Create a new source of substantial light or glare that would adversely affect daytime or nighttime views or activities in the area or pose a nuisance. This includes ambient nighttime illumination levels that would be increased beyond the property line or use of highly reflective building materials.

## IMPACT ANALYSIS

Based on the significance criteria identified above, the following impact analyses address scenic views (3a); scenic resources (3b); potential degradation of visual character of areas surrounding development (3c); and creation of a new source of substantial light or glare (3d).

### Potential Future Development & Buildout

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased new development. However, the draft General Plan includes policies and a land use map that support additional development as summarized in subsection 4.3.2 above. Buildout projections indicate that potential new development accommodated by the draft general plan to the year 2030 could total 3,350 residential units, 3,140,000 square feet of commercial, office and industrial development and new hotel rooms, primarily on infill and underutilized lots, as described in the PROJECT DESCRIPTION (Chapter 3.0) and LAND USE (Chapter 4.2) sections of this EIR.

Development under the proposed General Plan would primarily occur on vacant infill sites, on underutilized properties that could redeveloped at higher densities and/or land use intensities, and in the new mixed-use districts along the City's four major street corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. Based on the estimated development occurring under the proposed plan,[1] approximately 55% of all new housing, 45% of new commercial development and 52% of new office development would located along these corridors.

[1] See Table 3-3 in the PROJECT DESCRIPTION (Chapter 3.0) section of this EIR and Figure 2-3 for estimated distribution of new development in specific areas in the City.

**Impact 4.3-1: Scenic Public Views**
Adoption and implementation of the proposed *General Plan 2030* would accommodate future development that could adversely affect scenic public views. However, such development would be limited to infill sites and with implementation of the proposed policies and actions for protection of scenic public views, this is considered a *less-than-significant impact*.

The proposed *General Plan 2030* would accommodate future development pursuant to planned land use designations contained in the Plan. Future development accommodated by the draft plan would primarily occur on vacant infill sites, on underutilized properties that could redeveloped at higher densities and/or land use intensities, and in the new mixed-use districts along the City's four major street corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. Based on the estimated development occurring under the proposed plan, more than half of the estimated new development would be along major transportation corridors. These areas are within the City's existing developed area and are not part of prominent scenic views (see Figure 4.3-1), but are part of urban views along streets.

The City of Santa Cruz is primarily developed, except for a few remaining vacant lots located within developed areas. The following three areas that would be subject to potential future development within the planning area are primarily undeveloped or underdeveloped: the Swenson Site adjacent to Antonelli Pond; the Golf Club Drive area adjacent to Pogonip Creek; and the area along Seventh Avenue that is within the City's Sphere of Influence (SOI), but outside City limits. The Golf Club Drive site is not highly visible from surrounding areas and is not a part of any scenic public views.

The 11-acre Swenson site located adjacent to the east of the UCSC Marine Science Campus and Shaffer Road. Future development on this site would be partially within scenic views of the Monterey Bay as seen from the lower portions of the Moore Creek Preserve and Wilder Ranch State Park, although existing tree cover partially screens the property from these public views. Future development would not be expected to be of the height or mass that would obstruct or block ocean views from these vantage points. Nonetheless, proposed Action LU1.1.4 sets forth specific development guidelines/parameters for the Swenson parcel, which indicates the height, scale, and bulk of development shall take into consideration the rural transition at the City's edge. The small addition to the landfill property is not highly visible from Highway 1.

At the corner of Seventh Avenue and Brommer Street in the existing SOI area along Seventh Avenue, views of the Arana Gulch greenbelt and wooded areas, as well as distant UCSC lands, are a prominent public view. This area is currently within the unincorporated area of Santa Cruz County and subject to County land use and zoning regulations. Future development could partially block scenic views in this location. However, the entrance to the Harbor and adjacent Port District property on the north would continue to provide a view corridor in this area. The draft *General Plan 2030* calls for working with the County to ensure that lands within the City's planning area are developed with appropriate uses (LU1.2.2)

Most of the future development accommodated by the *General Plan 2030* would not be in areas that are part of a scenic public view. For limited areas where new infill or intensified development may be proposed in the vicinity of scenic public views, the proposed *General Plan*

*2030* policies and actions outlined in Table 4.3-1 will serve to protect scenic public views. The proposed plan seeks to preserve natural features that visually define areas within the City (CD1.1), including public views to and along the ocean (CD1.1.2), as well as to protect natural areas (CD1.1.3) and emphasize distinguishing natural features that strengthen the City's visual image (CD1.1.4). The plan also seeks to ensure that the scale, bulk, and setbacks of new development preserve important public scenic views and vistas and is compatible with the character of the area (CD1.2, CD1.2.1). Property along Seventh Avenue is currently within the unincorporated County jurisdiction and would be subject to County policies and regulations for future development unless annexed to the City.

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the Plan could result in adverse impacts to scenic public views. However, these impacts would be limited in geographic scope, as most of the anticipated new development would be infill development that would not be located within panoramic scenic public viewsheds. Implementation of polices and actions to protect scenic views and require sensitive building designs would serve to mitigate potential impacts to scenic views with potential future development of the Swenson site and properties along Seventh Avenue. Additionally, implementation of the proposed *General Plan 2030* goals, policies and actions regarding scenic views and development siting and design would avoid and minimize adverse impacts on scenic public views as summarized on Table 4.3-1. Thus, the proposed *General Plan 2030*'s indirect impact on scenic views would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.3-2: Scenic Resources**
Adoption and implementation of the proposed *General Plan 2030* would accommodate future development that could adversely impact scenic resources. However, with implementation of the proposed policies and actions for protection of scenic resources, this is considered a *less-than-significant impact.*

As indicated above in the Impact 4.3-1 discussion, most of the future development that would be accommodated by the *General Plan 2030* would be along the City's major transportation corridors or would be infill and intensified development on existing developed sites. There are no state-designated highways within City limits nor are there locally designated scenic roads. Thus, there would be no impacts to scenic resources along designated state or local roads.

In limited areas where new infill or intensified development may be proposed in the future, there may be significant trees or historic buildings or landmarks that may be considered scenic resources and potentially directly or indirectly affected by future development. However, the proposed *General Plan 2030* policies and actions would minimize these impacts and protect

scenic resources, particularly heritage trees and landmark buildings as summarized on Table 4.3-1.

**TABLE 4.3-1**
**Proposed *General Plan 2030* Policies & Actions that Avoid or Reduce Aesthetics Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| PROTECT SCENIC VIEWS | • Protect Scenic Views<br>  ◦ Protect views to and along ocean: CD1.1.2<br>  ◦ Develop siting & scale design guidelines to preserve important public scenic views: CD1.2.1<br>• Emphasize distinguishing natural features – visual image: CD1.1.4<br>• Minimize grading on coastal terraces: CD1.1.1<br>• Encourage UCSC to blend with natural landscape: CD1.3.1 |
| PROTECT SCENIC RESOURCES | • Preserve natural features & open space that visually define areas and provide scenic benefits: CD1.1, LU3.11, CD1.1.3<br>• Protect significant vegetation and landscaping that provide scenic value: CD 4.3.3<br>• Maintain heritage tree ordinance & protect heritage trees: CD4.3.4, NRC5.1<br>• San Lorenzo River – develop designs to relate to river & enhance prominence: CD1,5m CD1.5.1, 1.5.2<br>• Physical & visual linkages in key area: CD 3.1<br>• Preserve public views of City landmarks: CD3.2, 3.2.1, 3.2.2 & maintain visual prominence of landmarks from major roads and public viewpoints: CD4.1.5<br>  ◦ Protect, restore, rehab historic or architecturally significant buildings, sites (HA1.8, HA1.8.1, HA1.8.2, HA1.8.3)<br>  ◦ Identify/preserve landmarks: CD2.3.2, HA1.8.5<br>• Prohibit land divisions that degrade natural features: LU2.3.5 |
| AVOID-REDUCE SUBSTANTIAL DEGRADATION OF EXISTING VISUAL CHARACTER OF NEIGHBORHOODS | • Development Design<br>  ◦ Design guidelines: CD1.2.1, CD1.2.2<br>  ◦ Protect distinctive design characteristics & landmarks of neighborhoods: CD2.1, CD2.3<br>  ◦ Design principles and new guidelines for transition between higher density mixed-use corridors and adjacent development: CD2.1.2, CD 2.1.3, 2.1.4<br>  ◦ Design guidelines for landmarks: CD3.2.2<br>  ◦ Superior design for buildings at visually significant locations-gateways and major corridor intersections: CD3.5 and landmarks: CD3.5.1<br>  ◦ Pedestrian scale development, building orientation & amenities: CD3.3 (along transit corridors-assembly of small parcels), C5.2, CD5.2.1, CD5.2.4<br>  ◦ Encourage innovate commercial & industrial designs: ED6.5.1<br>  ◦ Development design to blend with natural topo/veg: CD1.3, CD1.3.2-3 (development on slopes)<br>• Visual connection between development and open space: CD1.4, 1.4.1, 1.4.2<br>**(CONTINUED TO NEXT PAGE)** |

**TABLE 4.3-1**
**Proposed *General Plan 2030* Policies & Actions that Avoid or Reduce Aesthetics Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| | • Specific Areas:<br>  ◦ Ocean Street – new development to contribute positively to aesthetic character of Ocean Street: CD2.1.9, CD 4.4, CD4.4.1<br>  ◦ Develop plans for Harvey West & Westside industrial areas to define appropriate character: CD2.18<br>  ◦ Update the Seabright Area Plan to address historic development patterns and future infill and intensification impacts: CD2.1.6<br>• Reuse "architecturally significant" buildings: CD4.16<br>• Ensure compatible development within historic districts: HA1.9<br>• Protect and enhance historic street patterns, rail lines, walls, and pedestrian walkways to emphasize historic routes and help define districts and neighborhoods: CD4.1.4<br>• Improve neighborhood quality with housing rehab: CD2.4<br>• Attractive gateways & visitor routes CD4.1, CD4.1.1, CD4.1.3, ED1.8.2<br>• Development to enhance visual quality of streetscapes: CD4.2, 4.2.1, 4.2.2, 4.2.3, 4.3.4<br>• Parking lot landscaping and lighting: M1.6.2<br>• Attractive landscaping & street tree plans: CD4.3, CD4.CD3.1, CD4.3.2, CD4.3.5, CD4.3.6, CD4.3.7, CD4.3.8<br>• Prepare/update area plans: CD 2.1, 2.1.1, 2.1.2, 2.1.5, 2.1.6, 2.3.1<br>• Signage plans: CD2.3.1, CD2.4.1<br>• Underground utilities: CD4.2.3, M3.29 (along streets)<br>• Other features (sound walls, fences): CD4.2.4; reduce visual clutter of wires, antennas : CC11.3 |
| AVOID INTRODUCTION OF SUBSTANTIAL NEW SOURCES OF LIGHT OR GLARE | • Develop Street Lighting Plan CD 3.6<br>• Lighting standards and guidelines: HZ5.1, HZ5.1.2 |

The draft Plan seeks to preserve natural features that visually define areas and provide scenic benefits (CD1.1), as well as to protect significant vegetation that provides scenic value (CD 4.3.3). Other policies and actions call for maintaining the City's heritage tree ordinance and protecting heritage trees (CD4.3.4, NRC5.1). Additionally, the Plan seeks to ensure that the scale, bulk and setbacks of new development will be designed to preserve public views of City landmarks, where possible (CD3.2), with maintenance of the visual prominence of landmarks from major roads and public viewpoints (CD4.1.5). The plan also supports development that relates to and enhances the prominence of the San Lorenzo River (CD1.5, CD1.5.1), as well as overall physical visual linkages in key areas such as between Downtown, the Beach Area and San Lorenzo River (CD3.1, CD3.1.1).

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan could result in adverse impacts to scenic resources. However, these areas are somewhat limited as most of the new development would be infill development that

would not be located within panoramic scenic views. Additionally, implementation of the proposed *General Plan 2030* goals, policies and actions would avoid and minimize adverse impacts on scenic resources as summarized on Table 4.3-1. Thus, the proposed *General Plan 2030*'s indirect impact on scenic resources would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.3-3: Degradation of Visual Quality of Surrounding Areas**
Adoption and implementation of the proposed *General Plan 2030* would accommodate future development that would result in intensified structural development in some areas that could result in substantial degradation of the visual quality of surrounding neighborhoods. However, with implementation of the proposed policies and actions for siting of development to be sensitive to existing uses in concert with street landscaping, this is considered a *less-than-significant impact*.

As indicated above in the Impact 4.3-1 discussion, future development accommodated by the draft Plan would primarily occur on vacant infill sites, on underutilized properties that could redeveloped at higher densities and/or land use intensities, and in the new mixed-use districts along the City's four major street corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. Based on the estimated development that could occur under the proposed plan, more than half of the estimated new development would be along major transportation corridors. The new mixed use designations would not substantially change potential development characteristics, as current commercial zoning regulations allow residential uses in addition to specific commercial uses in buildings up to three stories in height (35-40 feet). Under existing regulations, building heights also can be increased with a Planned Development Permit. Future development within proposed mixed-use designations could result in more massive structures than adjacent residential areas along all of the identified road corridors proposed for new mixed use designations. The proposed floor area ratio (FAR) for the mixed-use designations is intended to help limit building mass. However, a FAR of 2.75 is proposed along Ocean Street and Soquel Avenue, which could lead to development of buildings taller than three stories, although as indicated above, variations to building height can also be considered and granted under current Planned Development regulations. Other areas in the City with identified mixed use potential, such as the Downtown and River areas, already have mixed use buildings, especially in the Downtown area, and/or are not located directly adjacent to residential areas.

In areas where new mixed-use, infill or intensified development may be proposed in the future, new buildings may result in substantial degradation of the visual character of the surrounding area if new buildings are overly massive, substantially taller or out of scale with adjacent areas, especially residential areas next to mixed-use areas. However, the implementation of the proposed *General Plan 2030* policies and actions would ensure that new buildings do not

adversely impact the visual character of adjacent areas as summarized on Table 4.3-1. Policy CD2.1 seeks to protect and enhance the "distinctive physical and design characteristics" of neighborhoods and districts throughout the City. The plan calls for development of design guidelines to address the visual transition between areas of higher density and/or intensified development (i.e., along corridors, such as Water Street and Soquel Avenue) and adjacent existing developed neighborhood with less intense development (CD2.1.3). The plan also calls for including development standards as part of Zoning Ordinance amendments to establish mixed use districts to ensure that "siting, massing and scale of infill and intensified development are sensitive to existing neighborhood and business districts" (CD2.1.4). Policy LU4.1.2 requires that the Zoning Ordinance be amended to ensure that infill and intensified development is sensitive to existing neighborhoods. Building height could be addressed as part of the massing and scale considerations, but the policy would be more explicit if height were also added. "Attractive" commercial development (including more intensive and higher quality ground floor retail) is encouraged along commercial corridors, provided the uses are compatible with, or transition easily to, adjacent residential areas (ED5.3.1). Policy CD3.3 encourages the assembly of small parcels along transit corridors to achieve pedestrian-oriented development that is compatible with neighborhood characteristics.

The proposed *General Plan 2030* references several specific areas. Redevelopment of the light industrial properties on Murray Street in Seabright is encouraged, including more land intensive commercial and/or mixed use development, provided that the uses are compatible with existing residential (ED5.3.2). The proposed Plan also calls for an update of the Seabright Area Plan, which would address historic development patterns and future infill and intensification impacts (CD2.2.6). Additionally, the draft Plan also seeks to improve the aesthetic character along Ocean Street (CD2.1.9) and to implement appropriate designs in the Harvey West and Westside industrial areas (CD2.1.8).

The limited specific types of facilities that are supported in the draft General Plan would also be subject to these guidelines, including a new rail transit center, performing arts center and mutli-story parking lots. Potential aesthetic impacts associated with construction of a desalination plant are addressed in the WATER SUPPLY (Chapter 4.5) section of this EIR.

Numerous other policies and actions seek superior designs for buildings in visually sensitive areas (CD3.5), including landmark buildings (CD3.5.1), attractive gateways and landscaped streetscapes, and visual connections between development and open space. Policy CD1.4 seeks to ensure that development is sensitively designed in relation to open space and scenic resources, as well as existing development. Goal CD5 seeks walkable neighborhoods and districts of compatible uses and buildings, and some of its supporting policies and actions require pedestrian scale elements and amenities in the design of new development (CD5.2, CD5.2.2, CD5.2.4).

In addition to proposed *General Plan 2030* policies and actions, existing and proposed plans and design guidelines would continue to provide design guidance in specified areas, including the Beach and Downtown areas, and proposed guidelines along the River corridor and lower Pacific area. Furthermore, the City's Zoning Ordinance requires a "design permit" for most new construction in the City of Santa Cruz. This requires review of architectural and site development proposals to ensure the application of recognized principles of design, planning and aesthetics and qualities typifying the Santa Cruz community. Pursuant to the Design Permit requirements

(Zoning Ordinance Section 24.08.430), findings must be made that address 17 identified criteria before the City issues a design permit.

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan could result in adverse impacts to the visual character of surrounding areas due to the introduction of mixed or intensified use structures that are more massive than, or out of scale with, adjacent residential neighborhoods. However, with implementation of the proposed *General Plan 2030* goals, policies and actions that require the development of design guidelines and development standards for transitional areas as summarized on Table 4.3-1, in combination with continued application of existing and proposed design guidelines for specified areas and design review as part of Design Permit approvals, this would be considered a less-than-significant impact.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified. However, revision of the following *General Plan 2030* action is recommended to strengthen standards developed for new mixed use districts.

**Recommended Revisions to the *Draft General Plan 2030***

Revise or add policies/actions as indicated below. Deleted text is shown in ~~strikeout~~ typeface, and new text is shown in underlined typeface.

CD2.1.4 As part of the Zoning Ordinance amendment to establish mixed use districts, establish development standards to ensure that siting, massing, height, and scale of infill and intensified development are sensitive to existing neighborhood and business districts.

**Impact 4.3-4: Introduction of Light and Glare**
Adoption and implementation of the proposed *General Plan 2030* would accommodate future development that could introduce new sources of light or glare. However, given the infill nature of future development, it is not expected that new sources of substantial light or glare would be introduced. Implementation of the proposed policies and actions for minimizing lighting impacts would further reduce potential effects. Thus, this is considered a *less-than-significant impact*.

As indicated above in the Impact 4.3-1 discussion, most of the future development that would be accommodated by the *General Plan 2030* would be along the City's major transportation corridors or would be infill and intensified development. Infill buildings would have standard window and exterior lighting treatments, but would not be expected to result in new sources of substantial light or glare as future development projects would largely replace or redevelop

existing urban uses. Exterior lighting would be included as part of future development, but would be typical of residential and commercial lighting, and would not result in nighttime illumination levels beyond the property line. The proposed *General Plan 2030* policies and actions serve to minimize light and glare. Policy CD3.6 calls for development of a Street Lighting Plan. Policy HZ5.1 calls for reduction in "light pollution", and calls for development of lighting design guidelines to reduced light being generated upward or on to adjacent properties (HZ5.1.2). Additionally, section 24.14.266 of the City's Municipal Code prohibits direct or sky-reflected glare, whether from floodlights or from other processes, such as combustion or welding, so as to be visible at the points of measurement specified in the regulations for different land use zones.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan could result in potential sources of light and glare. However, given the type of infill development that would be expected, "substantial" new sources of light and glare would not be expected. Additionally, implementation of the proposed *General Plan 2030* goals, policies and actions would serve to avoid and minimize adverse impacts related to new sources of light and glare as summarized on Table 4.3-1 as would the Design Permit review that is required for most larger development projects. Thus, the proposed *General Plan 2030*'s indirect impact related to the introduction of new sources of light and glare would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

## REFERENCES

Design, Community & Environment. November 16, 2007. "Community Design Background Report."

# 4.4 TRANSPORTATION & TRAFFIC

## 4.4.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Regulatory Setting
- Summary of Transportation Modes & Use
- Transportation Plans & Studies
- Road Network & Traffic Conditions
- Bicycle & Pedestrian Circulation
- Public Transit
- Rail Service
- Planned Improvements
- Transportation Management
- Parking

This section was prepared with assistance from Ron Marquez, traffic consultant to the City of Santa Cruz Public Works Department, and Jeff Waller of Hatch Mott MacDonald (formerly Higgins and Associates), who ran the TRAFFIX model and developed Level of Service calculations under the direction of City staff and consultants. A summary of the traffic analysis methodology is included in Appendix C. Traffic volumes and intersection level of service calculations are included in Technical Appendices F-5 and F-6, respectively. The technical appendices are available for review at the City of Santa Cruz Planning Department[1] and are also included on the Draft EIR CD and on the online version of the Draft EIR on the City's website at www.cityofsantacruz.com, Planning Department.

### REGULATORY SETTING

A number of local, regional and state agencies are involved with transportation planning and implementation of transportation programs and improvements within the City of Santa Cruz. The City maintains local roadways and bike and pedestrian facilities. The California Department of Transportation (Caltrans) has jurisdiction over State highway segments that traverse the City, including portions of Highways 1, 9, and 17. To help fund local roadway and intersection improvements, the City has developed a "Traffic Impact Fee" (TIF) that is applied to new development at the time of issuance of building permits (see discussion below in the "Planned Transportation Improvements" subsection for more details), and the City is active in acquiring transportation funding from federal and state sources.

[1] Located at 809 Center Street, Room 107, Santa Cruz, California during business hours: Monday through Thursday, 8 AM to 12 PM and 1 to 5 PM.

The City's Zoning Ordinance includes a trip reduction program requirement for specified classifications of employers (Chapter 10.46-Citywide Trip Reduction Program). Key purposes are: to establish programs and requirements for new and existing employers that will help to reduce traffic congestion and to improve air quality; to assist employers in identifying and utilizing cost-effective programs and methods to reduce vehicle trips made by employees; and to ensure the City plays a significant role in promoting alternatives to the use of single-occupant vehicles. The Zoning Ordinance also provides regulations regarding parking and parking space requirements for different land uses in Chapter 12 that include provisions for reduced parking for specified shared parking opportunities.

In addition to the City and Caltrans, other local and regional agencies responsible for transportation services and/or transportation planning include:

- *The Association of Monterey Bay Area Governments* (AMBAG) addresses transportation problems and concerns through its regional transportation system management element and preparation of regional traffic forecasts related to local land use and population projections. AMBAG is the federally designated Metropolitan Planning Organization (MPO) for transportation planning activities in the tri-county Monterey Bay Region. It is the lead agency responsible for developing and administering plans and programs to maintain eligibility and receive federal funds for the transportation systems in the region. AMBAG works with regional transportation planning agencies, transit providers, the Monterey Bay Unified Air Pollution Control District (MBUAPCD), state and federal governments, and organizations having interest in or responsibility for transportation planning and programming. AMBAG also coordinates transportation planning and programming activities with the three counties and 18 local jurisdictions within the Monterey Bay Region. AMBAG develops the Metropolitan Transportation Plan (MTP) and the Metropolitan Transportation Improvement Program (MTIP). (AMBAG website; online at http://www.ambag.org/programs/met_transp_plann.html).
- *The Santa Cruz Metropolitan Transit District* (SCMTD) provides transit services throughout Santa Cruz County.
- *The Santa Cruz Regional Transportation Commissio*n (SCCRTC) oversees planning and funding programs for local and regional projects within Santa Cruz County using state and federal transportation funds. The City of Santa Cruz has one City representative on the 12-member SCCRTC board and many City transportation projects are funded through grant programs administered by the SCCRTC (Fukuji Planning and Design, July 2003).
- *The University of California at Santa Cruz (UCSC)* implements a transportation systems management and parking program that provides a comprehensive package of commute options, including carpools, bicycles, and transit; free bus passes; and shuttle buses serving all areas of the campus.

## SUMMARY OF TRANSPORTATION MODES & USE

The movement of people and goods is provided via a range of transportation modes including private and shared auto on a network of local and regional roads and highways; public transit; bicycle; walking; and rail service that is currently used for freight movement and limited seasonal visitor use. Transportation modes provide access for work, shopping, recreation, and

personal and social purposes. The state highways through the City also carry regional and statewide traffic. Key activity centers in the City include:

- The Mission Street corridor in the Westside;
- Ocean Street;
- Soquel Avenue in the eastside; the downtown area; the beach-Boardwalk area;
- the Harvey West-River Street area; and
- UCSC (Fukiji Planning and Design, July 2003).

The joint City-UCSC "Master Transportation Study" (MTS) found that 70% of daily residential mobility within the City is for local trips. For peak-hour travel citywide, 50% is local and 50% is regional travel. Of regional trips, commute in and commute out trips are roughly split in half (Fukiji Planning and Design, July 2003). Surveys conducted as part of the MTS found that 30% of trips in Santa Cruz are for work compared to 25% for social purposes, 18% for personal purposes, 14% for school, and 13% for shopping (Ibid.).

Daily citywide residential trips were made by auto, bus, bicycle and walking. City resident travel patterns identified in the MTS are shown on Figure 4.4-1.[2] For the PM peak period (4 PM to 7 PM), 80% of all travel modes used a car (68% drove alone and 12% carpooled) and 20% bicycled, walked or rode transit. Of these travel groups, full and part-time employees comprised 84% of the trips, compared to 16% for students and retired persons (Fukiji Planning and Design, July 2003). The Santa Cruz County Regional Transportation Commission reports that the number of people per vehicle has remained fairly constant over the last 15 years at an average of 1.2 persons per vehicle in the morning and 1.3 in the evening based on annual vehicle occupancy counts for Highway 1 and Highway 17 (Santa Cruz County Regional Transportation Commission, June 2010).

## LOCAL & REGIONAL TRANSPORTATION PLANS & STUDIES

### City-UCSC Master Transportation Study

In April 2000, the City of Santa Cruz and the University of California at Santa Cruz initiated a partnership to jointly fund a community-based approach to planning the City's transportation future that resulted in the completion of "The Master Transportation Study" (MTS). The Mission Statement of the study is to *"Create a Transportation Plan for the City of Santa Cruz that is inspiring, innovative and implementable with broad-based community support."* The MTS integrates pedestrian, bicycle, transit and street transportation plans and programs as a foundation for updating the City's General Plan, City zoning ordinance, UCSC's Long Range Development Plan and other city and regional transportation planning documents (Fukuji Planning and Design, July 2003). The MTS is not an adopted plan, but was reviewed and accepted by the City Council.

The MTS recommends a series of City-initiated strategies, short-term transit strategies and long-term recommendations to reduce single-occupant trips, increase multiple-occupant vehicles,

[2] All EIR figures are included in Chapter 7.0 at the end of the EIR (before appendices) for ease of reference as some figures are referenced in several sections.

increase transit, bicycle and pedestrian modes, and improve traffic system efficiency. Elements of these recommendations include an emphasis on carpooling and recommended support of a Bus Rapid Transit (BRT) system. The recommended travel mode splits as envisioned in the MTS would shift as follows:

- SINGLE-OCCUPANT VEHICLES (SOV): Decrease by 13% for internal trips and 4% for external trips.
- MULTIPLE-OCUPPANT VEHICLES (MOV): Increase by 4% for internal trips and 3% for external trips.
- BUS USE: Increase by 2% for internal trips and 1% for external trips.
- BIKE USE: Increase by 3% for internal trips.
- PEDESTRIAN USE: Increase by 4% for internal trips (Fukuji Planning and Design, July 2003).

  (Fukuji Planning and Design, July 2003).

The following projects are identified as MTS high priority projects:

- Metrobase Transit District Consolidations Operations Facility,
- Right-of-Way Acquisition on rail corridor,
- Bike and pedestrian path on rail right-of-way,
- Local bike projects and expanded bus service.

## Santa Cruz County Regional Transportation Plan (RTP)

The Santa Cruz County Regional Transportation Commission (SCCRTC) deals with transportation issues in Santa Cruz County. The purpose of the SCCRTC is to:

- Set priorities for major capital improvements to the County's transportation infrastructure, including highways, major roads, rail and alternative transportation facilities.
- Pursue and allocate funding for all elements of the County's transportation system.
- Adopt policies to improve mobility, access and air quality.
- Plan for future projects and programs to improve the regional transportation system.
- Inform businesses and the public about alternatives to driving alone and the need to better manage our existing transportation system.
- Conduct programs to encourage the use of alternative transportation modes (Santa Cruz County Regional Transportation Commission website: www.sccrtc.org).

The *Regional Transportation Plan* (RTP) is a state-mandated, long-range plan that serves as a blueprint to guide future transportation funding decisions. The RTP, prepared by the SCCRTC, outlines transportation challenges and establishes investment priorities for all of Santa Cruz County. The plan includes lists of transit, highway, local road, bike, and pedestrian needs in the region and estimates the amount of local, state and federal dollars that may be available for these projects over the next 25 years. The plan is updated to reflect the latest funding and project needs every four to five years (Santa Cruz County Regional Transportation Commission website, online at: http://www.sccrtc.org/rtp.html.)

The current version was adopted by the SCCRTC in June 2010. The "2010 RTP" is a minor update of the last version, completed in 2005, and provides guidance for transportation policy and projects through the year 2035. The 2010 RTP is the SCCRTC's comprehensive planning document, which identifies the goals, projects, and programs that will maintain and improve the County's transportation system over the next twenty-five years. Identified improvements and projects are categorized as either "Constrained", meaning there are foreseeable funds for the improvement or "Unconstrained", meaning new revenues would need to be generated or become available. Individual projects listed in the 2010 RTP must still undergo separate design and environmental processes, and can only be implemented as local, state and federal funds become available (Santa Cruz County Regional Transportation Commission, June 2010).

The 2010 RTP carries forward goals from the 2001 and 2005 RTPs, which are to:

- Preserve and maintain the existing transportation system, emphasizing safety and efficiency
- Increase mobility by providing an improved and integrated multi-modal transportation system.
- Coordinate land use and transportation decisions to ensure that the region's social, cultural, and economic vitality are sustained for current and future generations.
- Ensure that the transportation system complements and enhances the natural environment of the Monterey Bay region and reduce greenhouse gas emissions.
- Make the most efficient use of limited transportation financial resources.
- Solicit broad public input on all aspects of regional and local transportation plans. Santa Cruz County Regional Transportation Commission, June 2010).

The 2010 RTP assigns future transportation funds to a range of projects and programs designed to maintain the current transportation system, provide traffic congestion relief and broaden transportation options. Key proposals include:

- Maintenance of the existing transportation network including roads, highways, bike lanes, sidewalks, and transit.
- Safety and operational improvements to Highways 1, 9, 17, 129 and 152.
- Adding auxiliary lanes and High Occupancy Vehicle (HOV) lanes on Highway 1 between Aptos and Santa Cruz.
- Modifications to major arterial roads -- including bus, pedestrian and bicycle facilities.
- Expanded bus service, with additional Highway 17 Express buses and more Park and Ride lots to serve Silicon Valley, University of California Santa Cruz (UCSC), and south county commuters.
- Construction of the Monterey Bay Sanctuary Scenic Trail Network along the coast.
- Local bicycle and pedestrian projects designed to increase bicycle commuting, and provide safe bicycle and pedestrian routes to schools.
- Expansion of specialized transport services in response to projected increases in senior and disabled populations.

- Increased availability of information about road conditions, transit operations, and other transportation options.
- Landscaping and lighting improvements to make transportation corridors part of livable communities (Santa Cruz County Regional Transportation Commission, June 2010).

The 2010 RTP also includes a new discussion on greenhouse gas (GHG) emissions in relation to transportation planning. In the absence of tools to measure the effectiveness of specific RTC policies towards reducing GHGs and without having the specific GHG reduction targets from the state during development of the 2010 RTP, the new chapter introduces some of the best practices which could be included in a portfolio of strategies to meet future emission reduction goals in Santa Cruz County. The RTP includes many projects that pro-actively implement GHG reduction strategies such as: operating a Commute Solutions program to encourage ridesharing; funding freeway service patrols to remove incidents and improve traffic flow; adding high occupancy vehicle lanes in the Highway 1 corridor to encourage carpools, vanpools and transit use; acquiring the rail corridor for goods movement, bicycle and pedestrian access and possible passenger service; and supporting bicycle, pedestrian and transit projects (Santa Cruz County Regional Transportation Commission, June 2010).

## Monterey Bay Area Metropolitan Transportation Plan (AMBAG)

AMBAG is the MPO (Metropolitan Planning Organization) for the Monterey Bay Area, and as the region's MPO, AMBAG is required to produce certain documents that maintain the region's eligibility for federal transportation assistance. The Metropolitan Transportation Plan (MTP) is the federally mandated long-range transportation plan for the Monterey Bay Area. This plan lays out a financially constrained list of transportation projects over the following 25 years that will enhance regional mobility (AMBAG website, "Metropolitan Transportation Plan", online at: http://www.ambag.org/programs/met_transp_plann/mtp.html).

Federal regulations require that this long-range transportation plan be both financially constrained and fall under the on-road motor vehicle emissions budget included in the Federal Air Quality Maintenance Plan. The MTP, referenced as *Monterey Bay Area Mobility 2035*, was approved by the AMBAG Board of Directors on June 8, 2010, and includes goals, policies, programs and projects to meet the stated objectives and meet the transportation needs and deficiencies. Programs and projects are taken from each county's RTP and first incorporated, in their entirety, into the MTP (AMBAG, June 2010).

As a region that meets federal standards for ozone precursors, the region is considered to be in 'attainment' for those standards. As an attainment region, the MTP is only required to be updated every five years. Because new state legislation, SB 375, calls for MPOs to prepare a Sustainable Communities Strategy (SCS) to be used to synchronize and coordinate both the metropolitan transportation planning process and the regional housing needs allocation process, AMBAG is treating this 2010 update of the MTP as a minor update. Beginning with the 2012 update, AMBAG is moving to a four-year update cycle to align regional planning efforts for transportation with an eight year housing planning cycle. (AMBAG website, "Metropolitan Transportation Plan", online at: http://www.ambag.org/programs/met_transp_plann/mtp.html).

### Caltrans' Corridor System Management Plan

Caltrans is in the process of developing a "Corridor System Management Plan" (CSMP) for Highway 1 from the junction of Highway 68 in Monterey County to King Street/Mission Street in Santa Cruz to develop strategies to manage the corridor and sustain existing transportation investments (Caltrans, October 2010). The draft plan indicates that the following strategies will be used to manage State Route 1 over the next 20 years:

- Maintenance and preservation of the roadway.
- Support improvement of transit service, including new express bus service on the HOV lanes planned for the Santa Cruz corridor.
- Support land use and transportation planning efforts such as AMBAG's "Blueprint Plan".
- Reduce congestion by encouraging programs that increase the use of transit, improve bicycle and pedestrian programs and encourage programs such as carpools, ridesharing, telecommuting and park-and-ride facilities to reduce demand.
- Intelligent Transportation Systems/Traveler Information/Traffic Management to clear congestion after collisions.
- Operational Improvements, including auxiliary lanes, intersection improvements, ramp metering (Caltrans, October 2010).

## ROAD NETWORK & TRAFFIC CONDITIONS

### Road and Highway Network

#### LOCAL ROADWAYS

The City's road system consists of arterial highways and arterial, collector and local streets (see Figure4.4-2). These different classifications relate to different transportation functions and are classified in terms of access, mobility, design and use. Additionally, visitor/coastal access and truck routes have been designated to facilitate the movement of visitor traffic and commodities.

Highways and arterial streets carry the City's heaviest traffic flows and provide regional and inter-community access. State highways through the City are described in the following section. Major arterial streets within the City include:

- Ocean Street (the primary north-south arterial);
- Mission Street, Water Street, Soquel Avenue and Broadway Avenue-Laurel Street (the primary east-west arterials);
- Other designated arterial streets include Bay Street, Delaware Avenue, Morrissey Blvd., Murray Street-San Lorenzo Blvd., Seabright Avenue, Market Street, Beach Street, Second Street, Front Street, Pacific Avenue, Cedar Avenue, Center Street, Walnut Street, River Street and High Street.

Collector streets provide circulation within and between neighborhoods and commercial and industrial areas. These streets usually serve relatively short trips and are meant to collect traffic from local streets and distribute them to the arterial network. Examples of collector streets

include: California Street, Chestnut Street, Escalona Drive, Fairmount Street, Frederick Street, King Street, Swift Street, and West Cliff Drive.

Local streets provide direct access to abutting land uses, collectors, or arterials, and usually do not accommodate bus routes.

Visitor/coastal access routes are intended to be inviting to visitors and to provide convenient, clear access to and from visitor and coastal destinations. Highways 1 and 17, Ocean Street and Mission Street are key visitor routes into Santa Cruz and the City's beach areas. West Cliff Drive also provides a scenic route along the coast.

Truck routes are intended to channel trucks through the community and away from residential and other areas where they would be a nuisance. The truck routes in the City are Highway 1 – Mission Street, Highway 17, Bay Street north of Mission, Empire Grade west of Bay, Highway 9, Morrissey Boulevard, and Soquel Avenue.

### STATE HIGHWAYS

State highways that go through the City of Santa Cruz include segments of Highways 1, 17, and 9. Though referenced as "state routes" in Caltrans documents, the more common term, "highway", is used in this EIR. Highways 1 and 17 serve regional traffic, including motorists who commute to jobs in the Santa Clara Valley and motorists who travel into Santa Cruz County for recreational opportunities offered in the county. A short segment of Highway 9 also is within city limits.

**Highway 1** provides access to San Francisco to the north and Monterey to the south. Regionally, Highway 1 is the major inter- and intra-county route for Santa Cruz County. Within the City of Santa Cruz, it is oriented in an east-west direction, although the interregional alignment of Highway 1 is primarily north-south. It is a four-lane arterial along Mission Street from the west side of Santa Cruz to Chestnut Street Extension, a four-lane expressway between Mission Street-Chestnut Street and River Street, and a four-lane freeway east of River Street. The speed limit on Highway 1 is 25 miles per hour (mph) along Mission Street, 45 mph along the expressway section, and 55 and 65 mph on the freeway sections further east. Recurrent congestion results in queuing on Highway 1 that extends for several miles during peak hours. Accidents, events, and other incidents in the corridor can further increase congestion related delays in either direction, on any day, including weekends.

**Highway 9** is a two-lane state highway that connects the City of Santa Cruz with the San Lorenzo Valley, and eventually, Saratoga and Los Gatos. Approximately 0.5 miles of Route 9 are located within Santa Cruz city limits.

**Highway 17** connects Santa Cruz with Scotts Valley and San Jose and other Santa Clara County communities. It is a four-lane freeway north of the Highway 1/ Highway 9 intersection. Highway 17 is the primary route between the Santa Clara Valley and Santa Cruz County that serves as both a commute route for Santa Cruz County residents that work in Santa Clara County and for recreational visitors that come to Cruz County. Congestion occurs both during weekday commute times and on summer weekends. This winding, four-lane road has steep sections, frequent road crossings, and substandard median shoulders and outside shoulders for

most of its length. In addition to the challenging roadway configuration, weather-related conditions such as thick fog, heavy rains and mudslides affect roadway operations.

## Existing Traffic Conditions & Level of Service

Traffic conditions are measured by average daily traffic (ADT), peak hour traffic volumes, and level of service (LOS), average delay, and volume to capacity (V/C) ration. Average daily traffic is the total number of cars passing over a segment of the roadway, in both directions, on an average day. Peak hour volumes are the total number of cars passing over a roadway segment during the peak hour in the morning (AM) or afternoon/evening (PM). In the City of Santa Cruz, the peak hour for weekdays occurs in the evening.

"Level of Service" (LOS) is used to identify the magnitude of traffic congestion and delay at intersections. Traffic flows along city streets are typically controlled by the volume and capacity of the nearest intersection (City of Santa Cruz, 1994). Intersections are rated based on a grading scale of LOS "A" through LOS "F", with LOS A representing free flowing conditions and LOS F representing forced flow conditions. The intermediate levels of service represent incremental levels of congestion and delay between these two extremes.

The signalized intersection LOS methodology addresses the capacity, LOS, and other performance measures for lane groups and intersection approaches and the LOS for the intersection as a whole. Capacity is evaluated in terms of the ratio of demand flow rate to capacity (v/c ratio), whereas LOS is evaluated on the basis of control delay per vehicle (in seconds per vehicle). Control delay is the portion of the total delay attributed to traffic signal operation for signalized intersections. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay as listed in the following table from the *Highway Capacity Manual 2000,* Transportation Research Board.

**LOS CRITERIA FOR SIGNALIZED INTERSECTIONS**

| LOS | LOS Control Delay per Vehicle (seconds/vehicle) |
|---|---|
| A | ≤ 10 |
| B | > 10–20 |
| C | > 20–35 |
| D | > 35–55 |
| E | > 55–80 |
| F | > 80 |

Capacity analysis at two-way stop control (TWSC) intersections depends on a clear description and understanding of the interaction of drivers on the minor or stop-controlled approach with drivers on the major street. Both gap acceptance and empirical models have been developed to describe this interaction. LOS for a TWSC intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS is not defined for the intersection as a whole as shown in the following table.

**LOS CRITERIA FOR TWSC INTERSECTIONS**

| LOS | LOS Control Delay per Vehicle (s/veh) |
|---|---|
| A | **0–10** |
| B | **> 10–15** |
| C | **> 15–25** |
| D | **> 25-35** |
| E | **> 35-50** |
| **F** | **> 50** |

**SOURCE:** *Highway Capacity Manual 2000,* Transportation Research Board

The City of Santa Cruz has established LOS D as the minimum acceptable LOS for overall intersection operations during weekday AM and PM peak hours. However, the existing General Plan recognizes that some major regional intersections (which were once part of the "Congestion Management Program" – a formerly mandated state program[3]) as experiencing lower levels of service than the City's LOS D standard. Thus, the existing General Plan accepts a lower (i.e., worse) LOS at these intersections (listed below) per existing Circulation Policy 5.1.2 due to environmental, economic, and/or feasibility constraints with implementing improvements at these locations.

- Mission St. / Chestnut St.-Hwy 1 (F)
- Highway 1 / River St.-Hwy 9 (F)
- Ocean St. / Plymouth St. (F)
- Water St. / Ocean St. (F)
- Soquel Ave. / Ocean St. (F)
- Soquel Ave. / Water St. / Morrissey Blvd. (E)

Caltrans, which has jurisdiction over state highways, endeavors to maintain a target LOS at the transition between LOS C and D. However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS (Caltrans, December 2002). If an existing State highway facility is operating at less than the appropriate target LOS, the existing LOS should be maintained (Ibid.).

The critical volume to capacity ratio (V/C) is another measure of the operating conditions of an intersection as opposed to LOS. The ratio provided in the worksheets is a calculation of the volume to capacity for the critical movements at the intersection. It is not the average of all the movements at the intersection. V/C is not used as a measure to define the levels of service.

[3] The Code of Federal Regulations, Title 23 Volume 1, adopted in April. 2005 require Transportation Management Areas (TMAs) to prepare Congestion Management Programs. TMAs are defined as urbanized areas with a population over 200,000. There are eight such areas in California plus Santa Barbara that asked to be included.

## LOCAL INTERSECTION LEVELS OF SERVICE

**Weekday Peak Hour Traffic Conditions**. In the City of Santa Cruz, the peak hour for weekdays occurs in the evening. The PM peak hour (roughly 4 PM to 7PM) generally has the highest number of trips compared to the AM peak hour (7 AM to 10 AM) or the midday peak hour (Fukuji Planning and Design, July 2003). Intersection traffic counts were collected during the weekday PM peak hour (4:00 – 6:00 PM) at nearly 80 intersections throughout the City. The counts were done in May 2006, November 2006 and February 2007. The intersection counts are included in Appendix F-5.

The City's consulting traffic engineer compared traffic counts taken for the General Plan traffic with counts taken in 2008 and 2009 that were obtained from the SCCRTC to ensure the validity of the counts for the General Plan EIR analysis. The review indicates that all but one of the counts the City made in 2006 were higher than those reported by the Commission (Marquez, March 2010; see Appendix C for details). Traffic counts were also compared to traffic volumes reported by Caltrans; overall the counts reported for 2006 are 8% higher than those reported in 2008 (Ibid.).

In Fall 2010, UCSC completed new traffic counts at intersections within the City. Of the 24 intersections that the City was able to compare, traffic volumes increased for about half of these and half decreased. Overall, on average, traffic has decreased by 5%. The increased traffic increases were at intersections along Mission Street, High Street, and at the River/Water, Bay/W. Cliff, Delaware/Swift and Front/Laurel intersections (see Appendix C). The increased traffic has been addressed in the City's traffic model. Traffic from projects that were being constructed and/or occupied after the General Plan traffic counts were taken have been added to the "Existing" baseline conditions (see Appendix C) as these projects would be generating traffic at the time the EIR NOP was released. As a result, the existing-baseline condition for this EIR is slightly higher overall than the 2010 counts (Marquez, personal communication, February 2011), except for three intersections – Bay/West Cliff, King/Storey, and Laurel/Front. However, overall, the City continues to see lower counts than were experienced four years ago. Thus, the traffic estimates made for the General Plan 2030 are conservatively high and represent a worst-case scenario for CEQA purposes.

Quantitative Levels of Service (LOS) analysis was performed for the study intersections based the *2000 Highway Capacity Manual* methodologies, prepared by the Transportation Research Board. Intersection operations were evaluated using the Traffix analysis software. Intersection traffic flow operations are evaluated using a level of service (LOS) concept. The technical LOS calculations are included in Technical Appendix F-6, which is available for review at the City of Santa Cruz Planning Department[4] and is also included on the Draft EIR CD and on the online version of the Draft EIR on the City's website at www.cityofsantacruz.com, Planning Department.

Existing intersection PM peak hour levels of service are summarized in Table 4.4-1. All of the study intersections currently operate at an acceptable LOS except for the following 11 intersections, of which six intersections are signalized, and five intersections are unsignalized.

[4] Located at 809 Center Street, Room 107, Santa Cruz, California during business hours: Monday through Thursday, 8 AM to 12 PM and 1 to 5 PM.

For these intersections. Table 4.4-1 also identifies the delay (in seconds) and V/C ratio[5] for the intersections operating at unacceptable levels. For unsignalized intersections, the unacceptable LOS is usually due to delays on a minor leg of the intersection.

- Highway 1 / Highway 9-River Street (F)
- Highway 9-River / Street-Encinal (E)
- Ocean Street / San Lorenzo Blvd. -East Cliff Drive (E)
- Ocean Street / Water Street (E)
- Mission Street / Bay Street (E)
- Bay Street / Escalona Drive (F)
- Bay Street / California Street (F)
- Bay Street / California Avenue (F)
- Laurent Street / High Street (F)
- Western Drive / High Street (E)
- Seabright Avenue / Water Street (F)

**Summer and Weekend Peak Hour Traffic Conditions**. The City also experiences significant traffic during the summers and holiday weekends due to tourist traffic. A portion of the City's circulation system is affected by seasonal surges resulting from coastal access demands from all of northern California. Santa Cruz has recognized that it is not practical to build to accommodate this seasonal demand, and has considered beach access congestion to be acceptable as long as it does not divert traffic onto residential streets. The 2030 Plan has focused on addressing the congestion associated with the weekday travel of City residents, employees and customers.

### STATE HIGHWAY TRAFFIC OPERATIONS & LEVEL OF SERVICE

Based on the most recent Caltrans traffic data (2009 counts), the average daily trips (ADT) on state highways within Santa Cruz is as follows:

- Highway 1, Morrissey Boulevard. ADT is approximately 88,000 to 97,000 trips with 6,300 to 6,900 trips occurring during the peak hour.
- Highway 17, between Santa Cruz and Scotts Valley. ADT is approximately 63,000 - 73,000 trips with 5,700 – 6,300 trips occurring during the peak hour.
- Highway 9 within Santa Cruz City Limits. ADT is approximately 5,000 trips with approximately 510-550 trips in the peak hour as measured at the City limits, north of Encinal.

[5] The V/C ratio is the average adjusted volume of vehicles for each movement over the serviceable capacity of each movement at the intersection. The volume for each approach is adjusted for percentage of trucks and buses, for peaking characteristics, and for abutting parking characteristics. The capacity of each movement is adjusted for lane width, grade, and green time available.

**TABLE 4.4-1**
**Existing Intersection PM Peak Hour Levels of Service**

| | Intersection | PM Peak LOS | Delay [in seconds] | V/C Ratio |
|---|---|---|---|---|
| **SIGNALIZED INTERSECTIONS** | | | | |
| 1 | Hwy 1/Western | B | | |
| 2 | Mission/Swift | B | | |
| 3 | Mission/Miramar | B | | |
| 4 | Mission/Almar-Younglove | B | | |
| **5** | **Mission/Bay** | **E** | **55.8** | **0.944** |
| 6 | Mission/Laurel | B | | |
| 7 | Mission/Walnut | B | | |
| 8 | Mission/King-Union | C | | |
| 9 | Mission/Chestnut-Hwy. 1 | D | | |
| 10 | High/Moore | A | | |
| 11 | Bay-Coolidge/High | D | | |
| 12 | Bay/Nobel-Iowa | B | | |
| 13 | Bay/King | B | | |
| 14 | California/Laurel | C | | |
| 15 | Chestnut/Laurel | B | | |
| 16 | Center/Laurel | B | | |
| 17 | Center/Mission | B | | |
| 18 | Pacific/Laurel | B | | |
| 19 | Front/Laurel | C | | |
| 20 | Front/Metro Center | A | | |
| 21 | Front/Cathcart | A | | |
| 22 | Front/Soquel | C | | |
| 23 | Front/Cooper | A | | |
| 24 | Front-Pacific/Mission-Water | B | | |
| 25 | River/Water | C | | |
| 26 | N. Pacific/River | B | | |
| 27 | River/Potrero | B | | |
| **28** | **River/Hwy. 1** | **F** | **83.9** | **0.942** |
| **29** | **River/Encinal** | **E** | **73.9** | **1.099** |
| 30 | San Lorenzo/Laurel-Broadway | B | | |
| 31 | Riverside/San Lorenzo | C | | |
| 32 | Riverside/Third | C | | |
| 33 | Riverside/Beach | A | | |
| **34** | **Ocean/San Lorenzo-East Cliff** | **E** | **64.7** | **1.061** |
| 35 | Ocean/Broadway | C | | |
| 36 | Ocean/Soquel | D | | |
| **37** | **Ocean/Water** | **E** | **73.6** | **1.081** |
| 38 | Ocean/Kennan-Washburn | A | | |
| 39 | Ocean-Hwy.17/Ocean-Plymouth | C | | |
| 40 | Market/Water | C | | |

**TABLE 4.4-1**
**Existing Intersection PM Peak Hour Levels of Service**

| | Intersection | PM Peak LOS | Delay [in seconds] | V/C Ratio |
|---|---|---|---|---|
| 41 | N. Branciforte/Water | D | | |
| 42 | Branciforte/Soquel | C | | |
| 43 | S. Branciforte/Broadway | B | | |
| 44 | Seabright/Soquel | C | | |
| 45 | Seabright/Broadway | B | | |
| 46 | Seabright/Murray | D | | |
| 47 | Morrissey/Water-Soquel | C | | |
| 48 | Morrissey/Fairmount | A | | |
| 49 | Frederick/Soquel | C | | |
| 50 | Hagemann-Trevethan/Soquel | A | | |
| 51 | Park/Soquel | B | | |
| 52 | Capitola Rd./Soquel Ave. | C | | |
| 53 | La Fonda/Soquel | B | | |
| 54 | Riverside-Dakota/Soquel (new) | A | | |
| 55 | River S./Soquel | B | | |
| 56 | Seventh Ave./Soquel Ave. | C | | |
| 57 | Seventh Ave./Capitola Rd. | C | | |
| 58 | Seventh Ave./Eaton | D | | |
| **UNSIGNALIZED INTERSECTIONS** | | | | |
| **59** | **Bay/California St** | **F** | **434.0** | **1.704** |
| **60** | **Bay/California Ave** | **F** | **67.6** | **1.130** |
| 61 | West Cliff/Bay | C | | |
| 62 | Beach/Pacific Ave | C | | |
| 63 | Pacific Avenue/Center | B | | |
| 64 | Storey/King | B | | |
| 65 | River/Fern | B | | |
| 66 | King/Laurel | B | | |
| **67** | **Laurent/High** | **F** | **59.6** | **1.066** |
| 68 | Market/Isbel-Goss | B | | |
| 69 | North Branciforte/Goss | B | | |
| 70 | Highway 1/Shaffer Rd | B | | |
| 71 | Cedar/Laurel | C | | |
| **72** | **Bay/Escalona** | **F** | **782.2** | **2.015** |
| **73** | **Western/High** | **E** | **45.9** | **05.44** |
| 74 | Cliff/Beach | B | | |
| 75 | Riverside/Second-Liebrandt | A | | |
| **76** | **Seabright/Water** | **F** | **112.8** | **0.589** |
| 77 | Swift and Delaware | C | | |
| 78 | Seventh Ave./Brommer | C | | |
| 79 | Seventh Ave./E. Cliff | C | | |

**SOURCE:** Hatch Mott MacDonald

**State Route 1 (Highway 1)**. The highest average daily traffic volumes along Highway 1 within Santa Cruz County occur in Capitola at the 41st Avenue interchange with 94,000 to 104,000 ADT (Caltrans, October 2010). The segment near the Morrissey Blvd. interchange carried the second highest volume of traffic. Highway 1 west of Morrissey Boulevard is currently operating at LOS D-E (Caltrans, October 2010). Congestion along Highway 1 extends for several miles during peak hours.

According to the *Transportation Concept Report* for Highway 1, the target level of service for State Highway 1 east of Morrissey Boulevard is LOS D (Caltrans, April 2006). Additionally, according to the *Caltrans Guide for the Preparation of Traffic Impact Studies (Caltrans, 2002),* if an existing State Highway facility is operating at less than the target LOS, the guide states that the existing LOS should be maintained (Caltrans, 2002).

Caltrans is in the process of developing a "Corridor System Management Plan" (CSMP) for Highway 1 from the junction of Highway 68 in Monterey County to King Street/Mission Street in Santa Cruz to develop strategies to manage the traffic and congestion along the corridor and sustain existing transportation investments. According to the draft plan released in October 2010, a small segment of the City is located in Segment 4 (Larkin Valley to Branciforte Creek Bridge), with the remainder of the City being located in Segment 5 (Branciforte Creek Bridge to King Street). The draft CSMP indicates that between Branciforte Creek and King Street, traffic volumes are projected to increase from 54,000 average daily trips (AADT) in 2008 to 60,000 in 2025. Existing and future LOS along Highway 1 as identified by Caltrans in this draft plan is identified below (Caltrans, October 2010).

| | Existing LOS (2007) | Future LOS (2030) |
|---|---|---|
| ❑ Hwy 1, Larkin Valley Road to Branciforte Creek Bridge | E - F | F |
| ❑ Branciforte Creek Bridge to King St. | D - E | E - F |

The *Concept Report* for Highway 1 indicates that to achieve LOS D on Highway 1, added capacity, operational improvements, and investment in the multi-modal system will be required (Caltrans, April 2006). The Route Concept Report for Highway 1 includes the addition of High Occupancy Vehicle (HOV) lanes to Highway 1 in each direction to reduce congestion, encourage carpooling, expand express bus service, and improve safety from Morrissey Boulevard to San Andreas/Larkin Valley Road. Caltrans' draft *Corridor System Management Plan* for Routes 1 and 183 indicates that LOS along added Highway 1 HOV lanes during peak hours would range between B and C in the year 2035 (Caltrans, October 2010). While the overall LOS would remain unchanged in the other lanes with addition of an HOV lane, average speeds would be increased and delays and average travel time would be reduced (Ibid.).

In October 2008, Caltrans completed improvements to Highways 1 and 17 as part of the Route 1/17 Merge Lanes Project, which was designed to improve merging by adding additional merge lanes from Highway 1 to Highway 17. The project added merge lanes to the connection between northbound Route 1 and northbound Route 17 and to southbound Route 1 through the 1/17 interchange. Existing bridge structures were widened or replaced, soundwalls were constructed, and landscaping was installed.

**State Route 17 (Highway 17)**. Highway 17 near Pasatiempo Boulevard is currently operating at LOS F (Caltrans, April 2006). According to the *Transportation Concept Report* for Highway 17, the target peak level of service for State Highway 17 between the Ocean Street and Scotts Valley is LOS E (Caltrans, January 2006). The Route Concept Report for Highway 17 indicates that widening is not envisioned and this segment of the highway is considered to be a four-lane freeway (Caltrans, January 2006).

## Traffic Forecasts

The SCCRTC's *Regional Transportation Plan* (RTP) indicates that annual Vehicle Miles Traveled (VMT) throughout Santa Cruz County will increase over 2005 levels within the next 30 years. These VMT projections are made using AMBAG's Regional Travel Demand Model (RTDM). The current RTDM is developed and calibrated for 2005 and forecast for the year 2035.[6] Overall the RTP forecasts the following traffic conditions between the years 2005 and 2035 within Santa Cruz County:

- Daily person trips (trips per person) are projected to increase by 16%.
- Single-occupant auto travel for work trips is projected to increase by 13%.
- Daily vehicle miles of travel are projected to increase by 40%.
- The largest increases in vehicle miles traveled are projected to be on freeways (Santa Cruz County Regional Transportation Commission, June 2010, page 2-10).

According to the SCCRTC, there are three reasons why traffic congestion is a major issue in Santa Cruz County, as well as elsewhere in the state and nation. First, more people are driving more miles and per person vehicle registrations are at an all time high. Second, investment in transportation facilities and services has not kept pace with growing demands for road space and transportation alternatives due to decreases in the amount of transportation funding available for local projects. Third, there has been a lack of consensus on how to invest in the County's transportation system (Santa Cruz County Regional Transportation Commission, June 2010).

The joint City-UCSC "Master Transportation Study" (MTS) also made traffic projections for the years 2000 to 2020 based on AMBAG traffic model projections and population projections, which have now been superseded by more current projections as described in the POPULATION AND HOUSING (Chapter 4.2) section of this EIR. The AMBAG projections at the time the MTS was prepared assumed a 15% increase in population growth within the City (from 67,900 to 78,100 people in 2020) and a 24% increase in employment growth (from 37,800 workers to 47,000 workers 2020) (Fukuji Planning and Design, July 2003). However, current adopted AMBAG forecasts show a lower level of forecast growth with estimated population at 65,884 in 2030 and 41,548 workers in 2030.

[6] The AMBAG model relies on land-use and socio-economic data from the AMBAG forecast and road and transit network information to estimate traffic volumes and determine trip generation rates by mode. Where possible, the model is calibrated using existing roadway data (Santa Cruz County Regional Transportation Commission, June 2010).

The MTS includes a goal of no net growth in traffic between 2000 and 2020 and examined two scenarios to substantially decrease single-occupant travel and increase use of other transportation modes. One scenario increases transit use moderately and carpooling substantially. The second scenario increases transit substantially and carpooling moderately. Both scenarios were based on implementation of regional transportation improvements of either the addition of a HOV lane on Highway 1 or development of a Bus Rapid Transit (BRT) corridor along the Union Pacific Railroad right-of-way (Fukuji Planning and Design, July 2003). In Scenario 1, to achieve no growth in the year 2020 traffic, single-occupant travel internal to Santa Cruz needs to be reduced by 29%, carpooling increased by 75%, transit use increased by 50%, and bicycling and walking modes increased by 38% and 100%, respectively (Ibid.). Without a change in travel patterns, the MTS predicted a 19% increase in vehicle miles traveled between the years 2000 and 2020.

## BICYCLE & PEDESTRIAN CIRCULATION

### Bicycle Circulation

The existing bikeway system in the City of Santa Cruz has developed over the last 35 years. The City of Santa Cruz' bicycle system is comprised of off-street multi-use paths (Class I), on-street bicycle lanes (Class II) and on-street bicycle routes (Class III). Class I and Class II bike facilities are shown on Figure 4.4-3. Class I bike paths are currently limited to West Cliff Drive, the San Lorenzo River levees, a new path under Highway 1 from the river levee, and a new path under Highway 1 at Lee Street, all of which are also shared by pedestrians. A Class I path also is provided on the UCSC campus.

Support facilities include different classes of bicycle parking facilities, which are required by City parking regulations, and shower facilities at major employment facilities. All of the SCMTD buses are equipped with front-mounted bicycle racks capable of carrying two bicycles (City of Santa Cruz, November 2008). The University of California operates a bike shuttle near the intersection of Bay/Mission Streets to transport bicycles to the University.

In October 2007, the City of Santa Cruz was awarded the Silver Level Bicycle Friendly Community by the League of American Bicyclists. According to data contained in the 2000 Census, approximately 4.7% of the commuters within the City of Santa Cruz are bicyclists (City of Santa Cruz, 2008). The City's existing Bicycle Plan, adopted in November 2008, forecasts a bicycling increase to 7% of the peak hour traffic within a 5-year period.

The emphasis of the 2008 Bicycle Transportation Plan shifted from earlier plans in 2000 and 2004 Plans, which were focused on completing large-scale bicycle projects on the major commute corridors. Many of those significant projects have been completed—Bay Street, Beach Street, Broadway-Laurel, High Street, Soquel Avenue, and major portions of the San Lorenzo River Path. The bicycling projects to be pursued in the next five years include completing those significant projects begun in the earlier Plans, as well as building the connector projects that can get bicyclists from origin to destination easily and safely. One new possibility for an east-west bicycle travel corridor is the Union Pacific rail right-of- way, which the SCCRTC has purchased and begun a planning process.

### Pedestrian Circulation

The City has approximately 135 miles of sidewalks. Approximately 50 miles of sidewalk is missing from the existing system; predominate problem areas are the upper eastside and Westlake areas that have large continuous sidewalk links missing (Fukuji Planning and Design, July 2003).

The "Pedestrian System" chapter of the Master Transportation Study is considered the City's Pedestrian Plan. The MTS was accepted by the City Council on December 9, 2003. The MTS goals for Santa Cruz's pedestrian system are to:

- Provide multiple transportation modes thereby creating a flexible and adaptive transportation system throughout the City of Santa Cruz.
- Close all "gaps" in the pedestrian network and connect all major destinations and activity centers.
- Ensure that the City's diverse user groups have access to a sustainable and efficient mode of transportation / Create a system that is "scaleable" and responds to changing community needs, and provide flexibility and variety in the City's transportation network.
- Adopt design standards for the pedestrian system to assure a high level of user amenities, safety and quality.

Overall, priorities for the City's pedestrian system include completion and maintenance of the City sidewalk system, improve safety, adopt pedestrian-friendly street designs, enhance key pedestrian connections, and encourage walking (Fukuji Planning and Design, July 2003). .

## PUBLIC TRANSIT

Transit service within Santa Cruz County is primarily provided by the Santa Cruz Metropolitan Transit District (SCMTD). Regional bus routes provide service to destinations in Santa Clara and Monterey Counties including daily weekday service via Highway 17 by the SCMTD. SCMTD buses provide service from the downtown Santa Cruz transit center to the San Jose Caltrain station, with connections to San Francisco, Sacramento, Stockton and other cities. Greyhound bus service also is provided from Downtown Santa Cruz to select destinations.

The City of Santa Cruz operated the Summer Beach Shuttle in the past when private donations were available. The Shuttle provided service to and from destinations within the City of Santa Cruz, such as the Downtown and the Santa Cruz Boardwalk. Use of the County Government Center parking lot was used in conjunction with the beach shuttle. Due to lack of funding, the Summer Beach Shuttle was discontinued over ten years ago. Recently the business sector has initiated a Beach-Downtown Shuttle for the summer of 2010. Budget constraints have prevented the City from continuing operation of a beach shuttle.

## SCMTD Service

The Santa Cruz Metropolitan Transit District (SCMTD), also known as Santa Cruz Metro, provides transit service within Santa Cruz County. SCMTD provides the following types of service: regional (Highway 17 Express), intercity (8 routes), urban local-feeder (16 routes), UCSC (7 routes) and rural routes (7 routes) (Wilbur Smith Associates, December 2008). The Highway 17 Express Bus service was initiated after the 1989 Loma Prieta earthquake in response to an emergency need for transit over the Hill while Highway 17 was being repaired, and is currently a joint operation between the SCMTD, . Amtrak, and the Santa Clara Valley Transportation Authority (VTA). The route currently connects Santa Cruz (downtown METRO station) and San Jose (Diridon station); at the Diridon station, passengers can connect to the Santa Clara Valley Transportation Authority' transit system and Caltrain and Amtrak regional rail systems (Ibid.).

The District serves transit centers in Santa Cruz, Capitola, Felton, Scotts Valley and downtown Watsonville. SCMTD routes also meet Monterey-Salinas Transit (MST) routes at the Watsonville Transit Center. The two operators have provided reciprocal transfers since 1989. Additionally, SCMTD partners with the University of California, Santa Cruz (UCSC) to provide late night fixed route and demand response service in the general Westside Santa Cruz area (AMBAG, June 2010).

The SCMTD complements its regular fixed-route bus service with ParaCruz, a shared ride-door-to-door paratransit service that provides public transportation for persons who are unable to independently use fixed route buses due to a disability some or all of the time. It is provided by public transportation systems as part of the requirements of the Americans with Disabilities Act of 1990 (ADA). Rides are scheduled in advance and frequently include picking up and dropping off other customers along the way. ParaCruz operates a fleet of lift-equipped small buses and ramp-equipped minivans. On November 1, 2004, Santa Cruz METRO assumed direct operation of the ParaCruz (Santa Cruz Metropolitan Transit District, "METRO Para Cruz ADA Paratransit Service").

SCMTD's total ridership on fixed route service for Fiscal Year 2008-09 was 5,987,518; annual expenses for providing these transit services, including ParaCruz, were approximately $37 million (Santa Cruz County Regional Transportation Commission, June 2010). From 2003 to 2007, there had been a general increase in fare revenues and total operating cost, while ridership and hours of operation declined (Wilbur Smith Associates, December 2008). However, the SCCRTC noted a 7% increase in ridership since Fiscal Year 2004/05 due to rising gasoline prices, traffic congestion, and job market uncertainty (Santa Cruz County Regional Transportation Commission, June 2010).

Increasing congestion on highways and the local transportation network in Santa Cruz County is expected to generate more transit service demand (AMBAG, June 2010). However, the SCCRTC's RTP does not envision expansion of transit services without additional revenues. In order to increase transit service to levels needed to meet projected population growth, greenhouse gas emission reduction goals, and significantly increase the percentage of people using transit, bus service would need to be increased by 25% at an additional annual cost of approximately $11 million (Santa Cruz County Regional Transportation Commission, June 2010). To accommodate this demand, the SCMTD would like to increase service, but due to

ongoing funding shortfalls, SCMTD is struggling to maintain existing service (Ibid.). Due to declining sales tax and other non-fare revenue sources, the SCMTD reduced service in the fall of 2010. It is expected that transit service will continue with minor improvements without major route cuts or rate changes for about five years, however, additional funding will be necessary in the future for expansion of service (White, SCMTD, personal communication, August 2011).

In recent years, Metro has been working on upgrading its transit operations facilities in an effort to reduce operating costs, improve efficiency, and allow for future expansion of the transit system (Santa Cruz County Regional Transportation Commission, June 2010). In 2008, Santa Cruz METRO completed the compressed natural gas-CNG fueling station and conversion of 40 buses.

### Bus Rapid Transit (BRT)

The joint City-UCSC "Master Transportation Study" (MTS) recommends "Bus Rapid Transit" (BRT) for long-term implementation as the technology with the highest potential to increase ridership and shift travel modes to transit. BRT is a rubber tire vehicle system operation on an exclusive transit way or dedicated busway with flexibility to operate on surface streets with mixed flow traffic. According to the MTS, a BRT system has significant potential to affect a regional commute shift away from SOV to transit for trips to and from the UCSC campus, downtown and the Harvey West area. A BRT busway could operate on a dedicated HOV lane along Highway 1 or on a shared bus/freight/bicycle lane using the Union Pacific rail corridor. Application to Soquel Avenue and Water Street was also considered (Fukuji Planning and Design, July 2003).

## RAIL SERVICE

### Freight Service

The former Union Pacific Railroad rail line forms a continuous, single-track, 32-two mile corridor from Davenport to the City of Watsonville. The Santa Cruz County Regional Transportation Commission is in the process of purchasing the right-of-way and is awaiting final approval from the state. This branch rail line extends from Watsonville Junction in Pajaro north to Davenport and passes through much of the county's urban area. For many years, freight deliveries to and from the CEMEX cement plant in Davenport occurred three times per week. As of 2010, CEMEX plant operations ceased due to the economic downturn. The rail line is currently operated by Sierra Northern. Sierra Northern Railway. Sierra runs trains twice per week to serve existing freight customers and stores empty rail cars in the unused northern section of the rail line. Sierra will be responsible for operations, maintenance and start-up costs associated with rail service (Santa Cruz County Transportation Commission, February 2011).

### Recreational Service

The Santa Cruz Big Trees and Pacific Railway Company operates a tourist-oriented passenger service between Felton and the Santa Cruz Beach Boardwalk on its 9-mile track line from Santa Cruz to its current terminus at Roaring Camp. The service is provided daily during mid June through the end of August, and weekends and holidays in May, early June, September through

October, late November, and December. The trains run twice in each direction every day during regular operations, and partially use the Union Pacific Railway tracks that cross Pacific Avenue just north of the intersection of Pacific Avenue and Beach Street. The line is occasionally used for freight (AMBAG, June 2010). Historically the line crossed the Santa Cruz Mountains to Los Gatos, but was abandoned in 1939 past Olympia. The tunnel sections are now used as records storage for major corporations in the San Francisco Bay Area (Ibid.).

### Passenger Service

The Santa Cruz Branch line has been the subject of a number of studies regarding its potential for passenger rail service. A 1996 study analyzed the potential viability of inter-city passenger rail service between Santa Cruz and Watsonville to San Jose. The 1999 Major Transportation Investment Study examined three options for passenger rail on the Santa Cruz Branch line along the Watsonville- Santa Cruz-UCSC corridor. Also in 1999, the Around-the-Bay Rail Study looked at the feasibility of partnering with Monterey County to bring passenger rail from the San Francisco Bay Area to both counties, as well as linking the two counties via a wharf-to-wharf type rail transit service.

On May 6, 2010, the SCCRTC unanimously agreed to acquire the Santa Cruz Branch Rail Line right-of-way, which is being finalized. Future transportation uses could include passenger rail service, transit, bicycle and pedestrian facilities, and freight rail service. This project was one of the selected outcomes for the Watsonville-Santa Cruz-UCSC corridor from the SCCRTC's 1999 Major Transportation Investment Study. The SCCRTC also intends to maintain the existing freight service on the rail line. The *2005 Regional Transportation Plan* (Policy 3.4.5) supports reserving areas adjacent to rail lines for future rail and bus facilities as part of new development adjacent to rail lines. Passenger service to from Santa Cruz to Davenport is currently being considered by the SCCRTC.

## PLANNED IMPROVEMENTS

### State Highways

#### STATE ROUTE 1

Beginning in 1986 the Santa Cruz County Regional Transportation Commission (SCCRTC), working with Caltrans and the Federal Highway Administration, conducted a series of studies to identify an affordable and appropriate response to the growing congestion problem on Highway 1, including feasibility studies for Highway Occupancy Vehicle Lanes (HOV) on Highway 1 and a toll lane feasibility study in 2002. The current Caltrans Route Concept Report for Highway 1 includes the addition of High Occupancy Vehicle (HOV) lanes to Highway 1 (California Department of Transportation, April 2006). This project will add a lane in each direction to reduce congestion, encourage carpooling, expand express bus service, and improve safety. The limits of this project extend from Morrissey Boulevard to San Andreas/Larkin Valley Road. Preliminary traffic performance data shows the anticipated shift in traffic volumes from local arterials to Highway 1 with the HOV Lane Alternative (Santa Cruz Regional Transportation Commission website, http://www.sccrtc.org/hov.html). Caltrans' draft *Corridor System Management Plan* for Routes 1 and 183 also supports HOV lanes on Highway 1 in

conjunction with other transportation demand management strategies (Caltrans, October 2010).Detailed project design and environmental data is in development and is expected to be available in the winter of 2012. Funding is not secured to advance the project beyond the current environmental study. The SCCRTC's *2010 Regional Transportation Plan* assumes adoption of a transportation sales tax measure to provide a significant amount of the funding needed to advance this project into the next development phase – final design, right-of-way, and construction (Santa Cruz Regional Transportation Commission website, http://www.sccrtc.org/hov.html).

In 2006, the Santa Cruz County Regional Transportation Commission initiated work on the preliminary design and environmental review phase of the Highway 1 Soquel to Morrissey Auxiliary Lanes Project spanning the busiest section of Highway 1 in Santa Cruz County (carrying 115,000 vehicles per day in 2006). An auxiliary lane connects an adjacent highway on-ramp with the next highway off-ramp thereby extending the weaving and merging distance between the ramps and improving traffic flow and safety on the highway. An auxiliary lane is not designed for use by through traffic, but to provide greater separation between vehicles entering and exiting the freeway from mainline traffic. The Soquel/Morrissey Auxiliary Lanes project proposes to add 12–foot wide auxiliary lanes northbound and southbound between Soquel Avenue and Morrissey Boulevard, respectively. This project includes reconstruction of the La Fonda Avenue overcrossing; the La Fonda Avenue overcrossing must be replaced to accommodate the auxiliary lanes under the bridge. The new La Fonda Avenue bridge will be wider to provide bike lanes and wider sidewalks for pedestrians. This project is designed to complement the work recently completed as part of the Highway 1/17Merge Lanes Project, by eliminating the proposed lane drop north of the La Fonda Avenue resulting from the Highway 1/Highway 17 Project. Design is nearly complete, and the final environmental documents were approved by Caltrans, although the project is contingent on approval by the California Transportation Commission.. Funding has been secured for the project. Construction could begin in 2012 or 2013.

#### STATE ROUTE 17

According to the Transportation Concept Report for State Route 17 in District 5 (Caltrans District 5, January 2006), the target level of service for State Highway 17 between the Ocean Street and Scotts Valley is LOS E. The Route Concept Report for Highway 17 indicates that the highway segment between Santa Cruz and Scotts Valley accommodates local and regional trips. Recognizing the existing policy of the Santa Cruz County Regional Transportation Commission, widening is not envisioned and this segment of the highway is considered to be a four-lane freeway (Caltrans, January 2006).

Reconstruction of the highway to meet current standards would be both exorbitantly expensive and environmentally destructive. Thus, over the past two decades, the Santa Cruz County Regional Transportation Commission (SCCRTC) has consistently opted to keep Highway 17 a four-lane highway, targeting funds for safety and operational improvements. Median barriers, acceleration-deceleration lanes, motorist call boxes and changeable message signs are improvements that have been installed over the past decade.

In the fall of 2000, Caltrans completed a Project Report that assessed the operational value and cost of constructing a 1.1-mile truck climbing lane on northbound Highway 17 at the

summit. As a result of the study, Caltrans recommended, and the Regional Transportation Commission concurred, not building the project ("No Build"), as the potential benefits of the project were not justified by the high cost and potentially significant environmental impacts. As an alternative, Caltrans continued to evaluate other potential safety and operational improvements on Highway 17. The products of this analysis were two safety improvement projects on Highway 17 at Laurel Curve and Glenwood Curve.

In response to the need for further safety and reliability improvements in this corridor, the *Highway 17 Transportation Improvement Study* was conducted to provide SCCRTC, Santa Clara Valley Transit Authority (VTA), and SCMTD to recommend safety and efficiency improvement projects with the following two main objectives: 1) recommend steps *to optimize* the Highway 17 Express Bus service reliability; and 2) *expand* Highway 17 Express Bus ridership in the corridor in order to reduce vehicle trips, miles traveled, and emissions. Recognizing that the roadway and traffic conditions along Highway 17 affect the operation of the Highway 17 Express Bus service, an additional objective was to recommend safety and operational improvements to add reliability, speed and functionality to the project corridor to benefit both the patrons of the Highway 17 Express Bus service and the motorists traveling along this route. A series of recommendations were made to support and expand the existing transit service on Highway 17, including provision of weekend service.

#### STATE ROUTE 9

The Highway 1/Highway 9 intersection, which is controlled by a signal, currently operates at LOS E during the both the PM and Design Day peak hours, which does not meet Caltrans standards. The City is working with Caltrans to implement lane modifications at this intersection. The improvements require Caltrans approval and an encroachment permit. With implementation of these improvements, the intersection would operate at LOS D during both the existing PM and Design Day peak hours.

The following improvements are included in the Highway 1/Highway 9 intersection planned improvement:

- Widen and add a left-thru turn lane from Highway 9 southbound.
- Improve the northbound River Street approach to modify the existing exclusive left-turn lane to a shared thru/left-turn lane.
- Widen and add a second left-turn lane from Highway 1 southbound onto Highway 9.
- Widen and add a second northbound lane on Highway 9.
- Modify signal.
- Add bike lane and shoulder

Currently, a Project Report, preliminary engineering, associated studies and environmental review are underway. The improvements are already required under existing conditions.

## Planned City Improvements

The City faces an ongoing challenge to meet its capital needs with limited resources. Preparing and adopting a Capital Improvements Program (CIP) is an important part of the City's planning

process to identify and meet those needs. It is a multi-year schedule of projects with their associated costs and proposed funding sources. The CIP represents the best efforts to allocate available resources toward projects that provide the most benefit for the people of Santa Cruz. In addition to the Highway 1 / Highway 9 intersection improvement described above, other major improvements on the current CIP include: intersection improvements at Mission/Bay and Mission/Chestnut (design and environmental review); intersection signalization (Bay/West Cliff); installation of a roundabout at the Pacific/Beach intersection;

The City operates a "Traffic Impact Fee" (TIF) program based on future projected trips generated for each new project. The TIF program, adopted in June 2005, evaluated over 60 intersections and identified numerous projects within the City which were needed to address the effects of cumulative development, and fees established. The fees are used to fund planned improvements at those intersections and roadways included in the program. New development and redevelopment projects are required to pay traffic impact fees, which are calculated at the time of building permit issuance. The TIF includes highway intersections on Mission (Highway 1) and at the Highway 1 / Highway 9 intersection.

The City's TIF program includes both a City-wide TIF fee and a Beach/South of Laurel (B/SOL) TIF. New projects that are located in the B/SOL area are required to pay both fees. The fee program is updated annually in July. The fees are based on project trip generation and are calculated at the time the project applies for a building permit. By ordinance the City has identified the per trip fee, which was determined by dividing the total cost of all projects identified in the City's "Cumulative Development Traffic Study" by the total cumulative additional trips added by new development. The fee assumes the City will fund 25% of the cost of improvements as a result of existing capacity differences. In addition, 15% of the fee is dedicated to alternative transportation. The current City-wide fee is $405 per trip. The current B/SOL fee is $94 per trip.

## Bicycle and Pedestrian Path Improvements

The City's adopted *Bicycle Transportation Plan* (2008) includes the following new paths: Arana Gulch path to connect Broadway with Brommer Street; Branciforte Creek Connection to complete the levee path under the Soquel Bridge; Monterey Bay Sanctuary Scenic Trail Network (as discussed below); and Spring Street Connection to UCSC. The Plan also includes numerous other improvements to existing bike lanes and facilities.

The Monterey Bay Sanctuary Scenic Trail Network (MBSST) is proposed to span the Monterey Bay from Lover's Point in Pacific Grove to Wilder Ranch in Santa Cruz. The SCCRTC is in the process of developing a more detailed plan for the Santa Cruz County portion of the trail. The MBSST efforts will ultimately result in a network of continuous multi-use recreational, interpretive and transportation pathways spanning the Monterey Bay that will also be an important piece of the 1,300 mile statewide California Coastal Trail (Santa Cruz Regional Transportation Commission, January 2008). If the SCCRTC is successful in its rail line acquisition efforts, part of the network may be built within the rail line right-of-way (Ibid.).

The SCCRTC is working on a comprehensive Master Planning process that will include: developing goals and objectives; identifying and assessing possible segments; setting design options; soliciting and incorporating input from interested parties and the community at large;

preparing cost estimates for segments; and conducting environmental analysis of the Plan. In addition to identifying new trails, the MBSST Network is intended to link together (and upgrade where needed) trail segments that already exist and to fill in gaps in the existing trail system (Santa Cruz Regional Transportation Commission, January 2008).

## TRANSPORTATION MANAGEMENT

### Transportation System Management

Transportation Systems Management (TSM) refers to methods to find optimum strategies to relieve, lessen or control traffic congestion with minimum roadway widening. These strategies can reduce vehicle travel time and enhance system accessibility with little impact on other modes (Fukuji Planning and Design, July 2003). Examples of TSM measures include signal synchronization, intersection modifications, access management, i.e., consolidation of driveways, railroad crossing modifications, highway ramp metering, preferential treatment for high occupancy vehicles, and signage and lighting upgrades.

### Transportation Demand Management

Transportation Demand Management (TDM) refers to measures that can be implemented to encourage the use of alternative modes of transportation to single occupancy vehicles. TDM emphasizes the movement of people and goods rather than motor vehicles, and gives priority to public transit, ridesharing and non-motorized travel, particularly under congested conditions (Fukuji Planning and Design, July 2003). TDM is a demand side strategy with the purpose to change human travel behavior through incentives and disincentives in order to reduce the number of peak-hour vehicle trips, shift trips to non-peak times, and increase the percentage of people bicycling, walking, riding transit, carpooling and vanpooling (Ibid.). Examples include carpool and vanpool rideshare matching, employer outreach and assistance, emergency ride home programs, telecommuting, bike loan programs, bicycle parking subsidies, bicycle advocacy, and parking pricing and management strategies.

Existing agencies and programs that support and promote TDM in the city of Santa Cruz include the following as presented in the "Master Transportation Study":

- *Santa Cruz Regional Transportation Commission* (SCCRTC) serves many transportation roles in Santa Cruz County, including housing "Commute Solutions" and providing bicycle planning and funding to the region. Commute Solutions provides carpool and vanpool ride matching to commuters throughout Santa Cruz County, especially long-distance commuters.
- *Transportation Membership Services* is run by Ecology Action and offers programs that encourage member employees to use transportation modes other than driving alone to commute to and from work, including Emergency Ride Home Programs, 0% Interest Bicycle Loan Programs and Discount Metro Bus Passes.
- *Ecology Action* supports "Bike to Work," a 10-year old community-based effort that seeks to increase the number of people riding bikes. Ecology Action also receives funds for the Electric Bike Commuter Incentive Program.

- *Onsite Employer Programs*. Major employers within the City that implement TDM measures include: UCSC, SCMTD, the City of Santa Cruz, the County of Santa Cruz, the Seaside Company, the Santa Cruz Medical Clinic, and others.

### Traffic Calming

Measures to reduce speeding and cutting through neighborhoods has been a focus over the years as these issues have been raised by residents. Measures include installation of traffic claming measures, signage, and improving the arterial street system.

## PARKING

The City of Santa Cruz maintains both on-street and off-street public parking throughout the City, including the Downtown Parking District. Amendments to the State CEQA Guidelines, effective in March 2010, eliminated the environmental checklist question regarding adequacy of parking. Nonetheless, general background on existing conditions is provided below.

### Downtown Parking District

Public parking in the downtown area is managed by the Downtown Parking District, which includes the most concentrated City ownership and operation of parking in the City and is the only parking district in the City. In 2007, there were 4,510 parking spaces available to the public, including 820 on-street spaces, 2,247 off-street spaces, and 1,443 private spaces ("Downtown Parking Study, 2007"). In 2010, there were 4,583 parking spaces available to the public, including 830 on-street spaces, 2,226 off-street parking spaces and 1,527 private parking spaces. In 2010, the parking supply (4,583 spaces) in the Downtown Parking District exceeded demand (4,504 spaces). However, by the year 2012 with new projects in place, the demand (4,731 spaces) is estimated to exceed supply (4,638 spaces) by 93 spaces.

The City-operated spaces include a wide variety of parking types dispersed throughout the District, including meters that have different time periods. The municipal parking garages have an average peak occupancy of approximately 85%, with the Cedar/Church garage almost 100% occupied at peak times (Fukuji Planning and Design, July 2003).

New businesses are exempt from typical parking requirements required elsewhere in the City. Business owners have the option of providing required parking or paying a Deficiency Fee that is used to fund, operate and maintain parking facilities. The District charges an annual deficiency fee.

### Beach / South of Laurel Area

The Beach / South of Laurel area includes the area directly adjacent to the Downtown Parking District and stretching down to the Beach. It provides parking for both its own set of uses, though also experiences overflow demand from the Downtown and the Beach Areas. The Beach Area itself includes the largest supply of privately provided for-charge parking in the City, as well as a mix of publicly provided parking (Fukuji Planning and Design, July 2003).

The Beach / South of Laurel Area includes about 7,800 parking spaces with over 80% of which, about 6,300 space, are in the Beach Area. A total of 4,145 spaces, a little over 50% of the total, are available to the general public, independent of intended activity. A total of 3,562 of these spaces are in the in the Beach Area and 583 spaces are in the South of Laurel district. Unrestricted publicly available Beach Area spaces are dominated by the two Seaside Company lots, with a combined total of 1,771 spaces, and the City owned and operated 430-space Wharf lot. Other spaces include other City operated lots, on-street meters, and free curbside spaces. South of Laurel general public access spaces include small City operated lots, on-street meters, and free curbside parking spaces. The City operates 633 on-street meters in the Beach and South of Laurel areas (Fukuji Planning and Design, July 2003).

#### Residential Parking Permit Programs

Due to seasonal influx of visitors and UCSC students and encroachment into residential neighborhoods, the City implements a residential parking program in the following neighborhoods: beach area, downtown, Lighthouse/Cowell neighborhood, eastside, Seabright, and Westside. Residents in these areas must purchase permits to park on streets without citations. According to information on the City's Public Works Department website, the coastal permit programs are enforced seasonally from May 15th through September 30th, between the hours of 9 AM and 9 PM, everyday. The Westside permit program is enforced from September 15th through June 30th, Monday through Friday, during posted hours (excluding City holidays). Parking in these areas without a permit is subject to a citation and fine. The downtown and eastside area permit requirements are enforced all year.

## 4.4.2 RELEVANT PROJECT ELEMENTS

### PROPOSED GOALS, POLICIES & ACTIONS

The proposed *General Plan 2030* includes goals, policies and actions that address transportation planning, management and traffic. The MOBILITY chapter of the draft *General Plan 2030* corresponds to the required circulation element. Its purpose is to set forth policies and ways to ease the ability of people and vehicles to move around, out of, and into the City in the long term, through 2030. This chapter looks at ways to facilitate transportation alternatives, keep transportation and road systems safe and efficient, and systematically interconnect bicycle and pedestrian ways. The proposals below aim to encourage greater use of alternative transportation modes and reduce automobile travel in concert with other parts of the Plan that foster supportive land uses, building types, and activities. The City Council accepted the following key principle with regard to Mobility:

> *We will provide an accessible, comprehensive, and effective transportation system that integrates automobile use with sustainable and innovative transportation options—including enhanced public transit, bicycle, and pedestrian networks throughout the community.*

The draft General Plan includes four goals and 19 associated policies with 94 accompanying actions that address transportation management and modes of travel. The four goals related to transportation are outlined below. Overall, the accompanying policies and actions Furthermore, proposed General Plan policies seek to maintain an acceptable LOS D or better at signalized intersections with acceptance of a lower LOS at major regional intersections (M3.1.3, M3.1.4) and promote transportation system management strategies (M2.5.2) and other alternative transportation modes.

| | |
|---|---|
| GOAL M1 | Land use patterns, street design, parking, and access solutions that facilitate multiple transportation alternatives. |
| GOAL M2 | A safe, sustainable, efficient, adaptive, and accessible transportation system. |
| GOAL M3 | A safe, efficient, and adaptive road system. |
| GOAL M4 | A citywide interconnected system of safe, inviting, and accessible pedestrian ways and bikeways. |

Other goals, policies and actions promote sustainable land use patterns, such as encouraging mixed-use development along the City's four major transportation corridors that have easy access to pedestrian, bike and transit facilities, and encouraging use of alternative transportation modes.

## PROPOSED IMPROVEMENTS

The draft *General Plan 2030* includes several policies and actions that call for implementation of road, pedestrian, bicycle and transit improvements through the City's Capital Improvement Program and other sources (M2.1.3, M2.3.2, M3.2.2). The draft Plan supports regional funding and implementation of key regional projects "that can significantly benefit Santa Cruz and further the City's mobility policies" (M2.1.4). There are no specific road transportation improvements identified for specific locations, except for improvement of access to/from the Harvey West area, including a possible new approach to Highway 1 (M3.1.13), and that the circulation system of the specific plan for the Swenson parcel shall be from Shaffer Road (LU1.1.4).

Several policies address visitor traffic improvements. .Policy ED1.2.1 specifically encourages transportation improvements and pedestrian activity along Ocean Street to stimulate economic vitality. Policy ED1.8.4 directs the City to improve access to and routes between tourist and visitor designations and lodging facilities as part of the City's economic development policies. The proposed General Plan also calls for updating the Beach and South of Laurel Area Plan to reflect needed improvements along the Visitor/Beach Area travel corridors (M3.3.3) with improvement of access along these corridors through coordinated signs and street naming, protected turn lanes, remote parking/shuttle programs, and other strategies (M3.3.2).

The draft Plan promotes alternative transportation improvements with TSM strategies, road improvements and widening/expansion projects that can achieve an acceptable LOS (M2.32). Action M4.3.2 seeks to develop bike commute routes along the railroad right-of-way, West Cliff Drive, Broadway, King and other streets. The draft General Plan also includes a policy that prohibits approval or construction of an Eastern Access to the University without a citywide

vote (M2.1.5). No other specific road or alternative transportation projects are identified for specific support. The draft *General Plan 2030* also encourages passenger rail transit or other alternative transportation options along the existing rail corridor via the continued support, acquisition, and expansion of railroad rights-of-way (M2.2) and encourages the continuing transport of goods by rail (M2.2.1). Policy LU4.5 supports securing land for development of a transit center along the rail line, and evaluation of a rail transit stop is to be included in the Area Plan analysis for the Golf Club Drive area (LU1.15). Pedestrian and bicycle access to Pogonip and nearby employment areas are also to be included in this future area plan.

### POTENTIAL FUTURE DEVELOPMENT

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan / Local Coastal Program, except for three new mixed use land designations that have been developed and applied to the following major transportation corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. Additionally, land use designation changes are proposed for three specified sites: Swenson, Golf Club Drive area, and an addition to the Dimeo Lane landfill site. The Swenson and Golf Club Drive sites are designated for residential uses. A 5.5-acre parcel immediately south of and adjacent to the City's Landfill and Resource Recovery Center on Dimeo Lane has been acquired by the City, and it is expected that future uses would be ancillary to the landfill and Resource Recovery Center uses. Specific uses have not yet been identified and will be determined in the future, however, the parcel is not planned for expansion of the landfill disposal operations (Arman, personal communication, April 2010).

Additionally, some of the *General Plan 2030* policies and actions also support mixed use districts and/or intensified redevelopment along transit and commercial corridors (Policies LU3.3.1 and LU4.1). In addition, the proposed *General Plan 2030* supports development of a downtown performing arts center or expansion of the Civic Center (Policy HA2.2.5).

## 4.4.3 IMPACTS AND MITIGATION MEASURES

### CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

4a Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit (see discussion of City standards below);

4b Change the level of service of a State Highway roadway segment from acceptable operation (LOS A, B, or C) to deficient operation (LOS D, E or F) based on Caltrans significance criteria[7];

4c Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;

4d Substantially increase hazards due to a design feature (for example, sharp curves or dangerous intersections) or incompatible uses (for example, farm equipment);

4e Result in inadequate emergency access; or

4f Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities or otherwise decrease the performance or safety of such facilities.

The City of Santa Cruz considers "D" or better to be an acceptable intersection level of service for intersections, which is a policy in the City's existing General Plan as well as in the proposed General Plan. A significant impact would result if LOS dropped below a "D" level of service or where a project would contribute traffic increases of more than 3% at intersections currently operating at unacceptable levels (E or F), as further described below. The existing and proposed General Plans also account for accepting a LOS below "D" at major regional intersections where improvements would be prohibitively costly or result in significant, unacceptable environmental impacts. There are no other adopted plans, ordinances or policies that establish "measures of effectiveness" for the performance of the circulation system.

For City intersections that already operate at unacceptable levels of service (E or F), the City considers project impacts to be significant if congestion will measurably worsen at the intersection as a result of the project. "Measurably worse" is considered to be a 3% increase in trips at the affected intersection. The City has used the 3% significance criterion for project trip contribution at existing impacted intersections, in part based on directives in the City's existing General Plan to accept a certain level of congestion during peak hours at major intersections, as well as to reflect variations in daily traffic volumes. The 3% criterion has been used throughout the City and is based upon the likelihood that a project will result in an observable increase in congestion at a given intersection or road segment. This is based in part on information provided by Caltrans in the yearly "Traffic Volumes" reports that identifies the standard deviation expected with regards to reliability of traffic count data. The standard deviation ranges indicate a 12% deviation at 10,000 vehicle trips, meaning that if a traffic count totals 10,000 vehicles per day, then approximately 90% of the time, the actual traffic counts will lie within a range of 8,800 to 11,200 vehicles. Thus, the 3% reflects this variation in daily traffic conditions (California Department of Transportation, June 2006).

[7] Caltrans. December 2002. "Guide for the Preparation of Traffic Impact Studies."

## IMPACT ANALYSIS

Based on the significance criteria identified above, the following impact analyses address potential impacts to the City's circulation system (4a); potential traffic impacts on state highways (4b); potential increase in hazards (4d); and potential conflicts with adopting policies, plans or programs that support alternative transportation (4f). There are no applicable congestion management programs in effect within the City of Santa Cruz (4c), and thus this is not an issue that needs discussion. Emergency access issues (4e) are addressed in the "Fire Protection" and "Police Protection" subsections of the PUBLIC SERVICES (Chapter 4.8) section of this EIR.

### Potential Future Development & Buildout

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased new development. However, the draft General Plan includes policies and a land use map that support additional development. The proposed General Plan would accommodate future development. As described in the PROJECT DESCRIPTION and LAND USE sections of this EIR (Chapters 3.0 and 4.1, respectively), buildout projections were estimated for the draft General Plan to provide an estimate of the amount of development that is expected to occur by the year 2030.[8] The projections indicate the following level of new development by the year 2030:

- 3,350 residential units
- 1,087,983 square feet of commercial development and 311 hotel rooms
- 1,273,913 square of office space
- 776,926 square feet of industrial development.

The proposed *General Plan 2030* supports infill development along transportation corridors to promote alternative land use patterns to help reduce automobile travel. Development under the proposed General Plan would primarily occur on vacant infill sites, on underutilized properties that could redeveloped at higher densities and/or land use intensities, and in the new mixed-use districts along the City's four major street corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. Based on the estimated development occurring under the proposed plan,[9] approximately 55 percent of all new housing, 45 percent of new commercial development and 52 percent of new office development would located along these corridors. Thus, new development would be concentrated in specific areas.

The proposed General Plan also includes other policies and actions that could result in development that supports year-round expanded performances, events, visitors that would result in potential traffic increases. These potential uses include:

[8] The projections are based on the draft Land Use Map, taking into account land use map changes, vacant lands, sites subject to reuse or redevelopment, and underutilized parcels, assuming that not all development will occur at maximum density. On average it is assumed that all new development will occur at 80% of the permitted residential density or floor area ratio. See Appendix B for further discussion.

[9] See Table 3-3 in the PROJECT DESCRIPTION (Chapter 3.0) section of this EIR and Figure 2-3 for estimated distribution of new development per specific areas in the City.

- Supporting a downtown performing arts center or expansion of the Civic Center (HA2.2.5),
- Amending the Zoning Ordinance to allow development of arts and cultural facilities in a wide variety of districts (HA2.2.4),
- Supporting Santa Cruz as a year-round conference destination (Policy ED1.4), and supporting development of a new conference center (ED1.4.1) or developments that accommodate conferences (ED1.5.1),
- Encouraging development of new lodging facilities (ED1.5) and attracting top-end, full-service hotels (ED1.5.2),
- Supporting year-round events (HA3.2.4), and promoting Santa Cruz as a year-round arts destination, and
- Promoting Santa Cruz as a principal retail, cultural, recreational, entertainment and commercial destination in the region (ED1.1).

There are no specific locations or intensity of development anticipated for these types of uses. It is likely that development of such entertainment and/or visitor-serving uses would be within the total square footage of commercial development that has been estimated for the proposed *General Plan 2030* buildout. Adoption of Arts and Entertainment Districts also is supported in the draft plan (HA3.1.1), but most performances do not occur during peak commute hours.

**Impact 4.4-1: Traffic Impacts on Intersections Levels of Service (LOS)** Adoption and implementation of the proposed *General Plan 2030* would accommodate future development that would result in increased vehicle trips and traffic, resulting in changes in intersection levels of service to unacceptable levels or further deterioration of intersections currently operating at unacceptable levels of service. With implementation of proposed *General Plan 2030* policies and actions, including road improvements identified in an updated Traffic Impact Fee program, intersection operations would be improved and traffic levels would be reduced, except at eight intersections. This is considered a *significant impact*.

### PROJECT TRIP GENERATION AND DISTRIBUTION

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased population or new development. However, the draft General Plan includes policies and a land use map that support additional development as summarized above. This potential development would generate an estimated 78,260 new daily trips with approximately 7,180 trips occurring during the PM peak hour. The Traffix model was used for the traffic impact analysis, which estimates the trip generation for all uses and distributes these new trips to the existing road network.

The trip generation is based on the new potential development expected with buildout under the *General Plan 2030*. Results of surveys conducted for the MTS indicate that 58% of all trips by City residents are made for shopping, work or personal purposes. In addition about 75% of

all trips made by residents remain within the City of Santa Cruz. If it is assumed that this distribution will remain relatively constant for all new residents in the City then approximately 44% of all trips made by new residents will be to commercial, office, industrial or personal service facilities within the City (Marquez, March 2010). Appendix C provides a full description of trip generation assumptions. A reduction was also included for trips generated along the new mixed-use corridors in which transportation modes other than vehicles would be used.

The traffic forecast includes assumptions regarding trip reduction due to mixed use and smart growth developments, which in part utilized information identified in the MTS regarding travel patterns, taking into account travel patterns identified in the City's "Master Transportation Study." See Appendix C for further discussion of these underlying assumptions and the details of determining trip generation rates.

### INTERSECTION LEVEL OF SERVICE

Project traffic volumes were calculated by adding peak-hour project trips generated by the estimated General Plan buildout to the existing volumes, which are provided in Appendix F-5. The LOS calculations are included in Technical Appendix F-6, which is available for review at the City of Santa Cruz Planning Department[10] and is also included on the Draft EIR CD and on the online version of the Draft EIR on the City's website at www.cityofsantacruz.com, Planning Department.

Intersection levels of service during the PM peak hour with addition of new development accommodated by the *General Plan 2030* are summarized on Table 4.4-2. A majority of the intersections would drop from LOS B or C to LOS C or D, but would remain within the City's acceptable LOS of "D". However, 21 intersections would operate at unacceptable levels of service. Of these, the following ten intersections would degrade from acceptable to unacceptable levels of service as follows, which include three unsignalized intersections:

- Mission / Laure1 – from LOS B to **F**
- Mission / King-Union – from LOS C to **F**
- Mission / Chestnut – from LOS D to **F**
- Ocean / Broadway – From LOS C to **F**
- N. Branciforte / Water – From LOS D to **E**
- Branciforte / Soquel – From LOS C to **E**
- Seabright / Murray – From LOS D to **E**
- Beach / Pacific – From LOS C to **E**
- River / Fern – From LOS B to **F**
- Swift / Delaware– From LOS C to **F**

Five intersections would drop from an unacceptable "E" to "F" LOS s to include the following, of which only one is unsignalized (Western/High):

- Mission / Bay – From LOS **E** to **F**
- River / Encinal – From LOS **E** to **F**
- Ocean / San Lorenzo-East Cliff – From **E** to **F**

[10] Located at 809 Center Street, Room 107, Santa Cruz, California during business hours: Monday through Thursday, 8 AM to 12 PM and 1 to 5 PM.

- Ocean / Water – From **E** to **F**
- Western / High – From **E** to **F**

Six intersections would continue to operate at unacceptable levels of service E or F as identified below, which are unsignalized, except for the signalized River/Highway 1 intersection. For unsignalized intersections the delays are experienced on the minor approach.

- River / Highway 1 – Remain at **F** with further delays
- Bay / Escalona – Remain at **F** with further delays
- High / Laurent – Remain at **F** with further delays
- Seabright / Water – Remain at **F** with further delays
- Bay / California Ave. – Remain at **F** with further delays
- Bay / California St. – Remain at **F** with further delays

Improvements have been identified for the intersections forecast to operate at unacceptable levels of service as a result of future development accommodated by the *General Plan 2030*. Many of the impacted intersections can be improved to an acceptable LOS with signalization, turning restrictions, and/or other improvements. Table 4.4-3 summarizes these improvements and resulting LOS and delays for the impacted intersections. However, even with improvements, the following eight intersections would remain at an unacceptable LOS:

- Western / High – Would improve from **F** to **E**
- River / Highway 1 – Would remain at **F**
- Bay / Mission – Would remain at **E**
- Laurel / Mission – Would remain at **F**
- Chestnut / Mission – Would remain at **F**
- Ocean / Water – Would improve from **F** to **E**
- Seabright / Water – Would improve from **F** to **E**
- Seabright / Murray – Would remain at **E**

Intersections that are identified in the current TIF Program as requiring improvement in the future are those listed below. The proposed General Plan 2030 supports maintaining and updating the City's Traffic Impact Fee (TIF) program to implement road improvements (M3.1.5, M2.1.3). The TIF Program would be updated to reflect new intersections and/or new or revised improvements identified as a result of the EIR analyses and recommendations. Improvement costs and potentially revised impact fees would be calculated.

- Western/High (Extended two-way left turn lane)
- High/Laurent (Signalization)
- River-Hwy 9/Hwy 9
- Bay/Escalona (turn Restrictions
- Mission/Bay
- Mission/Chestnut
- Ocean/Water
- Bay/California Street
- Branciforte/Soquel
- Ocean/San Lorenzo-E. Cliff Dr
- Seabright/Murray
- Beach/Pacific

**TABLE 4.4-2**
**Intersection PM Peak Hour Levels of Service with *General Plan 2030* Buildout**

| | Intersection | PM Peak LOS | Delay [in seconds] | V/C Ratio |
|---|---|---|---|---|
| **SIGNALIZED INTERSECTIONS** | | | | |
| 1 | Western/Hwy. 1 | B | | |
| 2 | Swift/Mission | D | | |
| 3 | Miramar/Mission | C | | |
| 4 | Almar-Younglove/Mission | C | | |
| **5** | **Bay/Mission** | **F** | **164.1** | **1.347** |
| **6** | **Laurel/Mission** | **F** | **87.9** | **1.201** |
| 7 | Walnut/Mission | D | | |
| **8** | **King-Union/Mission** | **F** | **90.5** | **1.143** |
| **9** | **Chestnut-Hwy. 1/Mission** | **F** | **121.8** | **1.228** |
| 10 | Moore/High | A | | |
| 11 | Bay/High/Coolidge | D | | |
| 12 | Bay/Nobel-Iowa | B | | |
| 13 | Bay/King | C | | |
| 14 | California/Laurel | C | | |
| 15 | Chestnut/Laurel | C | | |
| 16 | Center/Laurel | C | | |
| 17 | Center/Mission | C | | |
| 18 | Pacific/Laurel | D | | |
| 19 | Front/Laurel | D | | |
| 20 | Front/Metro Center | A | | |
| 21 | Front/Cathcart | A | | |
| 22 | Front/Soquel | C | | |
| 23 | Front/Cooper | A | | |
| 24 | Front-Pacific/Mission-Water | C | | |
| 25 | River/Water | D | | |
| 26 | N. Pacific/River | B | | |
| 27 | River/Potrero | B | | |
| **28** | **River/Hwy. 1** | **F** | **209.0** | **1.540** |
| **29** | **River/Encinal** | **F** | **198.7** | **1.715** |
| 30 | San Lorenzo/Laurel-Broadway | B | | |
| 31 | Riverside/San Lorenzo | D | | |
| 32 | Riverside/Third | D | | |
| 33 | Riverside/Beach | A | | |
| **34** | **Ocean/San Lorenzo-East Cliff** | **F** | **113.9** | **1.168** |
| **35** | **Ocean/Broadway** | **F** | **90.8** | **1.153** |
| 36 | Ocean/Soquel | D | | |
| **37** | **Ocean/Water** | **F** | **169.4** | **1.454** |
| 38 | Ocean/Kennan-Washburn | B | | |
| 39 | Ocean-Hwy.17/Ocean-Plymouth | D | | |
| 40 | Market/Water | C | | |

**TABLE 4.4-2**
**Intersection PM Peak Hour Levels of Service with *General Plan 2030* Buildout**

| | Intersection | PM Peak LOS | Delay [in seconds] | V/C Ratio |
|---|---|---|---|---|
| **41** | **N. Branciforte/Water** | **E** | **73.7** | **1.117** |
| **42** | **Branciforte/Soquel** | **E** | **67.6** | **1.073** |
| 43 | S. Branciforte/Broadway | B | | |
| 44 | Seabright/Soquel | D | | |
| 45 | Seabright/Broadway | C | | |
| **46** | **Seabright/Murray** | **E** | **62.7** | **1.013** |
| 47 | Morrissey/Water-Soquel | D | | |
| 48 | Morrissey/Fairmount | B | | |
| 49 | Frederick/Soquel | D | | |
| 50 | Hagemann-Trevethan/Soquel | B | | |
| 51 | Park/Soquel | B | | |
| 52 | Capitola Rd./Soquel Ave. | C | | |
| 53 | La Fonda/Soquel | B | | |
| 54 | Riverside-Dakota/Soquel (new) | A | | |
| 55 | River S./Soquel | B | | |
| 56 | Seventh Ave./Soquel Ave. | C | | |
| 57 | Seventh Ave./Capitola Rd. | C | | |
| 58 | Seventh Ave./Eaton | D | | |
| **UNSIGNALIZED INTERSECTIONS** | | | | |
| **59** | **Bay/California St** | **F** | **OVRFLW** | **2.917** |
| **60** | **Bay/California Ave** | **F** | **150.3** | **1.429** |
| 61 | West Cliff/Bay | C | | |
| **62** | **Beach/Pacific Ave** | **E** | **39.9** | **1.058** |
| 63 | Pacific Avenue/Center | C | | |
| 64 | Storey/King | D | | |
| **65** | **River/Fern** | **F** | **OVRFLW** | **1,251** |
| 66 | King/Laurel | D | | |
| **67** | **Laurent/High** | **F** | **94.1** | **1.190** |
| 68 | Market/Isbel-Goss | C | | |
| 69 | North Branciforte/Goss | C | | |
| 70 | Highway 1/Shaffer Rd | C | | |
| 71 | Cedar/Laurel | D | | |
| **72** | **Bay/Escalona** | **F** | **OVRFLW** | |
| **73** | **Western/High** | **F** | **69.5** | **0.678** |
| 74 | Cliff/Beach | B | | |
| 75 | Riverside/Second-Liebrandt | A | | |
| **76** | **Seabright/Water** | **F** | **OVRFLW** | **2.963** |
| **77** | **Swift and Delaware** | **F** | **241.6** | **2.751** |
| 78 | Seventh Ave./Brommer | D | | |
| 79 | Seventh Ave./E. Cliff | C | | |

**SOURCE:** Hatch Mott MacDonald

**TABLE 4.4-3**
**Intersection PM Peak Hour Levels of Service with Recommended Improvements**

| Intersection | Existing | | Buildout | | Recommended Improvement | With Mitigation | |
|---|---|---|---|---|---|---|---|
| | LOS | Delay | LOS | Delay | | LOS | Delay |
| Western Dr/High St | E | 45.9 | F | 69.5 | TWLTL | **E** | 38.1 |
| High/Laurent | F | 59.6 | F | 94.1 | Signalize | B | 18.2 |
| River-Hwy 9/Hwy 1 | F | 83.9 | F | 209 | Ebnd 2l 3t 1r, wbnd 2l 3t 1r, nbnd 1tl 1t 2r, sbnd 2l 1tl 1t 1r | **F** | 80.8 |
| River/Fern | B | 14.5 | F | Ovrfl | Signalize no l esbnd | B | 15.1 |
| River/Encinal | E | 73.9 | F | 198.7 | Ebnd 1l 1tr 1r, wbnd 1l 1tr, nbnd 1l, 1t, 1r, sbnd 1l,1t, 1tr | D | 37.9 |
| Bay St/Escalona Dr | F | 782.2 | F | Ovrfl | Escalona right turns only | C | 18.3 |
| Bay/Mission | E | 55.8 | F | 164.1 | Ebnd 1l, 2t,1r, wbnd 1l,2t,1r,nbnd 1l,1t,1r, sbnd 2l,1t,1r | **E** | 57.7 |
| Mission/Laurel | C | 24.9 | F | 87.9 | Add Ebnd r | **F** | 85.6 |
| Mission/King | C | 32.7 | F | 90.5 | Ebnd no l, 2t, 1tr, wbnd 1l, 1t, 1tr,nbnd 1ltr, sbnd 2l 1ltr | D | 50.8 |
| Mission/Chestnut | D | 42.9 | F | 121.8 | Ebnd 2l, 2t, 1r, wbnd 1lt,1t, 1r, nbnd 1l, 1t, 1tr, sbnd 1l,2t, 2r | **F** | 112.9 |
| Ocean/Water | E | 73.6 | F | 169.4 | Ebnd 2l, 2t, 1r, wbnd 1l,2t, 1r, nbnd 1l, 2t, 1tr, sbnd 2l, 3t, 1r | **F** | 130.7 |
| Seabright/Water | F | 112.8 | F | Ovrfl | Extend TWLTL & add nbnd r | **E** | 39 |
| Water/Branciforte | D | 36.6 | E | 73.7 | Add ebnd 1, nbound r & sbnd r | D | 53.6 |
| California Ave/Bay | F | 67.6 | F | 150.3 | Allow nbnd t free | D | 26.4 |
| California St/Bay | F | 434 | F | Ovrfl | Allow sbnd t free | B | 12.5 |
| Branciforte/Soquel | C | 23.6 | E | 67.6 | Esbnd 1 l, 1t, 1 tr, wsbnd 1l, 1tr no splt phase | C | 24.5 |
| Ocean St/Broadway | C | 34.3 | F | 90.8 | Prohibit lfts from Ocean | D | 36.5 |
| Pacific/Beach | C | 20.9 | E | 39.9 | Roundabout | C | |
| Ocean St/San Lorenzo-ECliff Dr | E | 64.7 | F | 113.9 | Add sbnd r | D | 53.2 |
| Seabright/Murray | D | 43.7 | E | 62.7 | ADD wsbnd r, nbnd r & sbnd r | **E** | 59.4 |
| Swift/Delaware | C | 23.9 | F | 241.6 | Roundabout/Signal | C | 20.1 |

The mitigation measure column reflects the recommended lane geometry where r = right turn lane, rt = right/through lane, l = left turn lane, lt = left/through lane, t = through lane, and twltl = two-way left turn lane.

**SOURCE:** Ron Marquez

## IMPACT DISCUSSION

The proposed *General Plan 2030* strives to maintain LOS D or better at signalized intersections with acceptance of a lower LOS at major regional intersections if necessary improvements would be too costly or result in significant environmental impacts (Policies M3.1.3, M3.1.4). In conjunction with this directive, Policies M2.1.3, M2.1.4 and ED1.9.2 direct the City to implement pedestrian, bike, mass transit, and road system improvements through the Capital Improvements Program (CIP), and draft plan supports "regional funding and implementation of key regional projects that can significantly benefit Santa Cruz and further the City's mobility policies," although it is not clear what these projects may be. As most of the recommended improvements to impacted intersections are within the City's TIF Program or would be added with proposed updating of the TIF (M3.1.5), the needed improvements are expected to be implemented over time as projects are added to the City's CIP. Intersections along state highways would also come under the jurisdiction of Caltrans. Overall, intersection improvements would be constructed within existing developed rights-of way, and would not be expected to required construction on undeveloped land that would result in potential significant impacts. However, an appropriate level of environmental review would be required at the time a specific intersection improvement is proposed.

As shown on Table 4.4-3, eight intersections would remain at unacceptable levels of service even with implementation of identified improvements. These include four major intersections within the City that carry regional and visitor traffic: River-Highway 9/Highway 1; Mission/Chestnut, Mission/Bay and Ocean/Water. For these intersections, the proposed *General Plan 2030* accepts a lower LOS at major regional intersections (M3.1.4). These intersections would be considered major intersections, and are also included in the existing General Plan as deficient intersections for which a lower LOS would be accepted. However, while, the City may be willing to accept a lower LOS at the intersections along Highway 1- Mission Street, these intersections are within the jurisdiction of Caltrans and would not meet its desired C-D LOS. The recommended intersection improvements would improve delay to slightly less than what occurs under existing conditions even though an acceptable LOS still would not be achieved with the improvements at one of these intersections: River-Highway 9/Highway 1.

The other four intersections that would remain at unacceptable levels of service include: Mission/Laurel (Caltrans intersection), High/Western, Seabright/Water and Seabright/Murray. As shown on Table 4.4-3, delays would be reduced below existing levels with implementation of the recommended improvements at the High/Western and Seabright/Water intersections. The level of service calculation for these two intersections is based on the left turn movement from the minor stop controlled street. Overall both of these intersection operate well, despite the LOS. However, the Mission/Laurel and Seabright/Murray intersection would operate at an unacceptable level of service.

The Draft *General Plan 2030* includes goals, policies and actions that set forth comprehensive measures to reduce vehicle trips, increase vehicle occupancy, encourage use of alternative transportation modes, and promote alternative-sustainable land use patterns, all of which would help reduce vehicle trips, and avoid and minimize adverse impacts related to traffic. A summary of the proposed *General Plan 2030* policies that serve to reduce/mitigate impacts of increased traffic is presented in Table 4.4-4.

Policy M2.3 and its four accompanying actions seek to increase the efficiency of the City's multi-modal transportation system to design for and accommodate multiple transportation modes (M2.3.1), as well as TSM measures and road improvements to achieve an acceptable level of service (M2.3.2). Policies M3.1.1 and M3.1.2 direct the City to seek ways to reduce vehicle trip demand, reduce the number of peak hour vehicle trips, and encourage high occupant vehicle travel. A significant rise in vehicle occupancy from the existing average of 1.2-1.3 persons per vehicle would provide additional road capacity, increase the efficiency of the existing transportation and roadway system and reduce the need for costly improvement to the road system (Santa Cruz County Regional Transportation Commission, June 2010).

**TABLE 4.4-4**
**Proposed General Plan Policies and Actions that Reduce Traffic Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| MAINTAIN LEVEL OF SERVICE STANDARD & IMPLEMENT TRANSPORTATION IMPROVEMENTS | • Maintain LOS D or better at signalized intersections; accept lower LOS at major regional intersections: M3.1.3, M3.1.4<br>• Implement road improvements & alternative transportation to achieve acceptable LOS: M2.3.2<br>• Manage, reduce congestion: M.3.1, M2.4.4 (work with UCSC)<br>• Maintain road system with efficient arterial operations: M3.2.2, M3.3.6, M3.1.12 (coordinated signal timing)<br>• Promote TSM strategies: M2.5.2<br>• Improve access along the Visitor/Beach Area travel corridors: M3.3.2<br>• Maintain/update Traffic Impact Fee and implement road improvements: M3.1.5; M2.1.3<br>  ⅄ Implement pedestrian, bike, transit & road improvement through CIP: M2.1.3, ED1.9.2<br>  ⅄ Support regional funding & implementation of key regional projects that benefit Santa Cruz: M2.1.4<br>  ⅄ Transportation improvements on Ocean: ED1.2.1<br>  ⅄ Visitor access improvements: ED1.8.4 |
| REDUCE AUTO/VEHICLE TRIPS & INCREASE VEHICLE OCCUPANCY | • Reduce auto dependence, vehicle trips and peak hour trip & increase vehicle occupancy: M1.1, M3.1.1, M3.1.2<br>• Encourage employment-related strategies (i.e., flex-time, telecommuting, parking management, ridesharing): M3.1.7, M3.1.8, M2.4.4 |
| ENCOURAGE MULTI-MODAL SYSTEMS | • Design, accommodate & increase efficiency of multiple transportation modes: M2.3, M2.3.1, ED1.9.2 (alternative transportation), NRC4.4.2, M3.1.11 (studies to determine deficiencies)<br>• Include pedestrian, bike, transit facilities in ROW acquisition, street design, bridge & road projects: M1.4.1, M1.4.2, M2.3.3<br>• Develop Depot Park as multi-modal center: LU3.5.2<br>• Multi-modal use of future rights-of-way: M1.4.2 |
| ENCOURAGE ALTERNATIVE TRANSPORTATION MODES | • Encourage use of alternative transportation modes: M.2.1.2<br>• Promote alternative transportation with TSM strategies: M2.3.2, M2.5.2<br>• Connect activity centers with pedestrian & bike paths: M1.1.2<br>• Encourage hotels to provide bike/shuttle programs: M2.3.4<br>• Employment and parking-related strategies: M3.1.7, M3.1.8, M3.1.9<br><br>**(CONTINUED ON NEXT PAGE)** |

**TABLE 4.4-4**
**Proposed General Plan Policies and Actions that Reduce Traffic Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| ➤ Bicycle Use | • Interconnected bike network & maintain/update Bike Plan: M4.2, M4.2.1, M4.2.2, M4.2.3<br>• Implement bicycle improvements: M2.1.3<br>• Bike lanes: M4.3.1, 4.5.4<br>• Bike commute routes: M4.3.2 (rail r-o-w, West Cliff, Broadway)<br>• Support bicycle improvements, amenities & maintenance: M4.4 & actions, M4.2.6, M4.3, M4.5 & actions, PR1.6.4 (at parks); CC8.4 (at educational facilities) |
| ➤ Pedestrian Use | • Connected street and pedestrian network: CD5.1, M1.1.2, M1.1.3, M4.1.5 (development dedication)<br>• Implement pedestrian improvements: M2.1.3, M1.3.1<br>• Implement MTS pedestrian recommendations; update/implement Pedestrian Master Plan: CD5.1.1, M1.2, M4.1.1<br>• Encourage walking: M4.1, M4.1.3 and pedestrian access: CC8.4<br>• Neighborhood parking strategies & development designs to foster pedestrians: CD 5.2.3, M4.1.7 |
| ➤ Transit Use & Expansion | • Encourage transit options & increased transit service, capacity & ridership: M1.1.3, M2.1.1, M2.4, M2.4.2, M2.4.6, M2.4.7, M2.4.8 (commuter travel), M2.4.9<br>• Implement transit improvements: M2.1.3<br>• Consider giving priority to transit on City corridors: M2.4.5<br>• Conveniently located transit stops, centers & transit links: M.1.4, M2.4.11 and as part of new development: M2.4.12, M2.4.12<br>• Encourage maintenance/upgrading of transit infrastructure: M.2.4.10<br>• Encourage Beach shuttle: M2.4.1 |
| ➤ Rail | • Encourage/support passenger rail transit & other modes along rail ROW: M2.2, M2.2.1<br>• Rail Land Use Plan: LU4.2.4<br>• Rail Transit Center: LU4.5, LU4.5.2<br>• Condition development along rail-potential stops: LU4.5.2<br>• Encourage transport of good by rail: M2.2.2 |
| LAND USES / PATTERNS TO REDUCE VEHICLE TRIPS | • Reduce auto use with pedestrian/transit-oriented activity centers & development centers (M1.1)<br>• Expand neighborhood facilities (LU4.3, LU4.3.1)<br>• Encourage land use changes that reduce auto use: LU4.2); locate community facilities within walking distance to residential areas and transit: (CC2.1.4)<br>• Encourage home occupations & telecommuting: LU4.4, LU4.4.1 and live-work units: LU4.1.4, HA4.4 (artists)<br>• Ensure optimum utilization of infill parcels (LU1.1, LU1.1.1) and Consolidation of Underutilized Parcels (LU1.1.2)<br>• Encourage mixed uses: LU3.5 (Lower Pacific), LU3.6 (River) , LU4.1.1, LU4.2.2 (new districts), LU4.2.3, LU4.1.3<br>• Encourage assembly of small parcels along transit: CD3.3, CD3.3.1, CD3.3.2<br><br>**(CONTINUED ON NEXT PAGE)** |

**TABLE 4.4-4**
**Proposed General Plan Policies and Actions that Reduce Traffic Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| | • Encourage higher/maximum densities: LU3.6.1 (Lower Front St), LU3.7, LU3.7.1, LU3.8<br>• Encourage higher densities along transit/commercial corridors: LU4.1, LU4.1.1<br>• Encourage University shopping/services on UC lands: LU4.2.5 |
| REDUCE & DISCOURAGE THROUGH-TRAFFIC IN NEIGHBORHOODS | • Discourage, reduce, and slow through-traffic: M3.3<br>• Enhance neighborhood livability through road& transit design: M3.3.1<br>• New development to be designed to discourage through traffic and encourage bicycle or pedestrian connections: M3.3.5<br>• Reduce traffic in residential neighborhoods by improving arterial and collector streets: M3.3.6<br>• Develop neighborhood traffic control plans where necessary to minimize traffic impacts on local streets: M3.3.7 |

Policy M2.1.2 encourages use of alternative modes of transportation, and numerous policies and actions support expanded and improved bicycle and pedestrian facilities, a well as increased transit use. Several policies support higher land use densities along transit corridors (LU4.1, LU4.2, M1.1) to support land use patterns that reduce reliance on automobiles. Home occupations and telecommuting also are encouraged (LU4.4). The draft General Plan also directs the City to improve access to and routes between tourist and visitor designations and lodging facilities as part of the City's economic development policies ED1.8.4).

These policies would serve to help reduce project vehicular traffic and thus reduce traffic impacts in addition to proposed intersection improvements. Of the eight identified intersections that would remain at unacceptable levels of service with implementation of identified improvements, four are at major intersections where the City has historically accepted a lower level of service at major regional intersections where improvements would be too prohibitively costly or could result in unacceptable significant environmental impacts, and this policy is maintained in the proposed General Plan (M3.1.4), although the intersections within Caltrans' jurisdiction would not meet Caltrans LOS standards. Additionally, the delays at these intersections would be less than without the improvement, and at the Highway 1/Highway 9 intersection, the delay would be less than under existing conditions. The other four intersections that would remain at unacceptable levels of service, although delays would be reduced to levels below existing conditions at the Western/High and Seabright/Water intersections.

Roadway, as well as bicycle and other non-vehicular improvements, would be contingent on future funding. The potential growth estimated to result from implementation of the proposed *General Plan 2030* could generate nearly $32 million in impact fees at current rates that could be used for improvements, of which 15% would be for alternative transportation. However the TIF program, including improvements, costs and impact fees, would be updated pursuant to actions specified in the draft General Plan (M3.1.5). Improvements to intersections along state highways would be contingent on Caltrans approval and state and/or federal funding. Revenues for transportation, including road and other transportation mode improvements, have not kept pace with the multimodal needs of travelers in Santa Cruz County (Santa Cruz County

Regional Transportation Commission, June 2010). Given chronic state budget deficits, as well as reduced local revenues funding road, bicycle, and pedestrian improvements will continue to be a challenge. Additionally, the lack of community consensus on regional highway improvements and local multi-use paths further constrain the feasibility of either roadway or alternative transportation mode improvements being implemented (Santa Cruz County Regional Transportation Commission, June 2010).

Revenue issues and service cuts have reduced the SCMTD's level of service, affecting the ability to increase transit service. It is estimated that 1,500 to 2,000 additional transit passengers may need to be served with projected General Plan buildout. It is expected that service would continue along major the City's major transportation corridors and where high use is concentrated. However, additional funding will be necessary to expand transit service in the future and provide implementation of "Sustainable Community" strategies,[11] and such funding, is at this time uncertain (SCMTD, White, personal communication, August 2011).

**Conclusion**. Future development accommodated by the proposed *General Plan 2030* would generate traffic that would result in unacceptable levels of service at 21 intersections, all of which could be improved to acceptable levels with intersection improvements, except for four local intersections and four intersections on state highways. Therefore, these intersections could not be improved to an acceptable LOS to meet City or Caltrans' standards, and the resulting effects on these eight intersections would be considered a significant impact unavoidable impact as no feasible improvements have been identified. With implementation of the identified improvements and proposed *General Plan 2030* policies and actions to reduce vehicular traffic, increase vehicle occupancy and support/encourage use of alternative transportation measures, the impact could be reduced to a less-than-significant level at the remaining impacted intersections. However, funding availability likely will remain constrained for major facility improvements and expansion of transit service into the foreseeable future. Thus, implementation of recommended improvements and alternative transportation facilities cannot be assured, and thus, the impact to the intersections identified as operating at unacceptable levels of service under the proposed *General Plan 2030* remains significant.

**Mitigation Measures**

With implementation of the proposed *Plan 2030* policies and actions to reduce vehicular traffic, increase vehicle occupancy and support/encourage use of alternative transportation measures, the impact could be reduced to a less-than-significant level at all but four intersections along state highways and the four local intersections. Impacts would remain significant and unavoidable. With uncertainly regarding funding and implementation of transportation projects for the other intersections, the impact remains

[11] Senate Bill 375 (SB 375) provides a means for addressing greenhouse gas (GHG) emissions by aligning regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation, thereby discouraging urban sprawl and reducing vehicle miles traveled, with an emphasis on increasing land use intensity along transit corridors. See the GLOBAL CLIMATE CHANGE (Chapter 4.12) section of this EIR for further discussion.

significant and unavoidable. However, revision of the following *General Plan 2030* action is recommended.

**Recommended Revisions to the *Draft General Plan 2030***

Revise or add policies/actions as indicated below. Deleted text is shown in ~~strikeout~~ typeface, and new text is shown in underlined typeface.

M3.1.4 Accept a lower level of service and higher congestion at major regional intersections if necessary improvements would be ~~too~~ prohibitively costly or result in significant, unacceptable environmental impacts.

**Impact 4.4-2: Traffic Impacts on State Highway Levels of Service (LOS)** Adoption and implementation of the proposed *General Plan 2030* would accommodate future development that would result in increased vehicle trips and traffic on state highways in the regions (Routes 1, 17, and 9), which would further exacerbate existing unacceptable levels of service. This is considered a *significant impact*.

The proposed project would result in increased traffic on state highway segments. It is estimated that the proposed project would generate approximately 78,235 weekday daily trips. Based on the results of the TRAFFIX model, the distribution of project traffic to state highways is estimated as follows:

- Highway 1, southbound: 24.6% of all trips
- Highway 9, north of City Limits: 1.9% of all trips
- Highway 17, northbound: 20.5% of all trips

Based on this distribution, traffic resulting from future development accommodated by the proposed *General Plan 2030* would increase traffic on southbound Highway 1 by approximately 19,250 daily trips, on northbound Highway 17 by approximately 16,000 daily trips, and on northbound Highway 9 by about 1,500 daily trips. This represents an increase of approximately 20% on Highway 1 and 22% on Highway 17, which would be considered a substantial increase.

According to the Transportation Concept Report for state highways, the target level of service for State Highway 1 west of Morrissey Boulevard is LOS D, and the target level of service for State Highway 17 south of Pasatiempo is LOS E (Caltrans, April 2006, January 2006). However, according to the Caltrans Guide for the Preparation of Traffic Impact Studies (Caltrans, 2002), if an existing State Highway facility is operating at less than the target LOS, the guide states that the existing LOS should be maintained. Highway 1 between Morrissey and Branciforte Creek Bridge operates at a E-F LOS (Caltrans, October 2010), and Highway 17 operates at LOS F (Caltrans, January 2006).

The addition of project-related traffic would contribute to significantly worsened conditions. However, some of this traffic would be within projected future volumes estimated by Caltrans. According to Caltrans' studies, Highway 1 traffic near Morrissey-Branciforte Creek Bridge is expected to increase by 50,000 daily trips in 2030-2035 (Caltrans, October 2010). Future year traffic volumes were projected using growth rates from AMBAG's regional travel demand model, version April 2007, applied to 2007 counts (Ibid.). By incorporating trip reduction and smart growth design in the proposed General Plan policies and actions, the forecast of increased traffic on Route 1 as a result of potential development accommodated by the *General Plan 2030* is significantly less than that anticipated in Caltrans Corridor Systems Management Plan.

The Route Concept Report for Highway 1 includes the addition of High Occupancy Vehicle (HOV) lanes to Highway 1. This project will add a lane in each direction to reduce congestion, encourage carpooling, expand express bus service, and improve safety. The limits of this project extend from Morrissey Boulevard to San Andreas Road/Larkin Valley Road. Project environmental review and preliminary design are underway. Caltrans' draft "Corridor System Management Plan's" strategy for Highway 1 includes new express bus services on the planned HOV lanes, support of land use and transportation efforts to reduce traffic, and overall reduction of congestion by encouraging alternative transportation facilities and programs. The County and Caltrans are also working on design and environmental review for reconstruction of the La Fonda Avenue overcrossing as part of the Auxiliary Lane Project.

The Route Concept Report for Highway 17 identifies an increase of about 8,100 daily trips to the year 2023 (Caltrans, January 2006). The report acknowledges that Highway 17 will remain a 4-lane freeway without widening. Using the traffic forecast in the Corridor System Management Plan for Route 1 the increase in volume on Route 17 would range from 30,000 to 40,000 vehicles per day by the year 2035. Again this figure is well above the volume forecast for the general plan.

As discussed above in the Impact 4.4-1 analysis, the Draft *General Plan 2030* includes goals, policies and actions that set forth comprehensive measures to reduce vehicle trips, increase vehicle occupancy, encourage use of alternative transportation modes, and promote alternative-sustainable land use patterns, all of which would help reduce vehicle trips, and avoid and minimize adverse impacts related to traffic. The draft Plan encourages use of alternative modes of transportation, and numerous policies and actions support expanded and improved bicycle and pedestrian facilities, as well as increased transit use. Several policies support higher land use densities along transit corridors to support land use patterns that reduce reliance on automobiles. The draft Plan supports regional funding and implementation of key regional projects "that can significantly benefit Santa Cruz and further the City's mobility policies" (M2.1.4).

Caltrans is responsible for improvements along state routes and has proposed a series of improvements along Highway 1, which would improve transit and carpooling with addition of an HOV lane. While overall levels of service would remain unchanged if the additional lane were not an HOV lane, average speeds would be increased and delays reduced (Caltrans, October 2010). Similarly, Highway 17 is forecast to remain at an unacceptable LOS in the future with no potential improvements having been identified. Both the Highway 1 planned HOV lanes and Soquel/Morrissey auxiliary lanes are supported in the current Regional

Transportation Plan. The SCCRTC assumes that a half-cent, 30-year sales tax measure or similar local funding mechanism will be ultimately be approved (Santa Cruz Regional Transportation Plan, June 2010).

The increase of 1,500 vehicles per day on Route 9 will not result in a significant impact. The existing volumes on Route 9 range from 5,000 AADT to 5,600 ADT north of City limits during peak months. Traffic volumes have increased on this highway approximately 1,000 vehicles per day in the last 30 years. Route 9 is a conventional undivided two-lane highway which is classified as a major collector. No major improvements are planned in the corridor from Santa Cruz to Felton north of the City limits. (Transportation Planning Fact Sheet State Route (SR) 9 in Santa Cruz County, Caltrans).

**Conclusion.** Future development accommodated by the proposed *General Plan 2030* would generate traffic that would contribute to existing and future forecast unacceptable levels of service along Highway 1 and Highway 17. Project traffic represents a significant addition, although the estimated General Plan buildout traffic is less than the future forecasts estimated by Caltrans in its draft "Corridor System Management Plan." With implementation of the proposed *General Plan 2030* policies and actions to reduce vehicular traffic, increase vehicle occupancy and support/encourage use of alternative transportation measures, and with future improvements along Highway 1 that are planned by Caltrans, traffic congestion along Highway 1 will be minimized. However, highway operations would continue to remain at unacceptable levels. Thus, the impact remains significant.

**Mitigation Measures**

None are known beyond those being considered for Highway 1 by Caltrans as discussed above.

**Impact 4.4-3: Traffic Hazards**
Adoption and implementation of the proposed *General Plan 2030* would not result in new roads that could potentially create hazards, and with implementation of proposed *General Plan 2030* policies and actions to ensure road safety, the project would not result in direct or indirect impacts related to increased hazards. Therefore, there is *no impact* related to road safety/hazards.

The proposed *General Plan 2030* does not include new roads or road alignments, and thus, would not create or increase hazards due to a road or intersection design. Action M3.1.13 does support an approach to Highway 1 to from the Harvey west area, but a specific location is not identified. If this option were to be considered in the future, it would require Caltrans' approval, and would be subject to project-level design and environmental review.

Furthermore, Policy M3.2 seeks to ensure road safety for all users. To this end, the plan proposes to maintain the condition of the existing road system (M3.2.1), ensure safe and

efficient arterial operations and designs (M3.2.2, M3.2.11), ensure adequate street widths and designs for emergency vehicles (M3.2.3), and improve traffic safety and flow, including at high collision and congested areas (M3.2.4, M3.2.5). Regular inspection and maintenance of street pavements is supported to help encourage bicycling (M3.2.6).

**Conclusion.** The proposed *General Plan 2030* does not include new roads or road alignments, and thus, would not create or increase hazards due to a road or intersection design. Implementation of the proposed *General Plan 2030* policies and actions would help to maintain road safety and prevent hazardous conditions due to future designs of roadway or intersection improvements. Therefore, there is no impact associated with creating or increasing hazards due a specific roadway design feature.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.4-4: Conflicts with Adopted Plans**
Adoption and implementation of the proposed *General Plan 2030* would not result in conflicts with adopted plans, policies or programs that support alternative transportation, as the proposed goals, policies and actions directly support implementation and use of alternative transportation modes. Therefore, there is *no impact* related to potential conflicts with plans and policies.

Both the SCCRTC's *Regional Transportation Plan* and AMBAG's *Monterey Bay Area Mobility 2035* support and promote transit, bicycling, walking, carpooling and other alternative transportation modes. The proposed *General Plan 2030* directly supports these alternative modes as well. Action M2.1.2 encourages use of alternative modes of transportation, and numerous policies and actions support expanded and improved bicycle and pedestrian facilities, a well as increased transit use and passenger rail transit, as summarized on Table 4.4-4. Policy M2.3 seeks to increase the efficiency of the City's multi-modal transportation system. Several policies support higher land use densities along transit corridors (LU4.1, LU4.2, M1.1) to support land use patterns that reduce reliance on automobiles.

**Conclusion.** The proposed *General Plan 2030* directly supports regional plans and policies that support alternative transportation modes as it includes numerous policies and actions that encourage use of alternative modes of transportation, and support expanded and improved bicycle and pedestrian facilities, a well as increased transit use. Therefore, there is no impact related to potential conflict with adopted plans and policies that support alternative transportation.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

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# 4.5 WATER SUPPLY

## 4.5.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Regulatory Setting
- City Water Service Area
- Water Service System
- Water Demand in Service Area
- Water Supply Limitations
- Water Supply Planning & Adopted Plans

### REGULATORY SETTING

#### State Regulations

Drinking water is regulated by a number of federal and state law. The federal government sets minimum standards for the protection of water quality, including for drinking water and environmental protection. The Safe Drinking Water Act (SDWA) of 1974 and subsequent amendments gave the EPA the authority to set standards for contaminants in drinking water supplies. The National Primary Drinking Water Standards establish the maximum contaminant levels (MCLs) allowed in public distribution systems. The National Secondary Drinking Water Standards establish the MCLs that apply to potable water supplies at the point of delivery to the customer. The EPA administers the SDWA at the federal level and establishes MCLs for bacteriological, inorganic, organic and radiological contaminants (U.S. Code Title 42, and Code of Federal Regulations Title 40). The California Environmental Protection Agency (Cal EPA) administers and enforces the drinking water program and has adopted its own SDWA, which incorporates the federal SDWA requirements, including some requirements specific only to California (California Health and Safety Code, Section 116350 and related sections).

The California Office of Environmental Health Hazard Assessment (OEHHA) has initiated evaluation for several chemicals for which new MCLs have been promulgated by the EPA, which triggers a requirement that OEHHA prepare a Public Health Goal (PHG) designed to define the level of pollutant at which no adverse health effect is expected to occur. PHG levels are concentrations of chemicals in drinking water that are not anticipated to produce adverse health effects following long-term exposures. These goals are advisory but must be used as the health basis to update the state's primary drinking water standards (MCLs) by the California Department of Public Health (DPH) (Health and Safety Code, Section 116365(b)(1). In addition, re-review, as required by Health and Safety Code Section 116365(e)(1), has been initiated for chemicals for which initial PHGs were published in 1997 and 1999. Risk assessments have been initiated for the chemicals, a few of which are listed below that are newly regulated:

- Bromate,
- Chlorite,

- Haloacetic acid, and
- Nitrosodimethylamine (NDMA).

Pursuant to State Water Code requirements, water suppliers providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet (approximately 980 million gallons) of water annually must prepare and adopt an urban water management plan (UWMP) and update it every five years. The Act requires water agencies to evaluate and describe their water resource supplies and projected needs over a 20-year planning horizon, and to address a number of related subjects including water conservation, water service reliability, water recycling, opportunities for water transfers, and contingency plans for drought events (City of Santa Cruz Water Department, February 2006). The City adopted its *2005 Urban Water Management Plan* (UWMP) in February 2006 as further discussed below in the "Water Supply Planning & Adopted Plans" subsection. In accordance with state law, the City is currently updating the UWMP, for planned adoption in Fall 2011.

In 2001, Senate Bill (SB) 610 amended California law regarding review of water availability for large projects (Section 10910 et seq. of the Water Code, Section 21151.9 of the Public Resources Code [CEQA] and Section 15155 of the State CEQA Guidelines). Pursuant to SB 610, the preparation of a "water supply assessment" (WSA) is required for projects subject to CEQA that meet specified criteria regarding project size (e.g., for projects of 500 or more residential units, 500,000 square feet or more of retail commercial space, 250,000 square feet or more of office commercial space, 500 or more hotel rooms, specified industrial uses, or a project that would result in a water demand equal to or greater than the amount needed to serve a 500-unit residential project). These assessments, prepared by "public water systems" responsible for service, address whether there are adequate existing or projected water supplies available to serve proposed projects over a 20-year period, in addition to existing demand and other anticipated development in the service area. Where a WSA concludes that insufficient supplies are available, the WSA must lay out steps that would be required to obtain the necessary supply. The content requirements for the assessment include, but are not limited to, identification of the existing and future water suppliers and quantification of water demand and supply by source in five-year increments over a 20-year projection for average normal, single-dry, and multiple-dry years. The absence of an adequate current water supply does not preclude project approval, but does require a lead agency to address a water supply shortfall in its project approval findings.

In February 2008, Governor Schwarzeneger introduced a comprehensive plan for improving the Sacramento-San Joaquin Delta with a key component intended to achieve a 20% reduction in per capita water use statewide by the year 2020. In November 2009, SB 7, The Water Conservation Act of 2009, was enacted, which directs urban water suppliers to calculate their baseline per capita water use and to set a 2020 water use target. Water agencies have until July 2011 to fulfill the mandate to calculate their baselines and reduction targets.

Pursuant to State law (Government Code section 56430), the Local Agency Formation Commission (LAFCO) is required to review all municipal services in the county once every five years. The Santa Cruz LAFCO completed and accepted its report in August 2005.

### City Plans and Ordinances

The City of Santa Cruz has enacted several ordinances regarding water conservation. Title 16 of the City's Municipal Code addresses water, sewers and other public services. Chapter 16.01 identifies regulations and restrictions during declared times of water shortages. Chapter 16.02 sets forth water conservation provisions to prevent the waste or unreasonable use or method of use of water. Chapter 16.03 requires that plumbing fixtures be retrofitted with "low consumption plumbing fixtures"[1] in all residential, commercial and industrial buildings served by the City of Santa Cruz Water Department that use water in showers, toilets and urinals whenever a property is sold. Chapter 16.16 sets forth requirements for water-efficient landscaping and also is intended to comply with the California Government Code section 65591, et seq., the Water Conservation in Landscaping Act. The regulations are applicable to applicants for new, increased or modified water service within the City's water service area. On June 28, 2011, the City Council adopted Ordinance 2011-04 that amends the Municipal Code and adds a new section (16.08.065) to allow graywater use for irrigation. Graywater is wastewater that originates from showers, bathtubs, bathroom sinks and clothes washing machines.

Pursuant to Section 16.04 of the Municipal Code, the City currently imposes a "System Development Charge" (SDC) on all new connections or upsizing of existing meters, based on meter size. The charge is to pay for the new connection or additional demand's proportional share of the system expansion costs essential to provide water to the new or additional service. The fee is assessed at the time of connection to the water system, and is placed in a separate account that is used exclusively for:

(1) Payment for the City's future construction of specified facilities, or

(2) Reimbursement to developers who have been required or permitted to install such listed facilities which are oversized beyond that needed for the certain development and are subject to the terms of a reimbursement agreement with the City, or

(3) Payment for water conservation programs approved by the City Council which have the net effect of increasing the amount of water supply available for allocation to new connections.

## CITY WATER SERVICE AREA

The City of Santa Cruz Water Department provides water service to an approximately 20-square-mile area that includes lands within existing City limits, the portion of UCSC that is within City limits, adjoining unincorporated areas of Santa Cruz County (including Live Oak and residential subdivisions along Graham Hill road), a small part of the City of Capitola and coastal agricultural lands outside City limits (City of Santa Cruz Water Department, February 2006). In November 2006, LAFCO adopted a water service boundary map for the City's service area that includes properties that are currently provided water service or are within the

[1] Section 16.03.030 defines "low consumption plumbing fixtures" as any showerhead rated to use a maximum of 2.5 gallons of water per minute, any toilet rated to use a maximum of 1.6 gallons per flush, and any urinal and associated flush valve rated to use a maximum of 1.0 gallon per flush.

City or County urban service areas (see Figure 4.5-1[2]). The City currently serves nearly 21,000 residential accounts, 2,200 commercial, industrial, institutional and municipal accounts, and 500 irrigation accounts (EKI, March 2011). In addition to domestic demand, the City supplies approximately 18 million gallons of water per year for agricultural uses along the North Coast outside of City limits.

The City of Santa Cruz Water Department is a municipal utility that is owned and operated by the City of Santa Cruz. The governing body for the Water Department is the City Council. A seven-member Water Commission advises the Council on policy matter involving operations and management of the water system. The Department operates financially as an enterprise in which all costs of running the system are paid by water rates, service charges, and related revenues. The Water Fund receives no tax or general fund revenues (City of Santa Cruz Water Department, February 2006).

## WATER SERVICE SYSTEM

The City has four primary water sources that are described below. Major facilities include a 18-million-gallon per day (mgd) water treatment plant, several pump stations, 16 distribution reservoirs, and about 300 miles of water pipelines throughout the service area (City of Santa Cruz Water Department, February 2006).

### Water Supply Sources

The City of Santa Cruz water system is comprised of four main sources of water supply:

- North Coast Sources;
- San Lorenzo River Diversions;
- Loch Lomond Reservoir; and
- Live Oak Wells.

#### NORTH COAST SOURCES

The North Coast sources consist of surface diversions from three coastal streams and a natural spring located approximately 6-8 miles northwest of downtown Santa Cruz. These sources are Liddell Spring, Laguna Creek, Reggiardo Creek and Majors Creek. The North Coast system has been in operation since the 1880s. The City has pre-1914 appropriative rights for surface diversion from Liddell Spring, Laguna Creek, Reggiardo Creek, and Majors Creek. As pre-1914 sources, the North Coast diversions are least affected by water rights limitations. Diversion from these sources is limited primarily by flows (City of Santa Cruz Water Department, February 2006), and more recently endangered species issues.

[2] All EIR figures are included in Chapter 7.0 at the end of the EIR (before appendices) for ease of reference as some figures are referenced in several sections.

### SAN LORENZO RIVER DIVERSIONS

The San Lorenzo River is the City's largest water supply source, and the City diverts water from the San Lorenzo River at two locations: the Tait Street Diversion, near the City limits just north of Highway 1, and the Felton Diversion located about 6 miles upstream from the Tait Street Diversion. The City is the largest single user of water from the San Lorenzo River basin; however, three other water districts, several private water companies, and numerous individual property owners share the San Lorenzo River watershed as their primary source for drinking water supply (EKI, March 2011).

The main surface water diversion is located at Tait Street near the City limits just north of Highway 1. The Tait Street diversion is supplemented by two shallow, auxiliary wells located on the east side of the river, which are hydraulically connected to the river and tied to the City's appropriative rights for surface diversion. The other San Lorenzo River diversion is the Felton Diversion Station, which is an inflatable dam and intake structure built in 1974, located about six miles upstream from the Tait Street Diversion. Water is pumped from this diversion through the Felton Booster Station to Loch Lomond Reservoir. The facility is used to augment storage in the reservoir during dry years when natural inflow from Newell Creek is low (City of Santa Cruz Water Department, February 2006). Pursuant to current permits, this water must be diverted to the Loch Lomond Reservoir and cannot be sent directly to the Graham Hill water treatment plant. Thus, the City's ability to utilize water from the Felton Diversion is dependent on the volume of available storage in Loch Lomond Reservoir, and as a result, the Felton Diversion is operated only intermittently, as needed to augment storage in Loch Lomond Reservoir when natural inflow from Newell Creek to the reservoir is low. The Felton Diversion is typically is used during the winter months of dry years (EKI, March 2011).

The City has rights to divert up to 12.2 cubic-feet-per-second (cfs) year-round from the San Lorenzo River at the Tait Street Diversion and adjacent wells (State Water Resources Control Board [SWRCB] Permit 2738 and License 7200). During periods of high flow, water from the Felton Diversion Dam on the San Lorenzo River is pumped up to the Loch Lomond Reservoir for storage. Under the City's current SWRCB permits (Permit Nos. 16123 and 16601), the City may divert up to 977 MGY of water from the San Lorenzo River at the Felton Diversion between September and May (City of Santa Cruz Water Department, February 2006). The City's SWRCB permits for the Felton Diversion also restrict diversions based on minimum instream flow requirements. In order to protect fish habitat in the San Lorenzo River, diversions at Felton may occur only when instream flow exceeds the prescribed flow. These minimum average daily flow requirements for instream flow are 10 cfs in September, 25 cfs in October, and 20 cfs from November to May (Ibid.). After fish flow requirements are met, the City has rights to divert 7.8 CFS during September, and 20 CFS from October to May, to an annual maximum of 977 million gallons (Local Agency Formation of Santa Cruz County, June 2005).

### LOCH LOMOND RESERVOIR

Loch Lomond Reservoir (also referred to as Newell Creek Reservoir in the City's operating permit) is located near the town of Ben Lomond in the Santa Cruz Mountains. Constructed in 1960, the reservoir collects water from the Newell Creek watershed and has a maximum capacity of 2,810 million gallons. In addition to the City, the San Lorenzo Valley Water District is entitled to receive a portion of the water stored in Loch Lomond (City of Santa Cruz Water Department, February 2006). The City and the San Lorenzo Valley Water District both have

rights to the water stored in the reservoir; the City's annual withdrawal limit is 1,042 million gallons.

### LIVE OAK WELLS

Although groundwater constitutes only approximately 4% of the City's entire water supply, it has been a crucial component of the water system for meeting peak season demands and during periods of drought (City of Santa Cruz Water Department, February 2006). The groundwater supplies currently consist of four active wells in the unincorporated Live Oak area, referenced as the Beltz wells (No. 7, 8, 9 and 10). Beltz Wells No. 8 and No. 9 were installed in 1998 and began producing water for the City in 1999. Beltz Well No. 10 was installed in 2009. Beltz Well No. 7, installed in 1974, has poor yield. Well No. 4 is currently inactive.

Historically the City has produced groundwater in response to widely fluctuating hydrologic conditions with periods of little production during extremely wet years and periods of high production during drought conditions. Specifically, the City has operated its wells during a period of 150 to 200 days out of the year at a combined operational rate of about 1 mgd on average (City of Santa Cruz, February 2006). During the extended drought of 1987-1988, operation averaged a rate of 2 million gallons per day (mgd). In the City's Integrated Water Plan (IWP) Program DEIR, the City documented its planning goal of maintaining groundwater production into the future at the maximum rate of approximately 2 mgd (1,500 gpm) during drought conditions.

The City is actively pursuing replacement of Beltz Well 4. The loss of Beltz Well No. 4 has impacted the City's capacity to maintain a stable groundwater supply. The replacement for Well No. 4 (Beltz Well No. 12) is proposed on a vacant lot in Soquel to improve the reliability and flexibility of the City's groundwater well system and to locate the replacement well farther inland to protect the Purisima aquifer from the threat of saltwater intrusion (City of Santa Cruz, December 2010). Groundwater extracted from the proposed Beltz Well No.12 would be from the same zone of the Purisima aquifer as the existing Live Oak well field and Beltz Well No. 4 (Ibid).

The City's existing wells are located within the "West Santa Cruz Terrace Groundwater Basin" as defined by the California Department of Water Resources (EKI, March 2011). Water-bearing sediments within this basin consist of Pliocene Purisima Formation, Quaternary terrace deposits, and alluvium along the San Lorenzo River and other streams crossing the basin (Ibid.). Further description of the physical characteristics of the basin is included in Appendix D.

The water produced from the Live Oak Well system is derived from the Purisima Formation, which is the primary source of groundwater in the mid-Santa Cruz County region. Groundwater from the Purisima Formation is used by the City of Santa Cruz, the Soquel Creek Water District, Central Water District and numerous private wells. Total annual extraction from the Purisima aquifer by all pumpers is estimated at nearly 2,000 million gallons per year (MGY) of which the City produces approximately 167 MGY (8% of total) (City of Santa Cruz Water Department, February 2006). Groundwater level data collected over the past 15 years indicate that water levels across the Purisima Formation have been lowered by a combination of changes in recharge and the gradual increase in overall groundwater production from the aquifer. The City's adopted *Urban Water Management Plan* indicates that there is a potential

for saltwater intrusion to jeopardize the safe production of groundwater from the Purisima aquifer, but also notes that at this time, under normal operations, there appears to be no imminent threat of seawater intrusion and the State Department of Water Resources has not identified the basin as overdrafted or projected to be overdrafted (Ibid.).

The City has not prepared a groundwater management plan; however, a groundwater management plan was prepared by neighboring water districts (Soquel Creek Water District [SqCWD] and Central Water District [CWD]) that extract water from the Purisima Formation in adjacent groundwater basins in 1996 and updated in 2007. In 2005, the City entered into an agreement for groundwater management of the Soquel-Aptos area groundwater, along with the SqCWD, CWD, and the County of Santa Cruz). The goals of the agreement are to establish common basin management objectives, undertake joint research projects, and improve interagency coordination to assure the safe production and protect the quality of the underground resource (EKI, March 2011).

## Facilities and Infrastructure

Major facilities include two water treatment plants, several pump stations and 16 distribution reservoirs storing approximately 15 million gallons of treated water. There are also about 300 miles of water pipelines throughout the service area (City of Santa Cruz Water Department, February 2006).

The City operates two water treatment facilities. All surface water is treated at the Graham Hill Water Treatment Plant, which currently has a capacity of approximately 18 million gallons per day (mgd). The 2-mgd Live Oak Water Treatment Plant treats groundwater to remove iron and manganese. Treated water from the Graham Hill plant flows to the Bay Street Reservoir and into the distribution system. Treated water from Live Oak is pumped directly into the distribution system (City of Santa Cruz, February 2006).

The City has 16 treated water storage reservoirs throughout the service area, with Bay Street Reservoir being the largest. In 2007, the City removed the former 35-million gallon reservoir due to age, deterioration, and safety issues. Two permanent 6-million gallon tanks will replace the former reservoir, constructed in two phases. . Temporary storage tanks are currently in place, and the first permanent tank is expected to be in operation sometime in the year 2013.[3]

The City's water system also includes: the 16-mile Coastal Transmission Main that pumps North Coast raw water to the Graham Hill treatment facility and the 9-mile Newell Creek Pipeline that carries water from Loch Lomond to the Graham Hill treatment plant. Additionally, the Felton Booster Pump Station is used to move water into and out of the Loch Lomond Reservoir. The Coast pump station, located next to the Tait Street Diversion, pumps raw water from the North Coast and San Lorenzo River sources to the Graham Hill Treatment Plant.

The City is in the process of implementing a long-term (10-20 year) rehabilitation and replacement program for its North Coast System pipelines and diversions. The 16-mile long

[3] The original reservoir design was significantly oversized for emergency purposes. The capacity has been downsized in order to meet water quality requirements (e.g., how long treated water can be stored), but still meets demand and safety requirements.

North Coast System (NCS) includes five distinct pipeline reaches, and over half of the conveyance pipeline is more than 40 years old. The project includes replacement of pipelines in their current alignments or in new alignments designed to avoid sensitive habitats. Rehabilitation also includes modifications to the 100±-year old diversion structures, which are located above the anadromous reaches of the creeks (i.e., above the locations where fish return to spawn). The City also recently completed construction of a new 24-inch, approximately 2-mile-long water transmission line that has been installed between the Bay Street Reservoir and Highway 1.

## Water System Production and Operations

In general, the City's water supply system is managed to take advantage of the better quality and least expensive water sources as a first priority and to retain the maximum amount of water possible in Loch Lomond Reservoir to safeguard against future droughts. In addition to considerations for cost, water quality, and storage, there are legal constraints on the diversion of surface waters contained in the City's water rights that govern the operation of the water system.

Water supplies are generally dispatched to meet daily demands in the following order: North Coast, San Lorenzo River, Live Oak Wells, Loch Lomond Reservoir (City of Santa Cruz Water Department, February 2006). The North Coast sources are used to the greatest extent possible due to excellent water quality and the lowest production cost, and as previously indicated, these diversions are least affected by water rights limitations. Additional water needed to meet daily demands is pumped from the San Lorenzo River at Tait Street. During the summer and fall when the City's flowing sources are inadequate to meet peak season daily demands, supplemental water is brought in from the Live Oak Wells and Loch Lomond Reservoir (City of Santa Cruz Water Department, February 2006).

On average, about 79% of the City's annual water supply needs are met by surface diversions from the coastal streams (32%) and San Lorenzo River (47%), while approximately 17% is supplied by Loch Lomond Reservoir and 4% of the supply is derived from the Live Oak Well system (City of Santa Cruz, February 2006) as summarized in Table 4.5-1. With Loch Lomond production, limited by the City's water rights to a maximum of 1,042[4] MGY, existing water supply availability totals approximately 4,300 MGY (City of Santa Cruz Water Department, February 2006). However, the City recognized that the uncertain nature of groundwater conditions in the western portion of the basin is a serious issue and has limited future maximum extraction during all water years to 645 ac-ft/yr, or approximately 1 MGD (700 GPM) (City of Santa Cruz Water Department, December 2010). Water production has fluctuated over the past ten years; annual production has ranged from a high of approximately 4,400 MGY in 2000 (City of Santa Cruz Water Department, February 2006) to a low of approximately 3,200 MGY in 2009 (City of Santa Cruz Water Department, May 2011) as discussed further in the following subsection.

[4] Of this amount, 104 MGY or 10%, is technically available to the San Lorenzo Valley Water District, but it has taken no action in recent years and has no current plan to exercise its entitlement.

**TABLE 4.5-1**
**Existing City Water Supplies**

| Source | Million Gallons Per Year (MGY) |
|---|---|
| Groundwater | 187 |
| Surface Diversions: | |
| ▪ North Coast Sources | 1,077 |
| ▪ San Lorenzo River | 2,008 |
| ▪ Loch Lomond Reservoir | 1,042 |
| **TOTAL** | **4,314** |
| **Source:** City of Santa Cruz Water Department, February 2006 | |

The City's adopted UWMP indicates that current water supplies will remain relatively unchanged with a total net production capacity of approximately 4,300 MGY through the year 2030 assuming normal water conditions and no change to current operations or water rights. However, as further described below, existing water supplies may be reduced in the future as a result of other permit requirements and water rights issues, and the City is currently pursuing water conservation measures to reduce demand and construction of a desalination plant as a supplemental water source during drought conditions.

## WATER DEMAND IN CITY WATER SERVICE AREA

Water use between 2000 and 2010 ranged between approximately 4,000 MGY at the beginning of the decade to approximately 3,200 MGY in 2009 and 3,100 MGY 2010 as summarized in Table 4.5-2 (City of Santa Cruz, May 2, 2011).

**Table 4.5-2**
**Treated Water Production 2000-2010**

| Year | Gross Water Use (In MGY) |
|---|---|
| 2000 | 3,987 |
| 2001 | 3,962 |
| 2001 | 3,909 |
| 2003 | 3,898 |
| 2004 | 3,895 |
| 2005 | 3,567 |
| 2006 | 3,570 |
| 2007 | 3,590 |
| 2008 | 3,565 |
| 2009 | 3,169 |
| 2010 | 3,103 |
| **Source:** City of Santa Cruz Water Department, May 2011 | |

Water demand forecasts developed for the City in 1997 (Maddaus Water Management, March 1998) were utilized in the preparation of the City's *Integrated Water Plan* and *Urban Water Management Plan*. The forecasts estimated that water demand would increase to approximately 4,900 MGY by 2005 and up to approximately 5,300 MGY in the year 2030 (City of Santa Cruz Water Department, February 2006) based on population and employment trend information and forecasts provided by AMBAG at the time the forecasts were developed. Current City plans estimate that water demand under normal conditions will exceed water system capacity at some time between 2015 and 2020 (City of Santa Cruz Water Department, February 2006). However, actual total water use has been substantially lower than was predicted in these demand forecasts. Based on the treated water production shown on Table 4.5-2, average annual water demand was approximately 3,900 MGY from 2000 through 2004, compared to approximately 4,900 MGY predicted for the year 2005. Water demand has further decreased since 2005 to an average demand of slightly less 3,600 MGY between the years 2005 and 2008, with a low of approximately 3,200 MGY in 2009.

Based on actual use, the City's adopted 2005 *Urban Water Management Plan* (UWMP) indicates that it is more plausible that water use within the entire service area would likely increase at a rate of between approximately 0.4% and 0.8% per year through 2020 (City of Santa Cruz Water Department, February 2006). Based on these percentages, the UWMP estimated a water demand of about 4,365 MGY in the year 2020. These scenarios were not carried beyond the year 2020 in the UWMP.

As discussed below under the "Impacts and Mitigation Measures" subsection, the 2005 UWMP water demand projections for the City's water service area were reviewed and updated as part of the preparation of the Water Supply Assessment and project impact analysis conducted for this EIR. Total water demand in the City's water service area is now estimated as approximately 4,050 to 4,550 MGY in the year 2030 as further described below.

As required by state law, the City prepares updates to its Urban Water Management Plan every five years, which provides for continual review of water demand and supply trends and adjustment of water management strategies as may be needed. The City Water Department is in the process of updating its UWMP, in which water supply availability and water demand projections will be reviewed and revised according to the most recent information and data available.

## WATER SUPPLY LIMITATIONS

The primary water reliability issue currently facing the City of Santa Cruz is the lack of adequate water supply during droughts due to the wide range in the yield of surface water sources from year to year and limited storage capacity. The City's water supply system is able to meet 100% of the existing water demand in about 7 out of every 10 years and at least approximately 90% of existing demand in about 9 out 10 years. A significant shortage occurs on average about 1 out of every 10 years (City of Santa Cruz Water Department, February 2006). During normal hydrologic years, the City's water supply totals approximately 4,300 MGY. The total water supply estimated to be available to the City in single dry years (i.e., 1994) is 3,800 MG or approximately 12% less than is available in normal years (Ibid.).

However, during an extreme two-year drought similar to the 1976-77 event, the estimated water supply available to the City in the second year of that event is 2,700 MG. The peak season is between April and October since this is the period that would be most affected by a supply shortage due to peak water demand.

Furthermore, the City's groundwater supply is near the coast and is particularly vulnerable to seawater intrusion. In normal and wet years, when rainfall and runoff are abundant, base flows in the coast watershed and associated river sources are restored by winter rains, and Loch Lomond Reservoir is typically replenished to full capacity with runoff from the Newell Creek watershed. The water system, however, is vulnerable to shortage in drought years when the San Lorenzo River and North Coast creeks and springs run low. In single dry years, the system relies heavily on water stored in Loch Lomond Reservoir to satisfy demand, which draws down the reservoir level lower than usual and depletes available supply in the event of a subsequent dry year. In multiple dry years, or drought conditions, very low surface water flows in the San Lorenzo River and North Coast creeks and springs, combined with depleted supply stored in Loch Lomond Reservoir, reduces the City's available supply to a level which cannot support water demand, even with an increase in groundwater production.

A basic assumption of the City's *Integrated Water Plan* and UWMP is that the City will continue to use its existing water supply sources in the future without change in current production levels. However, the City faces a series of ongoing challenges that potentially could lead to some loss of existing supply in the future, although it is uncertain at this time to what extent and which supplies might be affected. These considerations are summarized below, in part from the UWMP.

- **North Coast Streams and San Lorenzo River – HCP**. Continued access to the same amount of North Coast supply sources will depend on the outcome of a Section 10 "incidental take" permit application and accompanying Habitat Conservation Plan (HCP) that are being prepared pursuant to the federal Endangered Species Act for City activities designed to prevent take of a listed federal species. The permit and plan must be approved by the U.S. Fish and Wildlife Service and NOAA National Marine Fisheries Service (NMFS). The goal of the HCP is to minimize and mitigate to the maximum extent practicable the effects of City activities on listed and other sensitive species. The City entered into the HCP process in 2001, and over the past 6 years, the City has coordinated and met with U.S. Fish and Wildlife Service and NMFS on HCP-related issues and has conducted a number of studies. At the time of preparation and publication of this Draft EIR, however, a draft HCP has not yet been completed.

  The conservation measures associated with the HCP may result in changes in the City's operation and management activities and potentially affect the timing and use of this component of the City's existing water supply. On April 5, 2011, the Santa Cruz City Council authorized the Water Director to enter into negotiations with NMFS for completing the HCP and obtaining an Incidental Take Permit. At this meeting, City staff presented a proposed phased conservation strategy that improves instream flow for anadromous salmonids while recognizing that the limitations of the existing water supply system do not allow consistent achievement of optimal flows. Given the fact that there is an existing potential "take" of listed species to address, the strategy would result in less available water supply, resulting in a need to draw more heavily on the storage and Loch Lomond and that some augmentation of the City's existing water supply will be

necessary (City of Santa Cruz Water Department. March 28, 2001). Generally, the impacts would be greatest on the North Coast streams during the dry season and during dry water years (Ibid.).

A Draft Conservation Strategy was submitted to the NMFS in August 2011. The primary focus of the strategy is to avoid or minimize existing and potential effects of the City's activities to the maximum extent practicable as required by the Federal Endangered Species Act. A major element of the strategy is identification of minimum in-stream flows at City diversions to minimize the effect of diversions on habitat conditions for steelhead and coho salmon. Three alternatives, or tiers, of instream flow targets are specified which represent increasing levels of habitat protection. These targets vary by location, hydrologic year type and month. The three tiers represent increasing levels of habitat protection. The strategy guarantees minimum flows that ensure no further degradation of habitat (known as Tier 1). The strategy attempts to provide further protection of habitat by offering Tier 2 minimum flows under most hydrologic conditions, reverting to Tier 1 in dry years. With increasing water demand, the City will be able to provide Tier 2 flows less frequently. As the City moves toward augmenting its supply to include additional sources such as some mix of desalination, reclamation, conservation, or additional storage, over the course of the HCP further instream reservations will be possible (City of Santa Cruz, August 2011). Addition of new supply (2.5 mgd desalination, reclamation) would allow Tier 2 flows to be provided in 70% of years. Tier 3 flows would provide approximately 80% habitat value and could be provided in as much as 21% of years well into the future with the addition of 2.5 mgd of desalination.

With the Draft Conservation Strategy now submitted, negotiations can begin with NMFS. When a final strategy has been agreed upon, the Habitat Conservation Plan will be prepared. The HCP will be subject to environmental review, public review, and considered by City Council. The process could take more than two years.

- **Water Rights Conformance Proposal.** The City is in the process of developing and submitting filings to the State Water Resources Control Board (SWRB) to rectify a historical technical deficiency in the water rights on Newell Creek. Based upon the original filings, which were thought to be adequate due to the anticipated use of Loch Lomond Reservoir, these water rights actually allow only for diversion to storage and not for direct diversion, i.e., into the City's water supply distribution system. This circumstance makes the water supply technically unavailable as a source for City use during times when, for example, the reservoir is receiving more inflow from Newell Creek than is released downstream. The water rights filings by the City are intended to correct this historical deficiency and bring the City's legal water rights and current operations into conformance with each other. The proposed direct diversion rights are limited to the same volume of water, purposes and places of use as the existing rights such that they match the existing rights to the extent possible while allowing direct diversion, consistent with historic practice (City of Santa Cruz Water Department, February 2006).
- **Felton Diversion Water Rights Time Extension Project.** Pursuant to the City's permits to divert water at Felton for storage in Loch Lomond Reservoir, the City must put all 3,000 AFY (approximately 980 million gallons) of its entitlement to full beneficial use by

December 2006, in order to maintain its appropriative rights to the water. While the City has been diligently putting water from the Felton Diversion to beneficial use over the years, to date the City has used just half the permitted amount on an annual basis. In the future, however, the City expects to need the full 3,000 AFY and, therefore, has filed petitions with the SWRCB to extend the time allowed for putting the full 3,000 AFY to beneficial use. The water supplied from the Felton Diversion is considered critical to meeting the City's projected future demand, in particular during operational outages, changes in operations in response to environmental concerns, and during dry years (Santa Cruz, 2006).

Three different parties had filed protests to this application and to the City's petition for an extension of time to go to full appropriation on Felton Diversion: the Marine Corps Base, Camp Pendelton (CPEN); the California Department of Fish and Game (CDFG); and NMFS. The CPEN protest raised the legal issue of whether a water right holder or applicant may petition to the State Water Board to change an application, permit or license to allow for direct diversion when the current application, permit or license is for diversion to storage. The City appealed to the SWRCB that the public interest and the law support the use of the change petition process to add direct diversion to its San Lorenzo River and Newell Creek Water Rights. In December 2009, the SWRCB affirmed the legitimacy of the application for a change, finding that it has the authority to approve such a change, and denied the CPEN Petition for Reconsideration. The CDFG petition has been withdrawn.

Regarding the petition for the time extension to go to the full appropriation on the Felton Diversion, the City believes it is premature to conclude that it is unlikely to retain this water right. The City has been granted two other such extensions of time – in the mid-1980s and again in the mid-1990s after negotiations with CDFG and execution of a MOA that modified the manner in which the City operated the facility. The City also is working with DFG and NMFS to consider how the facility could possibly be used to aid the Coho Recovery Plan enhancement strategies.

- **Live Oak Wells System Reliability.** The City's ability to produce water from the Live Oak wells, in drought years and potentially all years, may be compromised by continued deterioration of the groundwater basin conditions due to region-wide over-pumping of the Purisima Formation. According to the City's 2005 UWMP, the threat of seawater intrusion to Purisima Unit A under the City's normal operations does not appear imminent (EKI, March 2011). However, if all users continue to pump groundwater at the present cumulative rate, the City's future use of the Live Oak Well System during peak times (as was done during the 1987-1992 drought) may potentially exacerbate conditions that could lead to seawater intrusion (City of Santa Cruz Water Department, February 2006). Although seawater intrusion does not appear to be an imminent threat to the City's groundwater supply under normal operating conditions, the potential for seawater intrusion exists and could potentially limit the City's future use of groundwater and ability to meet peak demands during dry years (EKI, March 2011). The City recognizes that the uncertain nature of groundwater conditions in the western portion of the basin is a serious issue and has limited future maximum extraction during all water years to 215 MGY or approximately 1 mgd (City of Santa Cruz Water Department, December 2010).

The SqCWD's "Well Master Plan" calls for the addition of the O'Neil Ranch well that will allow for more intense pumping of the western Purisima aquifer and allow SqCWD to decrease pumping from the Aromas Red Sands and coastal Purisima formation. The SqCWD's continued increase in pumping within the western Purisima, which has occurred since the early 1990s, has already noticeably reduced the availability of groundwater stored in the aquifer from which the City draws its water (EKI, March 2011). The City was advised by its consultants that production of up to 2 mgd from its coastal well field may no longer be viable during peak periods, and, as a result of this finding, the City identified sites for potential new wells further inland (EKI, March 2011). The SqCWD also included a mitigation monitoring program for potential impacts to the City's coastal well field. However, SqCWD only committed to mitigate for potential impacts from the Well Master Plan if the City did not exceed an average pumping rate of approximately 170 MGY (approximately 0.8 mgd over seven months) or a drought year production rate of215 MGY (approximately 1.0 mgd over seven months). The City continues to pursue completion of an inland well to supplement its diminished well capacity and maintain its ability to produce up to 1 mgd during peak periods and in drought conditions (Ibid.).

- **Global Climate Change.** There has been increasing attention paid to the issue of global climate change and its potential effects on existing water resources and supplies. However, studies prepared to date by the State of California do not provide sufficient or specific information with respect to predicted effects on coastal water supplies to allow the City to reach a reliable conclusion of how global climate change may affect the City's water supplies. These studies have instead focused on potential effects on the Sierra Nevada snowpack, and how a reduced snowpack could affect water supplies dependent on runoff from that snowpack (e.g., water supplies dependent on the operation of either the federal Central Valley Project or the State Water Project). Nor have specific studies been conducted by the City to address this issue.

  General studies prepared by the State of California indicate that climate change may seriously affect the State's water resources as a result of temperature increases, changes in timing and amount of precipitation, and sea level rise that could adversely affect coastal areas (California Department of Water Resources, July 2006). Trends in precipitation change are hard to determine, but worldwide precipitation is reported to have increased about 2% since 1990. Precipitation and stream flow records indicate an increase in precipitation, and increased precipitation could benefit water supplies and improve environmental conditions in some areas, especially where water supply diversions have significantly affected stream flow (California Department of Water Resources, July 2006).

  The *California Water Plan* provides a framework for water managers, legislators, and the public to consider options and make decisions regarding California's water future. The Plan, which is updated every five years, presents basic data and information on California's water resources including water supply evaluations and assessments of agricultural, urban, and environmental water uses to quantify the gap between water supplies and uses. The Plan also identifies and evaluates existing and proposed statewide demand management and water supply augmentation programs and projects to address the State's water needs. According to the California Department of Water

Resources ("California Water Plan Highlights"), more changes related to climate change can be expected by the year 2050 and on to the end of the century:

- California's mean temperature may rise 1.5 degrees to 5.0 degrees Fahrenheit by 2050 and 3.5 degrees to 11 degrees by the end of the century.
- Sierra Nevada snowpack may decrease by 25 to 40%.
- Average annual precipitation may show little change, but more intense wet and dry periods can be expected with more floods and more droughts,
- Flood peaks will become higher and natural spring/summer runoff will become lower.
- Global sea levels may rise by 4 to 16 inches by mid-century and 7 to 55 inches by the end of the century, which would increase salinity in California's delta region (California Department of Water Resources, 2009).

Global climate models vary considerably in projecting precipitation patterns, and climate change could potentially alter California's historical precipitation patterns. Simulations conducted by the State of California predict drier conditions in the future, although at the same time there is continued risk from intense rainfall events that can generate more frequent and/or more extensive runoff (California Natural Resources Agency, "2009 California Climate Adaptation Strategy"). While many of the state reports have focused on changes on Sierra snowpack and other major California water sources, recent reports indicate that warming temperatures, combined with changes in rainfall and runoff patterns will exacerbate the frequency and intensity of droughts. Although average annual precipitation may not change, more intense wet and dry periods are anticipated (California Department of Water Resources, October 2009). Regions that rely heavily upon surface water (rivers, streams, and lakes) could be particularly affected as runoff becomes more variable (California Department of Water Resources, October 2008).

It is possible that coastal watersheds such as the one above Santa Cruz could experience changes in frequency and amounts of precipitation (they currently don't receive much snow), which could affect the amounts of water available for diversion and storage in the City's existing facilities. Another study indicates that sea level is expected to rise an additional 22 to 35 inches by the end of the century (California Climate Change Center, July 2006). Generally, there are two ways it is thought that the Santa Cruz water supply system may be impacted: 1) sea level rise that would create greater likelihood of groundwater contamination from seawater intrusion; and 2) rainfall events that would likely be heavier and less frequent, thus affecting storage in Newell Creek Reservoir and stream flow.

The City has acknowledged that climate change may impact City water supplies that are largely dependent on surface water flows. To the extent that rain events are more intense but less frequent, the base flow in streams and rivers from which the City diverts could change. Predictions regarding the extent of climate change on water resources are dependent on many variables. Models are being developed to assist water utilities

in looking at climate change variables in their water planning efforts,[5] but the timing and quantification of potential climate changes effects are too speculative to try to predict with any certainty at this time. However, the City is working with other County water agencies to look at the models that are being developed and will consider new information as it becomes available.

## WATER SUPPLY PLANNING & ADOPTED PLANS

### Water Supply Alternatives

The City of Santa Cruz has been actively considering possible new water supplies for the past 20± years due to chronic, insufficient water supplies to meet existing demand during drought events (Gary Fiske & Associates, June 2003). The City's 1989 *Water Master Plan* identified alternatives to increase the City's water supply based on water demand projections developed at that time. Subsequently, nine projects were evaluated in a 1994 study (Camp Dresser & McKee, Inc., January 1994) that was overseen by a Technical Advisory Committee comprised of City Water Commission members, City Council members and Water Department staff. Of the evaluated projects identified below, the new wells at Thurber Lane and treatment of brackish groundwater in the Majors Creek area were selected as the highest ranking projects.

- Four new reservoir projects – two in the San Lorenzo River watershed and two on North Coast creeks;
- Three projects involving the expansion of Loch Lomond and treatment of brackish groundwater in the Majors Creek area;
- One groundwater project including new wells at Thurber Lane in Live Oak and treatment of brackish groundwater in the Majors Creek area; and
- One smaller reservoir project with groundwater wells at Thurber Lane and reclaimed water from the Scotts Valley Wastewater Treatment Plant.

In 1997, the City initiated an "integrated water planning" approach to consider all practical options for decreasing demand and increasing supply, which included preparation of studies related to water demand, water conservation, water curtailment, alternative water supplies, and evaluation of regional water supply alternatives. As part of this effort, a series of background studies were undertaken, including the following (City of Santa Cruz Water Department, EDAW, June 2005):

- Water Demand Investigation (Maddaus Water Management 1998
- Water Conservation Plan (Gary Fiske & Associates 2000)
- Water Curtailment Study (Gary Fiske & Associates 2001
- Alternative Water Supply Study (Carollo Engineers November 2000)
- Evaluation of Regional Water Supply Alternatives (Carollo Engineers March 2002)

[5] See Water Utility Climate Alliance. January 2010. "Decision Support Planning Methods: Incorporating Climate Change Uncertainties into Water Planning."

An Integrated Water Plan (IWP) was prepared utilizing the results of these studies and was adopted by the City Council an *Integrated Water Plan* in November 2005. As part of the IWP process, ten potential water supply alternatives were identified and evaluated (Carollo Engineers, November 2000). These included:

- **Groundwater Options**
  1. Brackish groundwater supply from wells in the San Lorenzo River Alluvial Plain near the mouth of the river.
  2. Fresh groundwater supply from wells in the San Lorenzo Alluvial Plain.
  3. Groundwater supply from the Purisima Aquifer near the Beltz wells.
  4. Groundwater supply from the Santa Margarita Aquifer.
  5. Groundwater supply near the Wilder Ranch gravel quarry.

- **Other Supplemental Sources**
  6. Seawater desalination.
  7. Wastewater reclamation.
  8. Reservoir storage in the Olympia Quarry in the San Lorenzo Valley.

- **Other Options**
  9. Maximized use of existing sources and storage in Loch Lomond Reservoir. This alternative includes increased capture and/or storage of surface water from existing north coast and San Lorenzo River supplies, in conjunction with optimized use of existing diversions.
  10. Conjunctive use with Soquel Creek Water District (SqCWD).

A screening of these alternatives was conducted as part of the 2000 Carollo Engineers study; screening criteria included whether the source would be reliable and sustainable during a multi-year drought and whether the alternative is feasible to be implemented, taking into account cost, environmental constraints and other public acceptance and regulatory concerns. A conceptual engineering analysis was then completed for each of the potentially viable alternatives. Table 4.5-3 summarizes the evaluated alternatives and associated constraints.

#### ALTERNATIVES DETERMINED NOT TO BE VIABLE

Based on this screening process, the following alternatives were determined not to be viable: brackish and fresh groundwater from the San Lorenzo River alluvial plain (Options 1 and 2), conjunctive use with SqCWD (Option 10), and reservoir storage in Olympia Quarry (Option 8) (Carollo Engineers, November 2000). The primary constraints on the brackish and fresh groundwater from the San Lorenzo River alluvial plain included: 1) potential impacts to riparian habitat or introduction of seawater into the aquifer as a result of pumping; 2) water rights issues since the brackish groundwater is likely hydraulically linked to the San Lorenzo River and may result in conflicts with the City's other water rights related to its Tait Street diversion; and 3) high treatment costs. In addition, the yield from these sources was expected to be limited (Ibid.). Conjunctive use with Soquel Creek Water District was not deemed viable due to limited surface water supplies potentially available to the City of Santa Cruz Water Department water

rights issues, and continued groundwater pumping. Lastly, numerous technical and institutional issues were identified that deemed the storage at Olympia Quarry to not be viable (Ibid.).

**TABLE 4.5-3**
**City Water Supply Alternatives Summary**

| Alternative | Recommend Further Evaluation | Comment |
|---|---|---|
| **Groundwater Options** | | |
| Fresh Groundwater from the San Lorenzo Alluvium | No | (1) Quantity limited<br>(2) Potential conflict with existing water rights at Tait Street<br>(3) Supply not reliable or sustainable during drought |
| Brackish Groundwater from the San Lorenzo Alluvium | No | (4) Quantity uncertain<br>(5) Potential conflict with existing water rights at Tait Street<br>(6) Supply not reliable or sustainable during drought |
| Groundwater Supply from Purisma Aquifer near Beltz Wells | No | (7) Existing users present institutional constraints<br>(8) Quantity uncertain<br>(9) Supply not reliable or sustainable during drought |
| Groundwater Supply from Santa Margarita Aquifer near Beltz | No | (10) Quantity uncertain<br>(11) Supply not reliable or sustainable during drought |
| Groundwater from Santa Margarita Aquifer near Wilder Ranch | No | (12) Existing users present institutional constraints<br>(13) Quantity uncertain<br>(14) Supply not reliable during drought |
| **Other Supplemental Sources** | | |
| Desalination | Yes | (15) Reliable or sustainable supply of needed capacity |
| Wastewater Reclamation | Yes | (16) Net supply may be limited and cost high; additional work required to quantify these elements |
| Reservoir Storage in Olympia Quarry | No | (17) Numerous technical and institutional issues to be addressed |
| **Other Options** | | |
| Maximize Use of Existing Sources and Storage in Loch Lomond Reservoir | Yes | (18) Benefit in drought and nondrought years<br>(19) Improves system reliability and operation |
| Conjunctive Use with Soquel Creek Water District | No | (20) Water rights constraint<br>(21) Quantity uncertain<br>(22) Supply not reliable or sustainable during drought |
| **Source:** Carollo Engineers, November 2000 | | |

The other groundwater options ultimately were determined not to be viable because as groundwater sources they are also affected during drought conditions and storage is not readily replenished. The analysis also estimated that the maximum reliable yield from four combined groundwater sources was approximately 300 MGY or less during drought conditions (Carollo Engineers, November 2000b). Thus, while overall, groundwater is potentially available in a limited quantity, none of the groundwater resources could provide a significant portion of the projected drought demand shortfall (Ibid.). Additionally, there were other environmental,

regulatory and/or cost issues associated with some groundwater options that would affect overall feasibility for implementation. For example, the two biggest aquifers analyzed in the study (Santa Margarita aquifer near Wilder Ranch and Purisima aquifer) have existing users. The available (reliable) yield during a prolonged drought is also uncertain because the yield from the aquifers will likely decrease as other users increase their reliance on this supply (Carollo Engineers, September 2000).

Artificial groundwater recharge was considered as a means to improve reliability/sustainability during a drought, but was not found to be a viable alternative as there are no surplus water sources available for recharge. Even if the City's surface water supplies were available for recharge, a water rights change (from diversion for direct use to diversion for storage) would be required, which would effectively preclude all conjunctive use alternatives with surface water and groundwater (Carollo Engineers, September 2000).

Groundwater recharge with reclaimed water was also considered. However, state guidelines stipulate that approximately 50% of the recharge water be reclaimed wastewater, thus requiring other water sources to be blended with the reclaimed water. Additionally, as indicated above, groundwater availability would be limited. The analysis found that even in a favorable scenario, approximately 100 MG would be available for blending that would result in about 200 MG of groundwater supply during a drought, which was considered low. Furthermore, state guidelines require that reclaimed water for potable use remain in the ground 6-12 months prior to use depending on the level of treatment and method of discharge. Lastly, the City's wastewater treatment plant would need to be upgraded to produce the quality of reclaimed water required for recharge, along with construction of associated pipelines.

#### RECOMMENDED ALTERNATIVES

As a result of this screening and evaluation process, three alternatives were recommended for further review: desalination, wastewater reclamation, and maximizing use of existing sources and storage in Loch Lomond Reservoir. A refined regional analysis of desalination and wastewater reclamation as a potential joint project with the Soquel Creek Water District was conducted in 2002. The IWP identified seawater desalination as the most feasible alternative for a backup supply of drinking water during a drought. These alternatives are summarized below.

**Desalination**. The IWP identified seawater desalination as the most feasible alternative for a backup supply of drinking water in times of drought with a plant capacity of 2.5 mgd (City of Santa Cruz Water Department, February 2006). The plant would be for drought protection, and would only be used by the City intermittently during the dry seasons of dry and critically dry years when existing supplies fall short (Ibid.). The desalination facility could be expanded at a future time to provide additional supply up to 4.5 mgd in two increments of 1 mgd; the potential expansion is also intended for protection from drought conditions that could be exacerbated by future growth (Ibid.).

The City currently is planning to construct a seawater desalination facility as a backup water supply in times of drought. The proposed desalination facility is a joint partnership between the City of Santa Cruz and the Soquel Creek Water District (SqCWD), which is also looking for a long-term supplemental water source to reduce its reliance on well water and avert the threat

of seawater intrusion in local groundwater aquifers. Currently, the SqCWD obtains all its water from groundwater sources and operates 16 active production wells with an estimated capacity of over 14 million gallons per day. The current annual water use for the SqCWD exceeds the available water supply by 15% even during non-drought conditions. The SqCWD would use up to 1 mgd of the future plant's capacity when the City doesn't need it, and would share in the cost of building and operating the plant. In early 2006, the SqCWD adopted the Integrated Resources Plan (IRP) that identified a regional seawater desalination plant with the City of Santa Cruz as the preferred conjunctive use project to be investigated (City of Santa Cruz Water Department, 2008, desalination web site at: http://www.scwd2desal.org/).

A pilot desalination plant was in operation between March 2008 and April 2009 to gather information to establish the optimal design and operating parameters for the future construction and operation of a 2.5-mgd seawater desalination plant. The 13 months of testing provided a full range of performance information that will be used to plan the full-scale seawater desalination facility. Additional technical studies and design development are currently underway. The environmental review process was initiated with an EIR Notice of Preparation released in November 2010 in which three potential sites and different intake options will be analyzed in an EIR. A permanent facility is expected to be constructed and in operation by the year 2016, pending completion of project-level environmental review and regulatory permit approvals, e.g., approval of a coastal development permit from the California Coastal Commission.[6]

**Recycled Water**. The City of Santa Cruz owns and operates a regional wastewater treatment facility providing service to the cities of Santa Cruz and Capitola and parts of unincorporated Santa Cruz County. The City's treated wastewater is potentially suitable for some agricultural applications and for limited public access irrigation. However, the level of treatment is not sufficient for general irrigation or unrestricted use on playgrounds, parks, schoolyards, etc. Additional treatment above that currently provided would be needed to meet the state public health and safety requirements. In addition to the treatment upgrades, a distribution system, including pumps, meters, storage facilities, and separate piping, would be required to convey the recycled water to customers (City of Santa Cruz Water Department, February 2006).

The potential for using recycled water as a supplemental water supply was examined in the City's Alternative Water Supply Study (Carollo Engineers, 2000) and Evaluation of Regional Water Supply Alternatives (Carollo Engineers, 2002) during the IWP process. The following five project concepts for recycled water use were evaluated in the two reports (City of Santa Cruz Water Department, February 2008). The UWMP provides a description of these programs and indicates that a long-term water savings of nearly 300 MGY could be achieved.

- Recycled water for groundwater recharge,
- Recycled water for direct use,
- Recycled water from Scotts Valley
- Recycled water for landscape irrigation in the City, and
- Recycled water for North Coast agricultural application.

[6] Other potential permits, approvals and/or consultations for a permanent desalination plant and supporting infrastructure (i.e., intake facility and distribution pipeline) may be required from various agencies, including, but not limited to U.S. Fish and Wildlife Service, State Lands Commission, and California Department of Health Services.

Of these concepts, two were determined to be viable projects: recycled water for in-City landscape irrigation and recycled water for North Coast agricultural application. The other three projects were determined to be infeasible, unacceptable, or of too little benefit to pursue further. Even though these two recycled water concepts were carried forward in the water supply studies, only the one involving the use of recycled groundwater for agricultural irrigation was developed further. The use of recycled water for landscape irrigation was eliminated due to a number of reasons, including the limited yield and high cost. The potential users of the recycled water were determined to be parks, schools, cemeteries, golf courses, and UCSC, with an estimated outdoor irrigation demand of approximately 170 to 230 MGY. This amount was considered too small by itself to meet the City's drought-year needs and also had a high capital cost. The City also considered the high cost of investing in a recycled water system to maintain turf areas during times of drought versus instituting drought management measures and curtailing those same outdoor uses of water at a relatively low cost when supplies fall short. Coupled with the fact that the recycled water concept did nothing to add to the supply of potable water, curtailment was favored in developing alternative strategies for the City's IWP (City of Santa Cruz Water Department, February 2006).

The evaluation of the option to exchange groundwater with recycled wastewater (for agricultural irrigation on State Park lands north of the City) estimated groundwater availability of about 400 MGY. However, this concept ultimately proved to be infeasible for a number of reasons. The additional supply would have been limited given the estimated yield from the groundwater basin. Coupled with costs as high as desalination, this option was not considered the superior option. Additionally, the California Department of Parks and Recreation, the landowner of the agricultural lands to be irrigated with recycled water, opposed the exchange given legal and policy issues that could affect the entire state (City of Santa Cruz Water Department, February 2006). Some of the farmers, mostly organic growers, also opposed the concept of irrigation with reclaimed water.

Recycled water for landscape irrigation remains a potentially viable alternative that could be pursued in the future. However, currently it is not the City's preferred water supply strategy for the reasons outlined above. The 2005 UWMP indicates that the steps and actions to encourage and optimize recycled water will be defined in the future if and when recycling is selected and pursued to diversify the City's water supply portfolio (City of Santa Cruz Water Department, February 2006).

Recycled water as an option for both the City and Soquel Creek Water District was again investigated in 2010 (Kennedy/Jenks Consultants, January 2010). Current California regulations do not allow recycled water to be discharged directly into a potable/drinking water distribution system (otherwise known as direct potable use), and therefore would not meet the City's drought water supply needs. Current state regulations do allow recycled water to be used for indirect potable reuse whereby highly-treated wastewater is injected into the ground via percolation ponds or pumping, and extracted later for use. However indirect potable reuse is not practical for the City or SqCWD because: 1) it requires blending recycled water with surface or groundwater prior to injection and both surface and groundwater supplies are already limited; 2) injection wells are required to be located a prescribed distance away from any public or private drinking water well, which is difficult due to the thousands of wells within

Soquel-Aptos area groundwater basin; and, 3) local land limitations are not conducive to percolation/blending ponds (Ibid).

Recycled water for the City and SqCWD could potentially provide irrigation water for parks, sports fields, and/or golf courses during a drought, but would require a new dedicated distribution system that would be prohibitively expensive compared with the relatively small volumes of water delivered for appropriate use (Kennedy/Jenks Consultants, January 2010). Importing recycled water from a nearby producer is an alternative to producing recycled water at the City of Santa Cruz wastewater plant. The Scotts Valley Water District (SVWD) and the Pasatiempo Golf Course (Pasatiempo), which presently receives potable water from SCWD for irrigation, entered into a Memorandum of Agreement (MOA) expressing the intent to implement a "Pasatiempo Water Conservation Initiative" in cooperation with the City of Santa Cruz. However, this solution does not significantly offset potable water needs for SCWD during drought.

**Improvements to Existing Facilities**. Improvements to maximize use of existing water sources and storage were identified that collectively could provide approximately 600 MGY during a two-year drought. The upgrades could include additional treatment for turbidity on the North Coast supply; capacity upgrades of the North Coast pipeline; treatment and/or facility upgrades for turbidity at the Tait Street intake; capacity upgrades at the Coast pump station; and/or upgrading the hydraulic capacity of the Felton/Loch Lomond supply system. The upgrades would provide additional supply during drought and non-drought years and would also improve operational reliability and flexibility, but shortfalls during multiple dry year scenarios would continue to occur (Carollo Engineers, November 2000).

## City-Adopted Water Plans

### *INTEGRATED WATER PLAN* (IWP)

The purpose of the IWP is to:

> "to respond to the current drought-related crisis and plan for future growth. Specifically, it must help the City: 1) reduce near-term drought year shortages; and 2) provide a reliable supply that meets long-term needs while ensuring protection of public health and safety" (Gary Fiske & Associates, June 2003).

The IWP evaluated options for balancing water supply and demand that included conservation, curtailment, and new water supplies and infrastructure. Based on the water supply studies conducted since the mid-1980s, the water supply options considered in the IWP focused on the four following options:

- Seawater desalination was considered with construction of reverse osmosis, pretreatment and ancillary facilities. A specific location was not identified, although it was indicated that probable locations would be in the industrial area of Santa Cruz (southwest area of city) or on the University's Long Marine Lab site (now known as the Coastal Marine Science Campus). A sequence of desalination sizing increments was reviewed for three curtailment profiles and for a facility serving only the City of Santa Cruz and for a facility serving the City and Soquel Creek Water District

- Reclamation with a coast groundwater exchange arrangement was considered, which involved construction of a 4-5 mgd tertiary wastewater treatment plant, and associated facilities to deliver that water to North Coast farmers for irrigation purposes in exchange for City access to the groundwater supplies currently being used by the farmers.
- Development of the Santa Margarita Aquifer in Live Oak was also considered as a potential small source of supply. The aquifer is below the Purisima aquifer from which the current Beltz wells draw supply. However, little information was available regarding this supply when the IWP was prepared, although it assumed that this source will yield 100 million gallons annually (approximately 2,307 AF).

Based on evaluation of these options and combination thereof, under various drought curtailment options, the IWP determined that Strategies D-1 and D-2 (City-Only and Regional Desalination) at Curtailment Profile 2 (15% worst-year curtailment) as the preferred alternative. The final choice between the City-Only and Regional Desalination strategies was deferred to completion of the Environmental Impact Report on the IWP. For the desalination options, the IWP (and EIR) considered a 2.5-mgd desalination facility that could be upgraded by 1.0 mgd in two increments for a total capacity of 4.5 mgd.

In November 2005, the City Council certified the IWP EIR and unanimously adopted the IWP as the City's long-term water resource strategy that includes the following three components (City of Santa Cruz Water Department, February 2006):

- **Conservation**. Implementation of water conservation programs to maximize the use of the existing water resources.
- **Curtailment during a Drought.** The IWP calls for supplying 85% of normal demand in critical drought years (e.g., the 1976-77 event) with a corresponding reduction in peak season water use of up to 15%.
- **Desalination as a Supplemental Water Supply.** The IWP identified seawater desalination as the most feasible alternative for a backup supply of drinking water in times of drought that would be provided by a 2.5 mgd seawater desalination facility that would be expandable in 1.0 mgd increments up to 4.5 mgd, if needed in future years. A full-scale desalination facility site was proposed to be located in the industrial area along Delaware. The certified IWP EIR evaluates impacts of the construction of a desalination facility and associated pipelines on a programmatic level for the initial construction of a 2.5 mgd facility for drought protection and two subsequent expansions (3.5 and 4.5 mgd).

#### *URBAN WATER MANAGEMENT PLAN* (UWMP)

In 2006, the City adopted the *2005 Urban Water Management Plan* (UWMP) that was prepared in accordance with state law requirements. The plan evaluates and describes water resource supplies and projected needs over a twenty-year planning horizon, and addresses a number of related subjects, including water conservation, water service reliability, water recycling, opportunities, water transfers, and contingency plans for drought events.

As previously indicated, pursuant to state law, the City of Santa Cruz Water Department must prepare and adopt an urban water management plan and update it every five years. Thus, the City's water resource supplies and projected needs over a 20-year planning horizon will be assessed and updated every five years, which will enable the City to review water demand trends and review its water supply management and options. The City's existing 2005 UWMP is being updated and a draft is expected to be completed during the fall of 2011. The water demand projections will reflect the proposed *General Plan 2030*. As part of the UWMP update, the City Water Department will continue to review conservation and other strategies.

The UWMP provides a description of water conservation programs as the IWP calls for continued implementation of a broad set of conservation programs. Conservation programs include water survey programs, plumbing retrofits, water audits and leak detection and repair, large landscape conservation programs and incentives, high-efficiency clothes washer rebate program, and other public information programs. The UWMP indicates that a long-term water savings of nearly 300 MGY could be achieved. A savings of approximately 153 MGY had been achieved by 2005 (City of Santa Cruz Water Department, February 2006). The plumbing fixture retrofit and rebate program have produced the most water savings of any program, totaling about 136 MGY (Goddard, City of Santa Cruz Water Department, personal communication, August 2011.). As a result, conservation programs continue to offset new water demand from development and growth in new accounts, and then some, for the time being (Ibid.). It is estimated that approximately 250 MGY have been saved to date through conservation in part due to rate and price changes and restrictions in recent year (Goddard, personal communication, June 2011).

The IWP calls for supplying 85% of normal demand in critical drought years (e.g., the 1976-77 event), and for a corresponding reduction in peak season water use of up to 15%. This cutback would be achieved through temporary watering restrictions or rationing that target landscape irrigation and other outdoor uses.

The UWMP includes a "Water Shortage Contingency Plan" that was updated in March 2009. This plan was developed to fulfill two fundamental purposes:

- To establish the procedures and actions necessary to achieve the up-to-15% percent cutback in system-wide demand established in the City's Integrated Water Plan, and
- To describe how the City would respond if faced with much larger shortages in water supply ranging as high as 50%.

The updated Water Shortage Contingency Plan uses a staged approach that classifies a shortage event into one of five levels spanning a water shortage range from 5-50%. The overall concept is that water shortages of different magnitudes require different measures to overcome the deficiency. Because there is so little the City can do in the short run to increase the supply of water, the focus of this plan is primarily on measures that reduce demand. Each stage includes a set of demand reduction measures that become progressively more stringent as the shortage condition escalates. Normally, only one of these five stages would be put into effect early in the year at the recommendation of the Water Director and remain in force for the entire dry season (City of Santa Cruz Water Department, March 2009). These stages are outlined below:

| Stage | Magnitude of Water Shortage Stage | Title |
|---|---|---|
| 1 | 0-5% | Water Shortage Alert |
| 2 | 5-15% | Water Shortage Warning |
| 3 | 15-25% | Water Shortage Emergency |
| 4 | 25-35% | Severe Water Shortage Emergency |
| 5 | 35-50% | Critical Water Shortage Emergency |

Stages 1 and 2 represent a level of curtailment that is envisioned as being necessary to balance water supply and demand from time to time under the City's Integrated Water Plan. Shortages of 15% or less, while inconvenient, do not directly threaten public safety or pose undue economic impact. Stages 3-5 are characterized as emergency water shortages since they result in more widespread hardships being felt throughout the community, may threaten public health and welfare, and cause more economic harm. Customer demand reduction goals were established for major water demand groups based on the following priorities: 1) health/safety, i.e., all domestic and sanitary uses, 2) business and industrial uses and, 3) irrigation and other outdoor uses) (City of Santa Cruz Water Department, March 2009).

The 2005 UWMP indicates that in addition to pursuing desalination, the City remains open to exploring other water supply alternatives that would not be feasible to develop in the short-term, but may be useful to consider over a 20-year or longer time frame. The UWMP identifies the possible longer term options as:

- Recycled water
- Groundwater recharge
- Reservoir expansion
- Aquifer storage and recovery
- Off-stream storage.

## Other Water Planning Efforts

As indicated at the beginning of this chapter, the state of California enacted SB7 in 2009, which sets a goal of reducing urban per capita water use by 20% by December 31, 2020. Under the law, each urban retail water supplier must include a base daily water use, a 2020 urban water use target and an interim (2015) water use target in the UWMP. Technical methodologies have been prepared by the California Department of Water Resources (DWR) to ensure consistent implementation of the law throughout the state (City of Santa Cruz Water Department, May 2, 2011).

According to a February 2010 report issued by the DWR, the baseline water use value for California as a whole is 192 gallons per capita per day (gpcd); the value for the Central Coast Region, which encompasses the area from Santa Cruz to Santa Barbara, is 154 gpcd (City of Santa Cruz Water Department, May 2, 2011). Over the last 10-year period, per capita water use within the City of Santa Cruz service area has declined from about 126 gpcd in 2001 to 93 gpcd in 2010 (Goddard, personal communication, August 2011). The City's 10-year baseline (ending 2010), determined in accordance with the state's technical methodologies, is 113 gpcd; the 5-year baseline (2003-2007) is 116 gpcd (Goddard, personal communication, June 2011).

Water suppliers have a choice of four methods under the law for determining their 2020 urban water use target. City staff recommended using Method 3, which is based on 95% of the applicable hydrologic region's target, which would be 123 gpcd. .In accordance with state methodologies, the Water Department is recommending a 2020 target of 110gpcd, and the City would be in compliance with state law if it maintains its per capita demand at or below this level.

## 4.5.2 RELEVANT PROJECT ELEMENTS

### PROPOSED GOALS, POLICIES & ACTIONS

The proposed *General Plan 2030* includes goals, policies and actions that address provision of public services and facilities. In general, Policies LU1.3 and LU1.4 seek to ensure that facilities and services required by future development are available and that new development pays its proportional share. The Plan also seeks to provide community services and facilities to meet the needs of the population (CC2.1) and update and replace facilities (CC2.1.1).

The CIVIC AND COMMUNITY FACILITIES chapter of the draft *General Plan 2030* includes one goal with 11 associated policies and nearly 50 accompanying actions that address water service. Goal CC3 seeks a reliable and adequate water supply.

GOAL CC3 A safe, reliable and adequate water supply.

Policy CC3.1 supports implementation of the City's Integrated Water Plan, and its three accompanying actions support reduction in long-term demand with conservation, periodic updates of the City's Water Shortage Contingency Plan, and development of a 2.5 mgd desalination plant for drought protection with the potential for incremental expansion to 4.5 mgd. Other proposed policies address water demand and conservation, water management, protection of water supplies, including groundwater supplies, development of new water sources and provision of adequate water facilities. Several policies and actions in other chapters of the proposed General Plan also pertain to the City's water supplies and/or demand. Water conservation and audits at park facilities are supported (NRC1.1.3), as well as water conservation education related to creeks and wetlands (NRC1.1.5).

### FUTURE DEVELOPMENT POTENTIAL

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan / Local Coastal Program, except for three new mixed use land designations that have been developed and applied to the following major transportation corridors: Mission Street, Ocean Street, Soquel, Avenue, and Water Street. Some of the draft *General Plan 2030* policies and actions support specific types of land uses and/or development, including new mixed-use use districts and/or intensified redevelopment, as summarized in the LAND USE (Chapter 4.1) section of this EIR.

The *General Plan 2030* supports some specified new or improved community facilities. The draft plan supports development of a desalination plant (CC3.1.3) as part of the actions outlined to implement the City's adopted *Integrated Water Plan*. A specific site is not identified in the proposed General Plan, although the plan does support amendment of the General Plan as needed for a new community facility with the selection of a desalination plant site (LU3.10.2). Other specific water system improvements are not identified, but the plan supports maintenance and improvement of water facilities (CC4.3.1) and adequate provision of pumping, treatment and distribution facilities for production of groundwater of 1 mgd during normal years and 2 mgd during droughts (CC3.3.9).

## 4.5.3 IMPACTS AND MITIGATION MEASURES

### CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

5a Have insufficient water supplies available to serve the project from existing entitlements and resources and/or require new or expanded entitlements to serve the project;

5b Require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; or

5c Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.

### IMPACT ANALYSIS

The following analysis assesses impacts to the City of Santa Cruz water supplies as a result of the proposed *General Plan 2030* (5a) and potential impacts on groundwater supplies (5c). The City Water Department indicates that the proposed project will not result in the need to construct or expand its water treatment facility or other water infrastructure/facilities to accommodate future water demand resulting from the proposed project (5b) (Kocher, City of Santa Cruz Water Department, personal communication, June 2011).

#### Potential Future Development & Buildout

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased new development. However, the draft General Plan includes policies and a land use map that support additional development. This potential development, as summarized in the LAND USE (Chapter 4.1) section of this EIR, could result in development of 3,350 residential units, 3,140,000 square feet of commercial, office and industrial development and 300 new

hotel rooms. This level of development could result in an increased population of 8,040 residents and 8,665 new jobs by 2030. The proposed General Plan also includes other policies and actions that could result in development that supports Santa Cruz as a year-round conference and arts destination (ED1.4, HA3.2.4).

New development accommodated under the proposed General Plan will result in the demand for water services. The impacts associated with water demand and service are presented below.

## Preparation of a Water Supply Assessment (WSA)

The City has voluntarily chosen to prepare a Water Supply Assessment (WSA) pursuant to Water Code Section 10910 et. seq. to inform the City's environmental review for the proposed *General Plan 2030*. The findings and conclusions of the WSA regarding project water demand and availability are summarized below. The WSA is intended to provide the kind of information required of a formal "water supply assessment" required by Water Code section 10910 et seq. (commonly known as SB 610), even though the City does not believe that SB 610 actually applies to a comprehensive general plan update. Rather, SB 610 applies to categories of "projects" subsidiary to city-wide general plan updates (e.g., specific plans or general plan amendments contemplating the construction of more than 500 dwelling units). The limited application of these Water Code requirements was very clear in the predecessor to SB 610, known as SB 901 (see former Water Code sections 10910, subd (a) and 10913.) When SB 901 was in effect (1996 through 2001), it was intended to complement the requirements of Government Code sections 65352, subdivision (b)(7), and 65352.5, which remain in effect and require cities and counties, in updating their general plans, to consult with "public water agencies" and to receive from them detailed information regarding water supply availability.

Even though the City believes that SB 610 was not intended to change the approach that was in effect during the lifetime of SB 901, the City has nevertheless undertaken preparation of a WSA with the intent of having it function as a de facto water supply assessment, despite the general nature of the project at issue and the unavoidably general nature of discussion included herein. It is important to acknowledge, however, that this document is not a substitute for the formal consultation required by Government Code sections 65352 and 65352.5.

The WSA was presented to the City Water Commission on April 4, 2011, and the Commission recommended that the assessment be forwarded to the City Council. The City Council considered and approved the WSA at a public hearing on April 26, 2011.

**Impact 4.5-1 Water Supply**
Adoption and implementation of the proposed *General Plan 2030* could indirectly result in increased development and population growth that would result in an increased demand for water supply in a system that currently has inadequate supplies during dry years and may have inadequate supplies in normal years in the future. This is considered a *potentially significant impact*.

## Project Water Demand

Future development accommodated by the proposed *General Plan 2030* could result in construction of new residential units and non-residential square footage as described above. Based on water use rates developed by the City Water Department, development accommodated under the proposed general plan could result in a new water demand of nearly 240 MGY as summarized on Table 4.5-4.

**TABLE 4.5-4**
**Estimated *General Plan* 2030 Water Demand**

| Type of Use | Amount | Water Demand Rate [2] | Total Demand (MGY) |
|---|---|---|---|
| Residential – SFD | 840 [1] | 194/gpd/unit | 60 |
| Residential -- MFD | 2,510 [1] | 70 gpd/unit | 64 |
| Commercial | 1,087,983 sf | 66 gp/sf/year | 72 |
| Hotel Rooms | 311 | 93/gpd/room | 11 |
| Office | 1,273,913 sf | 18/gpsf/year | 23 |
| Industrial | 776,926 sf | 12gp/sf/year | 9 |
| | | **TOTAL** | 239 MGY |

[1] Assume 75% MFD and 25% SFD of new dwelling units.
[2] Water Demand Rates developed by City of Santa Cruz Water Department

In developing water demand forecasts, the WSA also took into account municipal and irrigation water demands until 2030, which was estimated at approximately 12 MGY. Thus, the additional incremental water demand associated with development and growth under the proposed *General Plan 2030* by the year 2030 is estimated to be 251 MGY.

## Effects of Project Water Demand within Service Area

Water demands in the 2005 UWMP were primarily based on estimates of population- and water account-growth through 2020 in a water demand investigation that was completed in 1998. The 2005 UWMP indicated that these projections significantly overestimated actual water demand within the City's service area, and the UWMP presented two plausible projections (i.e., scenarios) of potential water demand growth between 2005 and 2020. *Scenario 1* assumed that the City's accounts for the three largest customer classes (residential, business, and irrigation) would grow at an annual rate of 0.8% (i.e., in proportion to the amount of growth envisioned in existing housing elements and general plans and that water use at UCSC would increase by 2020 as predicted in the draft 2005 LRDP). *Scenario 2* assumed that

the City's accounts would increase at a lower annual rate of 0.4% (based on actual growth rates experienced since 1997), and that water use at UCSC would increase at half the rate predicted in the Draft 2005 LRDP. Neither of the 2005 UWMP scenarios extended beyond the year 2020, as the City considered these projections to be too speculative at that time.

The water demand estimates presented in the 2005 UWMP were further updated in the WSA prepared in 2009 for the City's proposed Sphere of Influence Amendment and Provision of Extraterritorial services EIR (City of Santa Cruz, July 2010). In order to extend the City's demand projection out to the year 2030, the City looked at the updated AMBAG (2008) population projection and multiplied this additional growth by the average per capita water use projected for 2010 through 2020 in the *UWMP Scenarios 1 & 2*. In addition to extending the UWMP scenarios by 10 years (i.e., to the year 2030), two additional modifications were made to the 2005 UWMP to include revisions to the UCSC 2005 LRDP EIR water demand projections pursuant to the 2005 LRDP Final EIR and the Settlement Agreement, and the inclusion of the full volume of the projected water use for UCSC for the lower-end scenario, instead of just half of the UCSC water demand, as was assumed in the 2005 UWMP. The updated water demands generally fall within the range of projected water demands presented in the UWMP.

The WSA prepared for this EIR develops new water demand projections and updates the UWMP projections based on the following methods:

- Land use changes and development estimated for the *General Plan 2030* buildout;
- Water demand for UCSC are based on its adopted 2005 LRDP and estimates of additional water demand after the LRDP's projected timeframe; and
- Estimates of population growth developed by AMBAG serve as the basis for water demand projections for the remainder of the City's water service area outside City limits.

The estimated demand is compared with two baseline existing waster use scenarios as described below. The two estimates are intended to bracket the upper and lower range of water demand that may reasonably be expected to occur in the future, and reflect long-term conservation reductions already realized by existing customers (EKI, March 2011). The estimated water demand outside of the City is further addressed in "Cumulative Impacts" subsection 5.4 of the CEQA CONSIDERATIONS (Chapter 5.0) section of this EIR.

- Existing Water Demand Estimate 1" (1999-2004). This time period represents an extended period of stable water use before the onset of several factors that have affected recent water use, such as economic downturn, drought conditions, and increase in billing rates.

- "Existing Water Demand Estimate" 2 (2007 through 2008). This time period reflects water usage after the economic downturn, drought conditions and increase in billing rates. This scenario does not consider water use in 2009 as water use restrictions were imposed during this period due to drought conditions (EKI, March 2011).

Based on these scenarios, the WSA models indicate that existing water demand within the City is 2,069 MGY under Estimate 1 and 1,843 MGY under Estimate 2. With addition of the

proposed project, water demand within City limits would increase by 251 MGY, resulting in a total city demand of 2,320 MGY in Estimate 1 and 2,094 MGY under Estimate 2.

### NORMAL YEAR SUPPLY AND DEMAND WITH PROJECT

Based upon the updated water demand projections in the WSA, the City's water supply for a normal hydrologic year is sufficient to meet the existing water demand and the incremental water demand associated with development accommodated by the proposed General Plan through about the year 2020. Under normal years, the City's water supplies provide approximately 4,300 MGY of water. Existing estimated water demand within the entire service area with the addition of the proposed project water demand would total approximately 4,244 MGY under the "Estimate 1" water demand scenario and 3,773 MGY under the "Estimate 2" scenario in the year 2030 (EKI, March 2011). Water supplies would be adequate to serve buildout accommodated by the proposed General Plan without any other increased water demand in the City's service area.

With other growth and development, water demand within the City's entire service area in 2030 is estimated as 4,537 MGY under "Estimate 1" and 4,046 MGY under "Estimate 2". With other growth and development in the service area taken into account, the City's normal water supply may not be sufficient after the year 2020 under the Estimate 1 growth scenario, which is based on average water use between 1999 and 2004. However, there would be sufficient water supplies until the year 2030 under the Estimate 2 growth scenario in which average water use would continue along the same trend as experienced in the last few years (Ibid.). This does not take into account potential reductions in water supply that could reduce the City's estimated normal year capacity of approximately 4,300 MGY due to potential changes in North Coast or San Lorenzo River diversions resulting from federal and state agency decisions. Other growth in the City's water service area is addressed in the "Cumulative Impacts" subsection of the CEQA CONSIDERATIONS (Chapter 5.0) section of this EIR.

### DRY YEAR SUPPLY AND DEMAND WITH PROJECT

The WSA concludes that the City does not have sufficient water to meet current or future projected water demand during dry years, irrespective of future development and growth accommodated by the proposed General Plan. As previously indicated, during a dry year, the City currently has is approximately 3,800 MGY available and approximately 2,700 MGY available during the second year of a drought (City of Santa Cruz, February 2006). An annual average deficit of 5% may exist between the City's water supply during a single dry year and the existing water demand. If development associated with the proposed *General Plan 2030* and elsewhere within the City's water service area is also considered, then an annual average deficit of 12% between 2010 and 2020, and up to 16% by 2030, may be experienced during a single dry year. Annual average deficits are greater for multiple-dry year periods. The annual average deficit between the City's water supply during a second dry year and existing demand is estimated to be 23% to 32%. This deficit increases to 33% to 40% by 2030 in a multiple-dry year if planned development also is taken into account. It is important to note that these deficits are annual average values that do not address peak season cutbacks, which can be significantly greater than the annual average deficits due to seasonal variations in demand and supply, and limitations on the City's water storage facilities (EKI, March 2011). These estimates also do not take into account potential reductions in water supply that could reduce the City's estimated normal year capacity of approximately 4,300 MGY (e.g., potential

changes in North Coast or San Lorenzo River diversions resulting from federal and state wildlife agency decisions discussed above).

#### CONCLUSION – SUPPLY AVAILABILITY

Water supplies are sufficient to serve the proposed project in a normal year with existing water demand until approximately 2020, or until 2030 if reduced water demand trends throughout the service area continue. If reduced demand trends do not continue, water supplies in a normal year may be insufficient after the year 2020 with other new development and growth in the City's water service area, which is further addressed in the "Cumulative Impacts" subsection (5.4) of the CEQA CONSIDERATIONS (Chapter 5.0) section of this EIR.

Water supplies are not sufficient under existing conditions in dry years. Due to existing insufficient water supplies during dry waters, additional demand from the proposed project would be considered significant. Furthermore, supplies in normal years may become inadequate between 2020 and 2030, and, thus, additional demand from the proposed project would be considered significant.

## Reasonably Foreseeable City Water Supply Sources

As previously indicated, a basic assumption of the City's *Integrated Water Plan* and 2005 UWMP is that the City will continue to use its existing water supply sources in the future without change in current production levels. However, the City faces a series of ongoing challenges that potentially could lead to some loss of existing supply in the future, although it is uncertain at this time to what extent and which supplies might be affected. These considerations include the preparation of a HCP that could adjust diversions in some scenarios, water rights petitions, and reduction of groundwater production to protect against saltwater intrusion.

The HCP is being developed to prevent impacts to endangered fish, which are generally the greatest on the North Coast streams during the dry season and during dry water years, as well as wet season salmonid migration and spawning (City of Santa Cruz Water Department, April 2011). The proposed strategy consists of provision of specified instream flows during different periods and with and without water supply augmentation and other mitigation strategies. The proposed strategy consists of three tiers. The water supply implications of providing Tier 1 flows are minimal as these flows would maintain existing habitat levels by maintaining current status quo for operations to ensure no further degradation in habitat and can currently be met in most years (88% of years) with the City's current water supply system and without exacerbating the magnitude of dry weather shortages (currently about 35% shortage under 1977 drought hydrology) (Ibid). The situation gets worse over time as water demands grow with the frequency of dry weather shortages increasing and the magnitude of drought year shortages growing more severe. Tier 2 flows would provide better than existing habitat in North Coast streams and San Lorenzo Lagoon (with priority to Laguna Creek and San Lorenzo Lagoon due to their relatively greater habitat value for anadromous salmonids). While this magnitude of instream flows is possible in most years in the near term during wet and average water years, it results in a Critical Water Shortage Emergency (33 – 43% peak-season shortage) in dry years, which are 10% of years. By 2030, the Critical Water Shortage Emergency grows (42 – 50% peak-season shortage) and can occur in 28% of years without the development of 2.5 mgd of additional dry weather water supply (Ibid.).

The utilization of any one water source varies monthly and throughout the year and also during wet, normal and dry years. Thus, the City cannot confidently predict at this time, the actual amount of potential water supply reduction that may occur due to the HCP effort, which is an ongoing process that has not been completed. However, the City acknowledges the uncertainty of the future water supply capacity. The estimated demand and supplies presented in this EIR are based on estimates and updates of current adopted plans and existing known supply limits. The UWMP is being updated and is likely to be adopted in Fall 2011, and will present any new information that may be available regarding water supply availability.

As previously mentioned, the City is pursuing construction of a desalination plant to provide a reliable supplemental water supply in dry years, which is necessary even without the proposed project. This is part of the City's overall water supply strategy that also includes conservation and curtailment during droughts as set forth in the City's adopted *Integrated Water Plan* and *Urban Water Management Plan*. This water supply strategy is further described below.

#### DESALINATION

The City is actively pursuing construction of a desalination plant as the preferred supplemental water source identified in the City's adopted IWP and UWMP. The City's adopted IWP reviewed six alternatives and identified seawater desalination as the only feasible alternative for a backup supply of drinking water during a drought to meet demand with a 15% curtailment level set forth in the adopted IWP. The other alternatives would not provide the yield needed to accommodate existing and future drought demands during a multiple-dry year period. As currently envisioned, the desalination facility would initially provide 2.5 mgd for supplemental supply during a drought and could be expanded to 4.5 mgd.

As a preliminary step, the City recently completed operation of a "pilot project" to gather information to establish the optimal design and operating parameters for a permanent facility. Based on these results, the City is moving forward with design plans and environmental review for a permanent facility for drought protection, which is expected to be constructed and in operation by the year 2015, pending completion of project-level environmental review and regulatory permit approvals, including approval of a coastal development permit from the Coastal Commission.[7]

The City acknowledges some uncertainty related to the approval and timing of the permanent desalination plant construction and operation. The likelihood of construction of a permanent plant is currently uncertain as design plans have not been completed, and it cannot be predicted at this time whether the Coastal Commission and other agencies would issue the necessary approvals. For these reasons, the City concludes that it cannot "confidently determine" that this source is "reasonably likely," as spelled out in the guidance provided by the California Supreme Court in its decision in *Vineyard Area Citizens et al. v. City of Rancho Cordova* (2007) 40 Cal.4th 412. Nonetheless, the City has identified a desalination plant as its best option to alleviate supply

[7] Other potential permits, approvals and/or consultations for a permanent desalination plant and supporting infrastructure (i.e., intake facility and distribution pipeline) may be required from various agencies, including, but not limited to U.S. Fish and Wildlife Service, State Lands Commission, and California Department of Health Services.

shortages in drought conditions, and therefore has committed to pursuing this option with the intent of working diligently with the other agencies with regulatory and/or permitting authority over the plant to obtain all necessary approvals. Thus, the future desalination facility, which is planned and being pursued, is considered to be the most likely future water source, although it nonetheless remains somewhat uncertain until design, environmental review and regulatory approvals are completed.

Another consideration regarding whether a desalination plant is likely to be constructed and operated is the fact that the City and Soquel Creek Water District (SqCWD) are pursuing the desalination plant as a joint project. The SqCWD would use some or all of the future plant's capacity when the City doesn't need it to reduce SqCWD's reliance on groundwater and avoid potential seawater intrusion. The SqCWD would share in the cost of building and operating the plant. In 2006, the SqCWD Board adopted its updated Integrated Resource Plan, which identifies this regional desalination plant as its preferred use alternative, and SqCWD has provided assistance with funding for the pilot desalination plant.

### POTENTIAL IMPACTS OF DESALINATION FACILITY

The desalination concept adopted by the City involves constructing a seawater intake system using an existing, abandoned wastewater outfall, building a new desalination plant and installing the associated pipelines and pump stations for delivering treated water to the Bay Street Reservoir and conveying seawater concentrate to the City's wastewater facilities, where it would be blended with municipal wastewater flows and disposed via a deep ocean outfall (City of Santa Cruz Water Department, February 2006). A desalination facility site was identified along the Delaware corridor. The certified IWP EIR evaluates impacts of the construction of a desalination facility and associated pipelines on a programmatic level for the initial construction of a 2.5 mgd facility for drought protection (Alternative D-1) and the same with participation of the SqCWD (Alternative 2) and two subsequent expansions (3.5 and 4.5 mgd) for each alternative. The EIR document, which consists of the following two documents, is hereby incorporated by reference in accordance with the provisions of the State CEQA Guidelines section 15150.[8]

- City of Santa Cruz Water Department. June 2005. *Draft Integrated Water Plan Program Environmental Impact Report*. State Clearinghouse #2003102140. Prepared by EDAW.
- City of Santa Cruz Water Department. October 2005. *Final Program Environmental Impact Report, Response to Comments Document*. State Clearinghouse #2003102140. Prepared by EDAW.

Construction of a desalination plant could have physical environmental effects, and the IWP EIR identified potentially significant impacts that could be mitigated to a less-than-significant level, except for temporary construction noise, which was found to be a significant unavoidable impact. Potentially significant impacts that could be mitigated are summarized in Chapter 1 of the Draft EIR and updated in Chapter 3 of the Final EIR and include the following: hydrology

[8] The EIR documents are available for review at the City of Santa Cruz Water Department, 809 Center Street, Room 102, Santa Cruz, California 95060; phone: 831-420-5200 and are also available for review online at: http://www.ci.santa-cruz.ca.us/.

and water quality, marine resources, land use, biological resources, air quality, noise, geology and soils, cultural resources, public services and utilities, visual resources, hazardous materials, and traffic. The identified impacts included both impacts of plant operation and construction. These are summarized below. It should be noted, however, that further project-specific environmental review will be conducted once permanent plant design plans are prepared.

Potentially significant desalination plant operational impacts include:

- *Water Quality Degradation* (5.1-2) due to discharge of seawater concentrate from the desalination plant and potential improper storage, use and disposal of chemicals at the desalination plant (5.1-3). The seawater concentrate produced from the desalination plant is proposed to be mixed with the effluent from the City's wastewater treatment plant. The analysis found that this combination would not exceed the City's wastewater plant discharge requirements and the salinity level would be lower than that of the ambient ocean water. With proper management, impacts would be reduced to a less-than-significant level. This includes construction of concentrate storage at the treatment plant for times when effluent flow is not adequate for mixing with the concentrate being generated by the desalination facility, and control of mixing with automatic and continuous monitoring. Chemicals would be required to be properly stored and disposed, and the facility would be designed to prevent unauthorized disposal of chemicals into the concentrate waste stream.
- *Impacts to Marine Resources* due to operation of the seawater intake which could entrap marine organisms (5.2-1). Construction of intakes, pumps and other facilities could result in disturbance to marine and/or nearshore habitat and species (5.2-4, 5.2-9). The impacts of the intake were determined to probably not be significant because the maximum daily intake is much lower than volumes that have been found to have significant adverse impacts on marine organisms, and because the intake would be designed to reduce losses. However, this issue would require more detailed studies and analyses for a 4.5 mgd facility. Construction of facilities would proceed after site-specific reviews determine that none are located in sensitive areas. According to the Initial Study and Notice of Preparation prepared for the project-level EIR that is being prepared, two types of intake systems are being evaluated: sub-seafloor intakes and screened, open-ocean intakes with a number of alternatives being considered for each of these types of intakes (scwd[2], November 2010).
- *Exposure to Flood* (5.1-4), *Seismic Hazards* (5.7-1), and/or *Soils Limitations* due to project siting (including distribution facilities) and operation that could be mitigated by implementation of recommended engineering and design measures to withstand and minimize damage from these hazards.
- *Impacts to Cultural Resources* due to inadvertent disturbance of potential or unknown cultural resources during (5.8-1, 5.8-2, 5.8-3) that can be mitigated by pre-construction and during construction surveys and protection.
- *Removal of Emergency Wastewater Discharge Pipeline* (5.9-4) with use of the wastewater plant's abandoned outfall line for the intake system that would be mitigated with upgrades to the treatment plant facilities.

- *Visual Impacts* (5.10-2, 5-10.3) that can be mitigated with proper design and vegetative screening.
- *Hazardous Exposure* to workers due to accidental spills and/or release of chemicals (5.11-1, 5.11-3) or disturbance of contaminated soils during construction (5.11-2) that can be mitigated with implementation of proper storage, containment, and emergency controls.

Construction impacts include:

- *Water Quality Degradation* (5.1-1) due to construction of the pipeline in locations close to surface water bodies and potential erosion during construction (5.7-2). These would be mitigated with implementation of construction controls and best management practices.
- *Impacts to Biological Resources* due to construction that may disturb sensitive habitat or special status species (5.4-1, 5.4-2, 5.4-3, 5.4-4, 5.4-5) or result in indirect impacts related to sedimentation (5.4-6). These impacts can be mitigated with standard pre-construction surveys, siting to avoid sensitive resources, establishment of construction buffer zones, and other construction controls and best management practices to prevent indirect impacts.
- *Air Emissions*, primarily related to air emissions during construction (5.5-2) that would be mitigated with standard dust control measures during construction.
- *Construction Traffic* for temporary periods during construction (5.12-1, 5.12-2) that can be mitigated with implementation of traffic control plans and measures.
- *Solid Waste Generation* (5.9-3) that would be mitigated with construction specifications regarding excavation reuse and recycling.
- *Construction Disturbance to Adjacent Land Uses* (5.3-1) due to construction noise, dust, etc. and potential interference with utility lines (5.9-1) that could be mitigated to some extent, although not to a less-than-significant level, with construction controls, such as limits on hours of operation.

The EIR also found that the first construction increment for both alternatives would have no growth-inducing impacts, and that the subsequent plant expansion increments would require further review of population projections and City/County land use planning documents prior to any expansion of a plant to ensure that development of an additional water supply is consistent with, but does not outpace, planned growth projections (City of Santa Cruz Water Department & EDAW, June 2005). In most cases, the EIR concluded that the CEQA significance level of impact between Alternatives D-1 and D-2 is similar (with D-1 being the City building a desal plant exclusively for its own use, and D-2 being a joint project between the City and the SqCWD), except for the impact on local and regional groundwater supply. For this environmental issue area, Alternative D-2 is likely to provide a beneficial impact on the groundwater basin. The delivery of desalinated water to SqCWD during normal and wet years would allow reduced pumping in the district and potentially contribute to additional groundwater in storage (Ibid.).

Based on the programmatic review conducted as part of the IWP, nearly all physical impacts are expected to be minimized or adequately mitigated. Expansion to provide additional

capacity for planned growth would involve minimal physical expansion to add additional filters, but would also be subject to additional environmental review to further analyze growth inducement potential based on review of City, County and Capitola General Plans.

Project-level environmental review is currently underway, concomitant with preparation of design plans for a permanent facility. An EIR is being prepared that will address potential impacts at two plant sites along Delaware Avenue with several intake options, and brine disposal. According to the EIR Notice of Preparation released in November 2010, the proposed desalination project would consist of: (1) a seawater intake structure, associated pump station, and conveyance piping; (2) a seawater desalination plant that would provide for pretreatment filtration, seawater reverse osmosis (SWRO), post-treatment conditioning and disinfection, and solids handling processes and their associated support facilities; (3) a brine disposal and conveyance system; and (4) water supply delivery system improvements. The EIR will provide comprehensive project-level analyses, including topics not included in the IWP EIR, such as greenhouse gas emissions and climate change. Global climate change is predicted to result in a sea level rise. The area in which a desalination plant is being considered is located approximately 20 feet above sea level, and not within areas that have been estimated to be affected by sea level rise within the City. Nonetheless, project design plans and future site-specific environmental reviews will need to assess and address this issue based on the most up-to-date information available.

### ADDITIONAL CONTINGENT CITY WATER SOURCES

As previously discussed, several possible water supply options were carefully evaluated, including drilling more wells, upgrades to the North Coast system, and a water transfer involving exchange of groundwater with recycled wastewater for agricultural use on State Park lands north of the City. Both the wells and groundwater exchange concept ultimately proved infeasible, leaving seawater desalination as the only practicable solution available to the City (City of Santa Cruz Water Department, February 2006).

Recycled wastewater was determined to be potentially feasible for agricultural irrigation, but would produce high cost, limited yields that were too small to meet the City's drought-year needs (City of Santa Cruz Water Department, February 2006). Recycled water for landscape irrigation remains a potentially viable alternative that could be pursued in the future. However, currently it is not the City's preferred water supply strategy. The use of recycled water for landscape irrigation was previously rejected from further consideration due to a number of reasons, including the limited yield and high cost. The potential users of the recycled water (i.e., parks, schools, cemeteries, golf courses, UCSC) have an estimated outdoor irrigation demand of approximately 170 to 230 MGY. This amount was considered too small by itself to meet the City's drought-year needs and also had a high capital cost. Additionally, water recycling would be as expensive as desalination and would not provide a sustainable yield for a multiple-year drought scenario, and thus, would not be a reliable, cost-effective supplemental source.

The City's 2005 UWMP indicates that, in addition to pursuing desalination, the City remains open to exploring other water supply alternatives that would not be feasible to develop in the short-term, but may be useful to consider over a 20-year timeframe, such as water recycling, groundwater recharge, reservoir expansion, aquifer storage and recovery and off-stream storage. These potential alternatives have not yet been fully studied and consideration of such

sources would occur at some point further in the long-term, if the desalination project is not ultimately approved.

## Proposed General Plan Policies & Future Plans

The Draft *General Plan 2030* includes goals, policies and actions that set forth comprehensive measures to avoid and minimize adverse impacts on water supply. These include: measures to reduce water demand and promote conservation; protect and manage existing water supplies; develop new water sources; provide watershed management and water management planning; and maintain water system facilities. A summary of the proposed *General Plan 2030* policies that serve to reduce/mitigate impacts of increased water demand on City water supplies are summarized in Table 4.4-5. The plan calls for implementation of the City's IWP and UWMP with annual status reports to the City Council on water demand and supplies and updates of the UWMP. The proposed General Plan seeks to reduce demand through continued and improved conservation, as well as to investigate new water sources (CC3.10).

Additionally, the proposed plan also seeks to coordinate major land use planning decisions in all three jurisdictions served by the City water system (CC3.6), including implementing the City's Urban Water Management Plan and updating it periodically as required by State law (CC3.6.1). The plan calls for provision of annual updates to the City Council on the status of remaining water supply (CC3.6.2) as part of a process to confirm or adjust the estimate of remaining supply to avoid oversubscribing the water system (CC3.6.3). As required by State law, the City is in the process of updating its 2005 UWMP, which will further review water supply availability and demands based on the most recent available information.

**Conclusion.** Future development accommodated by the proposed *General Plan 2030* would result in an increased water demand under a conservative, "worst-case" growth scenario that may exceed available water supplies after the year 2020 for normal year conditions, and would contribute additional demand in dry years for which supplies are currently inadequate. Estimated water demand associated with buildout accommodated by the proposed General Plan 2030 would not exceed existing supplies in a normal year, but supplies could become insufficient during the General Plan timeframe with consideration of all demand within the water service area. Thus, the increased water demand would be considered a significant impact. With implementation of the proposed *General Plan 2030* policies and actions to reduce water demand, promote additional water conservation, manage and protect water supplies, and develop a reliable, supplemental water source, such as desalination, the impact could be reduced to a less-than-significant level. However, despite the City's intent to pursue an additional water supply for dry-year conditions, there are some uncertainties associated with these future actions. The City acknowledges the inherent uncertainty about its ability to obtain all necessary approvals for, and completion of, the planned desalination facility. Furthermore, further reductions in surface water supplies due to implementation of wildlife protection strategies under an HCP may require that the City seek additional supplies and/or expansion of a desalination facility beyond that which is currently planned for drought supply. Therefore, the project impact on City water supplies during both normal and during dry year conditions is considered significant.

**TABLE 4.5-5**
**Proposed General Plan Policies & Actions that Reduce Water Supply Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| WATER DEMAND MANAGEMENT AND/OR REDUCTION | ◆ Reduce demand through Conservation: CC3.1.1 and promote conservation: CC3.11, CC3.11.1<br>◦ Implement urban water conservation BMPs: CC3.5.1<br>◦ Economic incentive with rates: CC3.9.1<br>◦ Offer home audit programs: CC3.5.3<br>◦ Financial incentives to install low-flow fixtures: CC3.5.4<br>◦ Provide info on onsite water catchment systems: CC3.5.5<br>◆ Updated landscaping guidelines and offer irrigation audits: CC3.11.2, CC3.11.3<br>◦ Parks Irrigation Audits: NRC1.1.3<br>◦ Offer water audit programs: CC3.5.3<br>◆ Promote maximum water use efficiency & implement urban water conservation measures: CC3.5, CC3.5.7<br>◆ Support gray water collection and reuse: NRC7.4.3<br>◆ Require high efficiency fixtures in City projects: NRC7.4.1, NRC7.4.2<br>◆ Audit water system to minimize losses: CC3.5.9<br>◆ Administer retrofit & landscaping standards for new development: CC3.5.6<br>◆ Regional collaborations and cooperation: CC3.5.10, CC3.5.11 |
| WATER MANAGEMENT PLANNING | • Implement IWP: CC3.1 & actions (conservation, contingency, desalination)<br>• Implement & update Urban Water Management Plan: CC3.6.1<br>• Provide annual updates to Council on status of water: CC3.6.2<br>• Confirm/adjust estimate of remaining supply to avoid oversubscribing the water system: CC3.6.3<br>• Complete Climate Risk Assessment: NRC4.5.1 |
| LAND USE DECISIONS | • Coordinate land use planning between jurisdictions served by City: CC3.6<br>• No new North Coast connections: CC3.8<br>• Allow extension of water service area only if approved by City Council and/or LAFCO: CC3.7<br>• Consider developing significance criteria for development projects: CC3.6.4 |
| MAINTAIN, PROTECT & MANAGE WATER SUPPLIES | • Ensure development does not lead to water source overdraft through environmental review process: LU1.2, LU1.2.1<br>• Secure and maintain water rights: CC3.3.3<br>• Safeguard existing surface and groundwater sources: CC3.3., CC3.3.4<br>• Meet or exceed regulatory drinking water standards: CC3.2 & actions |
| PROTECT & MANAGE GROUNDWATER SUPPLIES | • Safeguard existing surface and groundwater sources: CC3.3., CC3.3.4<br>• Manage City watershed lands to protect drinking water: CC3.3.1<br>• Monitor groundwater levels and quality: CC3.3.9<br><br>**CONTINUED ON NEXT PAGE)** |

**TABLE 4.5-5**
**Proposed General Plan Policies & Actions that Reduce Water Supply Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| | • Participate with the Soquel-Aptos Groundwater Management Alliance in cooperative efforts to assure the quality and production of groundwater resources: CC3.3.10 |
| DEVELOP WATER SUPPLIES | • Develop desalination plant: CC3.1.3, LU3.10.2 (Initiate GP amendments when desal site selected)<br>• Investigate new water sources: CC3.10<br>• Explore recycled water : CC3.10.1, CC4.3<br>• Provide adequate facilities for groundwater production: CC3.3.8 |
| WATER FACILITY MAINTENANCE | • Provide adequate pumping, treatment, and distribution facilities for production of groundwater of 1 mgd in normal years and 2 mgd during droughts: CC3.3.8<br>• Update Water Shortage Contingency Plan to respond to water shortages: CC3.1.2<br>• Maintain and improve the water system., including for fire flow, treatment plants, storage & distribution facilities CC3.4, CC3.4.1, CC3.4.3 |

**Mitigation Measures**

Implementation of the proposed *General Plan 2030* policies and actions to reduce water demand, promote water conservation, and support development of reliable supplemental water supplies will not reduce this impact to a less-than-significant level due to uncertainties regarding funding and implementation of desalination or another adequate alternative water supply, which may be needed to serve future growth. Therefore, the conservative conclusion is that the project impact on City water supplies during both normal and during dry year conditions is significant and unavoidable, even with implementation of proposed *General Plan 2030* policies and actions.

**Impact 4.5-2 Groundwater**
Adoption and implementation of the proposed *General Plan 2030* could indirectly result in increased development and population growth that would result in an increased demand for water supply. However, the draft *General Plan 2030* plan does not propose expansion of groundwater supplies, and with implementation of proposed policies and actions, groundwater supplies would not be depleted, nor would development accommodated by the plan interfere with groundwater recharge. This is considered a *less-than-significant impact*.

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased new development. However, the draft General Plan includes policies and a land use

map that support additional development, as summarized above. As indicated in the "Environmental Setting" section above, groundwater constitutes only approximately 4% of the City's entire water supply, but it has been a crucial component of the water system for meeting peak season demands and during periods of drought. The groundwater supply consists of three production wells in the Live Oak area outside of the City. The average annual production is approximately 160 MGY, but the system was operated at its full 2 mgd capacity at times during the 1987-1992 drought, during which time annual production reached 430 MGY. A replacement well is currently proposed and undergoing project-level environmental review by the City However, the City recognizes that the uncertain nature of groundwater conditions in the western portion of the basin is a serious issue and has limited future maximum extraction during all water years to 215 MGY or approximately 1 mgd (City of Santa Cruz Water Department, December 2010 and Kocher, personal communication, June 2011).

Development that would be accommodated by the *General Plan 2030* is located within City limits, which is primarily developed, and would not be located in areas of groundwater recharge. The groundwater basin utilized as part of the City's water supplies is located outside city limits.

The Draft *General Plan 2030* includes goals, policies and actions that set forth comprehensive measures to protect groundwater resources as summarized on Table 4.5-5. Policy CC3.3 and its supporting actions seek to safeguard existing surface and groundwater sources. Action CC3.3.8 supports provision of adequate pumping, treatment, and distribution facilities for production of groundwater of 1 mgd in normal years and 2 mgd during droughts, which are the historical levels at which the City's groundwater supplies have been utilized, and thus, they do not represent an increase in use or expanded production of groundwater sources. However, as indicated above, the City has limited maximum extraction to 1 mgd.

The City's *Urban Water Management Plan* indicates that there is a potential for saltwater intrusion to jeopardize the safe production of groundwater from the Purisima aquifer, but also notes that at this time, under normal operations, there appears to be no imminent threat of seawater intrusion, and the State Department of Water Resources has not identified the basin as overdrafted or projected to be overdrafted. Proposed Policy LU1.2 and Action 1.2.1 seek to ensure that development does not lead to water source overdraft through evaluation during the environmental review process. Additionally, proposed Action CC3.3.9 proposes monitoring groundwater levels and quality, and continued participation with the Soquel-Aptos Groundwater Management Alliance in cooperative efforts to assure the quality and production of groundwater resources (CC3.3.10). The goals of the agreement are to establish common basin management objectives, undertake joint research projects, and improve interagency coordination to assure the safe production and protect the quality of the underground resource (EKI, March 2011).

> **Conclusion.** Future development accommodated by the proposed *General Plan 2030* would result in an increased water demand, but there are no plans to expand groundwater pumping. Similarly, development accommodated by the proposed plan would not be located within groundwater recharge areas and would have no effect on recharge capabilities. Therefore, the project would not deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table. Implementation of

proposed policies and actions to monitor and protect groundwater resources would ensure that groundwater supplies are protected and not depleted in the future. Thus, this is a less-than-significant impact.

### Mitigation Measures

No mitigation measures are required as a significant impact has not been identified. However, revision of the following *General Plan 2030* action is recommended.

#### Recommended Revisions to the *Draft General Plan 2030*

Revise or add policies/actions as indicated below. Deleted text is shown in ~~strikeout~~ typeface, and new text is shown in underlined typeface.

CC3.3.8 Provide adequate pumping, treatment, and distribution facilities for the reliable production of groundwater of 1 mgd in all ~~normal~~ years. ~~and 2 mgd during droughts~~.

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# 4.6 PUBLIC SERVICES & UTILITIES

## 4.6.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Regulatory Overview
- Fire Protection Services
- Police Protection Services
- Parks and Recreation
- Schools
- Wastewater Treatment
- Solid Waste Disposal
- Electrical & Natural Gas Utilities

This section provide the environmental setting for each of the public services and/or utilities listed above. Section 4.6.3 of this chapter provides the impact analyses for each of these services.

### REGULATORY OVERVIEW

There are a number of state laws and regulations governing the provision of specified services. These are discussed below under the applicable service topic.

Pursuant to State law (Government Code Section 54773 et seq.) a Local Agency Formation Commission (LAFCO) was established in each county to promote the orderly development of local government agencies and efficient provision of services, to guide development away from prime agricultural land and to discourage urban sprawl. Pursuant to State law, LAFCOs must adopt a Sphere of Influence (SOI) for each governmental agency (including special districts), which is the probable physical boundary and service area of a local government. LAFCO is required to review and approve or disapprove governmental boundary change proposals with regards to spheres of influence, annexation, detachment, reorganization and/or extending services of a local agency.

The California Government Code Section 56430 requires LAFCOs to conduct Municipal Services Reviews (MSRs) that describe the municipal services provided by the agencies that are subject to LAFCO authority. MSRs are comprehensive studies designed to collect and analyze information about the governance structures and efficiencies of service providers, to estimate their ability to meet current and future service needs, and to identify opportunities for greater coordination and cooperation between providers. The Santa Cruz LAFCO completed its report in August 2005, and LAFCO approved the countywide service review in December 2007 (Resolution No. 2007-9). The review is a comprehensive overview of public services within Santa

Cruz County and includes the four cities and over 80 special districts providing municipal-type services such as water, wastewater service, fire protection, police protection, recreation and parks and solid waste. Pertinent findings are provided below for each service.

## FIRE PROTECTION SERVICES

### Regulatory Setting

The Uniform Fire Code published by the International Fire Code Institute and the Uniform Building Code (adopted in California as the California Building Standards Code) published by the International Conference of Building Officials both prescribe performance characteristics and materials to be used to achieve acceptable levels of fire protection. Amendments to the California Building Standards effective in 2008 increased the requirements for defensible space and require more fire-resistant building materials and design than prior codes in areas identified as having severe fire hazards.

The Federal Disaster Mitigation Act (DMA) of 2000 (Public Law 106-390), adopted by Congress in October 2000, requires state and local governments to develop hazard mitigation plans as a condition for federal grant assistance. The City of Santa Cruz adopted its "Local Hazard Mitigation Plan" in September 2007. The detailed five-year plan identifies potential natural and man-made hazards, assesses their likely risk, and includes mitigation methods to reduce risks. The potential hazards identified in the plan include wildfires. Mitigation measures proposed to address these risks generally include prioritized actions that include hazard event planning, emergency prepardedness coordination and education, facility upgrades, monitoring actions and other actions in response to specific hazards. The mitigation plan will be reviewed and updated every five years.

### Existing Facilities, Staff and Operations

The City Fire Department provides fire protection and emergency response for all areas within the City limits and maintains mutual aid agreements with other fire districts in the County, UCSC and California Department of Forestry (CDF) to provide fire protection to areas surrounding the City. The City serves the Paradise Park subdivision through an annexation to the service area that was approved by the Local Agency Formation Commission (LAFCO) of Santa Cruz County.

The City of Santa Cruz Fire Department operates out of three fire stations and houses its administrative functions at an office downtown. The three existing City fire stations are: Fire Station #1 at 711 Center Street, Fire Station #2 at 1103 Soquel Avenue, and Fire Station #3 at 335 Younglove Avenue. All facilities meet current building codes, including seismic retrofitting, fire sprinklers, and new electrical systems. The Department also maintains a Marine Rescue Headquarters (Station Four) on the Municipal Wharf.

The Department has five fire engines, one fire truck, and other related vehicles and equipment. The Department addresses its equipment and facilities needs through its planning efforts and budgeting process. The City's Fire Department is funded through the City's General fund.

The Department currently is staffed by 18 full-time firefighters, 12 fire engineers, 13 captains, three battalion chiefs, one fire chief, one fire prevention inspector and one deputy fire marshall, two division chiefs, one EMS program manager, and two administrative staff. Each shift has 15 assigned firefighters. The current level of firefighters represents approximately 0.75 firefighter (less than one) per 1,000 residents. The Fire Department has a minimum staffing standard of 12 firefighters and one battalion chief on duty per day.

The number of service calls received by the fire department in 2009 was approximately 6,850 calls. The majority of the calls are for non-fire emergencies, with about 80% of the calls being for medical assistance. Average response times from each of the three fire stations is approximately 3 to 3½ minutes. The Department's goal is to respond to emergency medical calls in less than five minutes 90% of the time and to fire emergency calls within eight minutes 90% of the time.

The existing number of fire stations and equipment/facilities are considered adequate to provide service throughout the City, except that the Department does not have a Training Facility, the construction of which is included as a recommendation in the Department's "Three Year Strategic Plan, 2009-2011." The Plan also recommends improvements to apparatus bays at Stations One and Three to accommodate new equipment, and investigation of constructing a new fire station at the present Station Two location and relocation of Station Four (Marine Rescue Headquarters). In the long-term the Department would like to relocate its downtown station and administration facilities in a combined facility with a Training Facility (Oliver, Ramos, personal communication, April 2011).

## Wildland Fire Hazard

In addition to fires within developed City areas, the City is subject to "wildfires" in open space preserves and parks adjacent to developed areas. Wildfires are typically caused by human activities and are affected by the type and amount of vegetation, weather, fuel and topography. Wildland fire may be defined as any unwanted fire involving outdoor vegetation. The wildland/urban interface refers to development that has occurred in or near open space areas (City of Santa Cruz, September 2007).

Wildland fires present a risk to open space areas within the City of Santa Cruz and to adjacent residential homes. There are five wildland/urban interface areas within the City, including three areas designated as mutual threat zones – Delaveaga Park, Pogonip, and the Arroyo Seco/Meder Canyon (City of Santa Cruz, September 2007). Additional areas of concern for these wildland/urban interface zones include the Arana Gulch greenbelt property and Moore Creek Preserve, as well as Lighthouse Field and other smaller wildland/urban interface areas throughout the City (Ibid.). Figure 4.6-1[1] identifies areas of the City that pose serious wildfire hazards due to vegetation type, vegetation build-up and topographic conditions.

Mutual threat zones are defined as areas where a wildfire would threaten property within the City of Santa Cruz fire service area, as well as property covered by another fire protection

[1] All EIR figures are included in Chapter 7.0 at the end of the EIR (before appendices) for ease of reference as some figures are referenced in several sections.

service. For major emergencies that require more resources than can be provided by a single agency, the City of Santa Cruz, Santa Cruz County, the University of California at Santa Cruz and the State of California have an extensive mutual aid and emergency coordination system. The mutual threat zones are delineated in the Wildland Pre-Suppression Plan, which is used to identify non-State responsibility areas in which any fire is considered a threat to adjacent State responsibility areas. These geographic areas are designated because of the urban development that has occurred along their canyons and the vegetation types that are considered to pose a significant wildfire hazard (City of Santa Cruz, September 2007).

Recent wildland fires in the City of Santa Cruz include the Meder Canyon Fire in 1990, which covered several acres and was consumed in 20 minutes. A number of other wildland fires in the Santa Cruz area including the Santa Cruz Mountains have been a long-standing concern to the City of Santa Cruz. Priorities in the event of a wildfire are life safety, preservation of property and resource conservation (City of Santa Cruz, September 2007). Despite the fact that there has not been a recent wildland fire within the city limits, areas targeted in the City's Hazard Reduction Plan as "likely" to have a wildland fire include the Arroyo Seco/Meder Canyon, DeLaveaga, Pogonip, Moore Creek area and Arana Gulch (Ibid.), although wildland fires can occur in other areas. Increasing use of these areas by residents, transient encampments with fires and young adults exacerbates the risks (Ibid.).

Most wildland fire areas are adjacent to residential or open space areas. Only a few public buildings are immediately threatened by wildland fires. Public buildings that are in threatened areas are the historic Pogonip clubhouse, DeLaveaga Golf Club and associated buildings, 35 schools and day care centers and some park structures. There are eight commercial or industrial structures in the threat zone (City of Santa Cruz, September 2007).

## POLICE PROTECTION SERVICES

The City of Santa Cruz Police Department provides crime protection and prevention activities throughout the City, including patrols, response to calls, education and community outreach. Its range of services include patrol, investigations, traffic, parks unit, street crimes unit, gang unit, dive team, hostage negotiation team, tactical team and School Resource office. The Department recently initiated an application for mobile phones/IPADs that allows citizens to download Crime Alerts and crime tips. The City has mutual aid agreements with county law enforcement (Sheriff's Office, Capitola, Scotts Valley, Watsonville, California Highway Patrol, State Parks and UCSC Police Departments).

The Police Department operates out of one police station/headquarters, located in downtown Santa Cruz. The Department is currently staffed by 94 authorized sworn officer positions, of which 88 are filled, 24 non-sworn (civilian) positions, including four community service officers, and three administrative staff. The current staff level represents a per capita ratio of approximately 1.57 sworn police officers per 1,000 city residents. A ratio of 1.5 officers per 1,000 population has been a national accepted minimum standard (Vogel, personal communication, April 2011). The Department has lost approximately ten sworn officers since 2000, and currently is understaffed by at least six officers (Ibid.).

The Department has divided the City into five main beats, and handled 78,132 calls in 2008 and 85,774 calls in 2009. The average response time is four minutes, 22 seconds, which is under the Department's target of four minutes, 30 seconds. Dispatching services are provided through the Santa Cruz Consolidated Emergency Communications Center.

The City of Santa Cruz funds its Police Department through the City's General Fund, grants, fees and service charges. The City also has a special revenue fund to account for state and federal grants received for police programs. The Department' existing facility and vehicles are adequate for the existing population; major capital improvements including replacing the building HVAC with an energy efficient system (Vogel, personal communication, April 2011).

## PARKS AND RECREATION

Santa Cruz offers residents and visitors a wide range of parks, open space, beaches, trails, and recreational opportunities. The City has responsibility for management, maintenance and operation of over 1,700 acres of parks and open space lands, and various community/recreational facilities, and oversees development of new parks and improvements within City-owned parks, open space, and community facilities. The City also manages the Heritage Tree Program, Urban Forest Program, as well as maintains street and median landscaping in public rights-of-way.[2] Within the City limits, open space and beaches are also provided on State-owned lands, including three State Park units and the University of California campus. Maintenance operations of existing City-owned parks and recreational facilities are funded from the City's General Fund.

### Regulatory Setting

#### STATE REGULATIONS

The Quimby Act (California Government Code §66477) was passed in 1975 and authorizes cities and counties to pass ordinances requiring developers to set aside land, donate conservation easements, or pay fees for park improvements. This provision of the State Subdivision Map Act enables cities and counties to require the dedication of land and/or payment of in-lieu fees for parks and recreation purposes as a condition of approval of a tentative map or parcel map subdivision. AB 1600 amended the Quimby Act in 1982 to hold local governments more accountable for imposing park development fees. The AB 1600 amendment requires agencies to clearly show a reasonable relationship between the public need for the recreation facility or park land and the type of development project upon which the fee is imposed. Cities and counties are required to show a strong direct relationship, or nexus, between the park fee exactions and the proposed project. Local ordinances must include definite standards for determining the proportion of the subdivision to be dedicated and the amount of the fee to be paid by the developer. AB 2936 was adopted as an amendment to

[2] Heritage trees and urban forest policies and actions are addressed in the BIOLOGICAL RESOURCES (Chapter 4.8) and AGRICULTURAL, FOREST AND MINERAL RESOURCES (Chapter 4.15) sections of this EIR.

the Quimby Act in 2002, and allows counties and cities to spend up to 10% of their Quimby Act fees to prepare master plans for park and recreation facilities every three years.

### LOCAL REGULATIONS

**Parks and Recreation Facilities Tax**. The City imposes a "Parks and Recreation Facilities Tax" (pursuant to Chapter 5.72 of the Municipal Code) on new residential development (including mobile homes) within the City, payable at the time of issuance of a building permit. The collected taxes collected are placed into a special fund, and "shall be used and expended solely for the acquisition, improvement and expansion of public park, playground and recreational facilities in the city" (section 5.72.100). The current fee is $3.00 per square foot of residential building. Projects that have dedicated land or fees in accordance with Municipal Code Chapter 23.28 (described below) are exempt from this tax.

**Public Dedications Pursuant to the California Subdivision Map Act**. Chapter 23.28 regulates public dedications, including parks and open space, enacted pursuant to the authority granted by the California Subdivision Map Act in accordance with the City General Plan. Land dedication shall be based on two acres/1,000 population for neighborhood parks and 2.5 acres/1,000 population for community parks. The current in-lieu fee is $3.00/square foot for each residential dwelling unit to be constructed in the subdivision. Where the residential dwelling unit square footage is not specified as part of the plans for the project, a fee of $4,780.00 per residential lot is required under the current regulations. Payment shall be at the time of the filing of the final subdivision or parcel map.

Pursuant to section 23.28.020.1 of the City's Municipal Code, dedication of land or payment of fee in lieu thereof, or both, may be a condition of approval of a final subdivision map or parcel map for park or recreational purposes. (Condominium conversions are exempt from dedication requirements.) The dedication shall be for usable open space that is composed of land that offers natural advantages for the type of facilities to serve the subdivision. A fee in lieu of such dedication shall be required, when no portion of the proposed usable open space is planned to be located within the limits of the subdivision. Only the payment of a fee may be required in the case of a subdivision of fifty or fewer parcels. Section 23.28.020.4 requires establishment of a permanent maintenance program for usable open space lands dedicated under these provisions of this title.

Pursuant to section 23.28.020.3, natural ravines and natural waterways or other natural areas within the boundaries of a subdivision shall be reserved for public purposes, such as recreation, stormwater disposal, etc., as provided by the General Plan and Coastal Land Use Plan through dedications or easements for public use. Pursuant to section 23.28.040 and in accordance with, the provisions of Article 3.5 of the Subdivision Map Act, the General Plan, and Coastal Land Use Plan, the city shall increase public access to the public natural resources in conjunction with the review of subdivisions of land.

## Parks, Community Facilities, and Recreational Programs

The City of Santa Cruz offers a range of neighborhood parks, community/regional parks, community facilities, and recreational programs. Most of these parks, facilities and programs are operated and maintained by the City Parks and Recreation Department. Some facilities

and programs are operated and organized in partnership with community organizations. These parks, facilities and programs provide recreational opportunities for residents and visitors of all ages and interests.

### NEIGHBORHOOD AND COMMUNITY/REGIONAL PARKS

**Neighborhood Parks**. Neighborhood parks serve the recreational needs of those living within the City's primarily residential neighborhood areas. Neighborhood parks provide recreational facilities such as children's play areas, playing fields, basketball and tennis courts, and picnic areas. Some of the City's community garden plots are also located within neighborhood parks. Community garden provide residents with a space to grow small scale vegetable gardens.

The City's standard is to provide neighborhood parks at a ratio of 2.0 acres per 1,000 people. The location of neighborhood parks is ideally within approximately one-half[3] mile of neighborhood areas. There are 23 existing neighborhood parks, as summarized on Table 4.6-1and shown on Figure 4.6-2, which total approximately 57 acres. There are approximately 45 acres of school playing fields, for a total of approximately 102 acres of neighborhood parks within the City. In accordance with the City's existing General Plan, neighborhood park acreages include both City and non-City managed lands such as public school playing fields. The City of Santa Cruz and City School Districts entered into a joint use agreement in 1963 that allow use of selected school playground facilities and indoor facilities to the City and use of City facilities by the school districts..

To meet increasing demand for off-leash dog use, the Parks and Recreation Department has also designated off-leash areas within neighborhood parks throughout the City. These areas may be fenced or designated through signage. The City has designated the following parks as being available to off-leash dog use:

- DeLaveaga Park (service road into Lower DeLaveaga Park): sunrise to sunset.
- Frederick Street Park: off-leash area from sunrise to sunset.
- Grant Street Park: within off-leash area from sunrise to sunset.
- Mitchell's Cove Beach: before 10AM and after 4PM.
- Pacheco Dog off-leash area: fenced area from sunrise to sunset.
- University Terrace Park: fenced off-leash area from sunrise to sunset.

**Community Parks**. Community Parks are designed to serve the entire community. They are generally larger than neighborhood parks and offer facilities such as athletic fields, group picnic areas, bike and skateboard parks, lawn bowling, bocce ball, community meeting/event facilities, swimming pools, and locations for outdoor special events. The City's standard for community/regional parks is 2.5 acres per 1,000 people. Ideally these parks are located within 1.5 miles of neighborhood areas.

[3] The draft General Plan 2030 indicates neighborhood parks should be within one-half of a mile (about five blocks).

There are six existing community parks, totaling approximately 366 acres within the City as summarized below and on Table 4.6-1, and shown on Figure 4.6-2.

- Depot Park (8.5 acres), which opened in 2005, presently features a full-size soccer field, a plaza/public art area, a wood ramp bike park, picnic areas, children's' play features, the rehabilitated historic Depot building used for community and recreational programs, a trail connection through the park to the beach area, restrooms, and parking lots. The Monterey Bay Marine Sanctuary Visitor Center will be developed within the southern portion of Depot Park, across the street from Monterey Bay and the Municipal Wharf. The Depot Park Master Plan also includes a future site for the Natural History Museum.
- Harvey West Park (55 acres) presently features ball fields, group picnic areas, a children's playground, two outdoor swimming pools, the Clubhouse/Scouthouse, Wagner and Kids cottages, a Park Rangers' facility, restrooms, and parking areas. The park also features trails through the woodlands, including a trail connection to the adjacent Pogonip trail system. In recent years the pool has been closed seasonally due to City budget constraints and most recently has been operated by a private entity on a limited basis.
- Lower DeLaveaga Park (35 acres) presently features two soft ball fields, a large turf area, a bocce ball court, a volleyball court, a children's playground, individual and group picnic areas, restrooms and parking lots. Branciforte Creek flows along the western edge of the park, with the forested hillsides of the DeLaveaga greenbelt property rising along the eastern boundary of the developed park. Trail entrances at the edges of the park connect to the trail system within the DeLaveaga greenbelt.
- DeLaveaga Golf Course (250 acres) is part of DeLaveaga Park and includes a golf course, clubhouse and other open space land used for passive recreation.
- San Lorenzo Park (13 acres) presently features an open turf area along the San Lorenzo River, a duck pond and stage, a lawn bowling facility, a children's' playground, paved trails, and a restroom. The turf area often serves as a location for outdoor special events.
- Ken Wormhoudt Skate Park AY Mike Fox Park (4 acres), located along the San Lorenzo River further to the south, features the Ken Wormhoudt Skate Park and a roller-hockey practice area. The 15,000 square foot concrete skate park includes a full pipe, bowls and street skating features.

**Regional Parks**. Regional parks serve the recreational needs of a regional population and are 150 acres in size or larger. They offer active and passive recreation with activities and amenities not found in neighborhood and community parks, such as large areas of open space, large picnic facilities, golf courses, lake boating, ball fields, multi-use trails. An accepted national standard for regional parks is 20 acres per 1,000 people. City residents are in close proximity to a number of regional parks, each offering an array of activities. These parks include: DeLaveaga Park (upper) and greenbelt preserves within the City, and nearby Henry Cowell and Wilder Ranch State Parks (see Figure 1-2). State and municipal beaches and the Yacht Harbor also offer recreational opportunities serving the regional community as further discussed below.

**TABLE 4.6-1: City Parks and Open Space Lands**

| TYPE | FACILITY | SIZE (in acres) |
|---|---|---|
| **Neighborhood Parks** | | |
| | ▪ Beach Flats Park – 122 Raymond St. | 0.3 |
| | ▪ Bethany Curve Greenbelt – Delaware to West Cliff | 2.6 |
| | ▪ Central Park – 301 Dakota St. | 0.2 |
| | ▪ Derby Park – 509 Woodland Way | 3.8 |
| | ▪ Frederick Street Park – 168 Frederick Street | 4 |
| | ▪ Garfield Park – 624 Almar Ave. | 1.8 |
| | ▪ Grant Park – 150 Grant St. | 2.4 |
| | ▪ John Franks Park – Marnell St. | 0.3 |
| | ▪ Laurel Park – 301 Center St. | 1 |
| | ▪ Lighthouse Neighborhood Park – Lighthouse Ave. | 1.7 |
| | ▪ Mission Plaza – 103 Emmet St. | 1 |
| | ▪ Moore Creek Overlook – Cypress St. | 0.12 |
| | ▪ Lower Ocean Street Park – 258-262 San Lorenzo Blvd. | 0.5 |
| | ▪ Ocean View Park – 102 Ocean View Ave. | 2.5 |
| | ▪ Rincon Park – 601 Chestnut St. | 0.1 |
| | ▪ Poets Park – 200 Raymond St. | 0.13 |
| | ▪ Rincon Park – 601 Chestnut St. | 0.1 |
| | ▪ Round Tree Park – 205 Nobel | 0.13 |
| | ▪ Star of the Sea – Frederick St. & Darwin St. | 2.1 |
| | ▪ Trescony – Trescony St. | 2 |
| | ▪ Tyrell Park – Santa Cruz Museum | 1.5 |
| | ▪ University Terrace – Meder Street | 8.5 |
| | ▪ West Cliff | 14.5 |
| | ▪ Westlake Park – Bradley Dr. @ Spring St. | 6 |
| | ▪ School Playing Fields [1] | 44.6 |
| | TOTAL ACRES (rounded) | 102 |
| **Community Parks** [2] | | |
| | ▪ Depot Park | 8.5 |
| | ▪ Harvey West Park | 55 |
| | ▪ DeLaveaga Park – Lower | 35 |
| | ▪ DeLaveaga Golf Course | 250 |
| | ▪ San Lorenzo Park – 137 Dakota St. | 13 |
| | ▪ Ken Wormhoudt Skate Park at Mike Fox Park | 4 |
| | TOTAL ACRES (rounded) | 366 |
| **Greenbelts & Open Space Lands with Recreational Uses** | | |
| | ❑ Arana Gulch – Agnes St. | 68.9 |
| | ❑ Arroyo Seco Canyon – Meder St. | N/A |
| | ❑ DeLaveaga Park – Upper (minus Golf Course) | 275 |
| | ❑ Jessie Street Marsh | 2.29 |
| | ❑ Moore Creek Preserve | 246 |
| | ❑ Neary Lagoon – 100 California St. | 44 |
| | ❑ Pogonip – 333 Golf Club Drive | 640 |
| | TOTAL ACRES (rounded) | 1,276 |

**CONTINUED ON NEXT PAGE**

**TABLE 4.6-1: City Parks and Open Space Lands**

| TYPE | FACILITY | SIZE (in acres) |
|---|---|---|
| **City-Owned Beaches** | | |
| | ❑ Main Street Beach | 26.4 |
| | ❑ Cowell Beach | 4.9 |
| | ❑ Wharf | 8.2 |
| | ❑ Mitchell's Cove | 0.4 |
| | ❑ Its Beach (west portions) | N/A |
| | TOTAL ACRES (rounded) | 40 |
| [1] School sites are given credit for ¾ of their field acreage at: Santa Cruz & Harbor High Schools; Branciforte and Mission Hill Middle Schools; Bay View, DeLaveaga, Loma Prieta, Gault, Branciforte & Westlake Elementary Schools; Pacific Collegiate School; Holy Cross<br>[2] Loch Lomond Park (100 Loch Lomond Way, Felton) provides recreational opportunities outside City limits. | | |

**Existing Park Deficiencies**. The City's desired ratio for neighborhood parks is to provide 2.0 acres of parkland per 1,000 people. Given an estimated current population of 58,982 (California Department of Finance, May 2010), a total of 118 acres of neighborhood parkland would be required to meet this level of service. Presently the City has approximately 102 acres of neighborhood parkland (including school play grounds). Thus, the City would require 16 additional acres of neighborhood parkland to meet the current desired level of neighborhood parks. According to the Parks and Recreation Department, recreational programming of services currently meets the community's demand. However, like many local jurisdictions, Santa Cruz experiences a shortage of athletic fields. At this point, no plans or funding exists to increase the number of facilities. Currently one one-half acre neighborhood park (Lower Ocean) is scheduled for construction. No others are currently programmed.

The City's desired ratio for community parks is to provide 2.5 acres of parkland per 1,000 people. Given the current population, a total of 148 acres of community parkland would be required to meet this level of service. The City presently has approximately 366 acres of community parklands, which exceeds the City's desired ratio.

The City of Santa Cruz is not a regional park agency; therefore, the City does not have a desired ratio for regional parks. The City also does not have a desired ratio for open space, but City does, however, provide a substantial level of open space parkland. Together, Pogonip, Arana Gulch, Upper DeLaveaga, Moore Creek Preserve, and Neary Lagoon total approximately 1,500 acres. This represents a ratio of 27 acres of open space per 1,000 people. (Open space and greenbelt lands are discussed further below.)

### COMMUNITY FACILITIES, RECREATIONAL PROGRAMS, AND EVENTS

Community facilities, recreational programs, and special events serve the needs and interests of individuals, neighborhoods, groups, and the community of Santa Cruz. Events, held at community facilities and park, attract both residents and visitors.

**Community Facilities**. Community Facilities provide locales for public events and reservable spaces for concerts, meetings, classes, and other events. In recent years, the City has

coordinated with community organizations regarding operation of some facilities due to City budget constraints. The City owns and maintains a number of community facilities that support social, recreational and special event programs as described below.

- The Civic Auditorium, dedicated in 1940, is located within downtown Santa Cruz. The auditorium provides space for concerts, expos, and meetings.
- Louden Nelson Community Center, located to the south of downtown adjacent to Laurel Park, serves as a multi-cultural center for classes, theatre, events, and recreational programs. The community center was originally constructed as an elementary school, but was later reopened as a City facility in the 1970s.
- The Beach Flats Community Center, presently operated by a community organization, provides programs and services for residents.
- The Harvey West Park Facilities include a community swimming pool and Clubhouse that offer reservable space for community and private events.
- The City-owned Natural History Museum in located within the Seabright neighborhood, on the edge of Tyrell Park overlooking Monterey Bay. The exhibits and programs are housed in the modified 1915 Carnegie library building. The Natural History Museum is presently operated by the Museum Association. A proposed new location for the museum is included in the Depot Park Master Plan.
- The Surfing Museum, also presently operated by the Santa Cruz Surfing Club Preservation Society, is located within the memorial lighthouse at Lighthouse Point.

A community/environmental education center is proposed for the historic Clubhouse in the Pogonip Master Plan but is presently unfunded.

**Recreational Programs**. Recreational Programs offered by the City Parks and Recreation Department are designed to be affordable and available to residents and nonresidents of all ages and interests. Activities include a variety of classes and outings, sports leagues, and programs for older adults. Classes and programs are held at various City parks, beaches, and community centers, and at other locations such as schools.

**Community Events**. Community Events offered by the City include a variety of cultural and recreational events attracting residents and visitors. Events sponsored by the City are often held in cooperation with organizations and private entities. Some of the events which have been sponsored by the Parks and Recreation Department over the years include music/art festivals, chowder cook-offs, and outrigger canoe races. The City Parks and Recreation Department also hosts cultural events in coordination with the Sister Cities Committee.

**Community Gardens**. Community gardens are public and privately owned lands used for small scale flower and vegetable gardens. These gardens—a specialized type of park—provide the community with food, greenery, and therapeutic and relaxing recreation. The gardens can be created on small, undevelopable parcels of land or as temporary uses on other parcels.

## Greenbelt and Open Space Lands

Open space lands provide wildlife habitat, protect natural resources, and offer opportunities for recreation, scenic views, and outdoor/environmental education. The City owns and manages over 1,500 acres of greenbelt and open space lands. The greenbelt properties (Arana Gulch, DeLaveaga, Moore Creek Preserve, and Pogonip) provide large acreages of open space and natural areas encircling the City's urban core. Open space and wetland areas within the City's central area include the San Lorenzo River corridor, Neary Lagoon, and Jessie Street Marsh. Moore Creek (east branch) and Arroyo Seco feature undeveloped canyons within the northwestern area of the City.

Within the City limits, State-owned lands also provide open space and protect natural resources. State Park units featuring open space include Natural Bridges State Beach (SB) and Lighthouse Field SB. Beyond the City limits to the west and north, Wilder Ranch State Park and Henry Cowell Redwoods State Park provide vast areas of open space. State parks are described in the following "Coastal Recreation" subsection. The University of California campus lands also feature areas of undeveloped open space. Antonelli Pond, a wetland area within the Moore Creek corridor, is owned and managed by the Land Trust of Santa Cruz County.

Management of natural resources and public use within the City's open space areas is guided by master or management plans. These plans provide a long-term vision for each open space area, including guidelines for protecting and enhancing natural and historic resources, and developing trails and other recreational uses.

### CITY-OWNED GREENBELT LANDS

In 1979, the City of Santa Cruz identified six properties along the City's boundaries as Greenbelt lands, totaling approximately 1,500 acres. With only DeLaveaga under City ownership at that time, the City embarked on an effort to acquire and protect 1,000 acres over the next 20 years. Today, the City-owned Greenbelt lands include DeLaveaga, Pogonip, Arana Gulch and Moore Creek Preserve. These sites and other natural areas are further described below.

***DeLaveaga,*** located on the City's northeastern boundary, was donated to the City and County as a public park in the late 1800s by Jose Vicente DeLaveaga. Today, the 525-acre upper DeLaveaga is owned and managed by the City of Santa Cruz. (Some parcels, however, are under state ownership as part of the State Armory). Habitat areas within DeLaveaga include oak woodlands, redwood groves, grasslands, coastal prairie, and the west branch of Arana Gulch creek. A Park Master Plan was prepared for DeLaveaga in 1960, which includes a broad range of proposed uses. The plan was not been updated.

Upper DeLaveaga features the municipal DeLaveaga Golf Course and Clubhouse, a disc golf course, an archery range, an approximately 8-mile network of multi-use trails, and parking areas. A gun range, which had been in existence for approximately 50 years, was closed to public use, and the site was remediated after lead contamination was identified. A Golf Course Master Plan was adopted by the City Council in 2003 and identifies improvements to upgrade the existing golf course, including improvements to the golf course, drainage system, and landscaping, and future construction of a new clubhouse.

***Pogonip*** is located approximately one mile north of downtown Santa Cruz between the University of California campus and the San Lorenzo River corridor. This 614-acre greenbelt was acquired by the City in 1989, and features coastal prairie, woodlands, creeks, springs and a reach of the San Lorenzo River known as Sycamore Grove. An adjacent 25-acre parcel, known as the Wavecrest "greenbelt" parcel, was later purchased by the City in 1997. Pogonip, once part of the Cowell Ranch landholdings, was extensively logged and features historic resources associated with the lime production industry (mid-to-late 18th century). The property also includes a rustic clubhouse, constructed in 1911 as part of the Casa del Rey Golf Course. The two-story Craftsman Bungalow style structure and meadow area were later used for polo grounds. Prior to City ownership, the clubhouse was also used as a private social club, but due to its deteriorated condition, the building has been closed since 1993.

The *Pogonip Master Plan,* adopted by City Council in 1998, addresses public access, recreational uses, historic resource rehabilitation and preservation, and natural resource management and protection. The Master Plan includes a trail system, rehabilitation of the historic clubhouse as a community facility, a permanent agricultural garden site for the Homeless Garden Project, and outdoor education areas. Limited parking within the lower and main meadow areas, minimal improvements to the one-lane access road to the clubhouse, and a Ranger facility are also addressed in the Master Plan. Dogs on-leash are allowed, but off-leash dog and off-trail use is prohibited. Specific uses identified in the plan include:

- A 9-mile trail system featuring both unpaved service roads and single-track trails open primarily to pedestrians.
- A multi-use trail (pedestrians, bicycles, horses) connector trail linking Henry Cowell Redwoods State Park, Pogonip and the University of California property.
- Rehabilitation of the historic clubhouse to serve as a staging area for educational programs, a meeting and retreat center, and a site for special events.
- Preservation and interpretation of the historic limekilns, roads and associated features.
- An outdoor education camp in the lower meadow and a nature/education area within Sycamore Grove.
- A permanent garden site for the Homeless Garden Project.

To date, the trail system has been implemented including a multi-use regional trail connection linking State Park lands, Pogonip, and the UC campus open space. Limited rehabilitation of the historic Clubhouse has occurred, but it remains closed to public access and complete rehabilitation for public use is presently unfunded. At present, the parking lots, outdoor education areas, and Homeless Garden agricultural garden have not yet been implemented.

***Arana Gulch,*** totaling 67.7 acres, is situated along the City's eastern boundary, to the north of the Santa Cruz Harbor. Acquired by the City in 1994, this greenbelt property features coastal prairie, riparian and oak woodland, seasonal wetlands, and the lower reaches of Arana Gulch Creek. Historically the property was used for cattle grazing and dairy operations. The current unimproved trail system, much of which existed prior to City ownership as cattle trails or unpaved access roadways, provides pedestrian, bicycle, and on-leash dog use access.

The *Arana Gulch Master Plan,* adopted by the City in 2006 and pending Coastal Commission approval, includes a trail system featuring paved multi-use trails (wheelchair accessible), a new west entrance and bridge spanning Hagemann Gulch, unpaved pedestrian trails, interpretive displays and overlooks. Most of Arana Gulch would continue to remain undeveloped, with a focus on management and protection of the sensitive habitat areas. No on-site parking or restrooms are proposed within the greenbelt property. Specific public use guidelines contained in the Master Plan are outlined below. The Master Plan also identifies three resource management areas for coastal prairie/Santa Cruz tarplant (30.2 acres), riparian and wetland areas, and Hagemann Gulch riparian woodland; resource management guidelines are included in the Master Plan for each of these areas.

- Provide multi-use wheelchair accessible interpretive trails connecting the surrounding neighborhoods to the Upper Santa Cruz harbor.
- Establish a new west entrance at Hagemann Gulch to provide a trail connection between Arana Gulch and the Seabright neighborhood. Provide a multi-use trail and bridge crossing over Hagemann Gulch, featuring an interpretive overlook.
- Provide a pedestrian-only interpretive loop trail encircling the coastal prairie.
- Improve the existing pedestrian trail along the western edge of the Arana Gulch Creek management area.
- Allow dogs on-leash on designated trails. Prohibit off-leash dog use and off-trail use to avoid impacts to tarplant populations and other plant and animal species.

***Moore Creek Preserve*** is located on the western edge of the City, north of Highway 1 and extending to the UCSC campus. This 246-acre natural area, acquired by the City in 1998, features the west branch of Moore Creek, coastal prairie, and oak woodlands. The State of California holds two conservation easements over the property. Numerous threatened and endangered plant and wildlife species have been documented within the Preserve. Historically the property was used for cattle grazing.

The *Moore Creek Preserve Interim Management Plan*, adopted by City Council in 2002, serves as a guide for management of the Moore Creek Preserve until preparation/approval of a long term Park Master Plan for the property. The State of California conservation easements include restrictions on various uses and activities. Existing interim uses include hiking trails (approximately 3 miles), cattle grazing, and study, preservation, enhancement and protection of native species and their habitat. Dogs are prohibited within the Preserve. The interim trail system is based primarily on trails and unpaved service roads which existed prior to City ownership and are largely a result of cattle grazing operations. No onsite parking, public access road, or restroom facilities are included in the Interim Plan. A coastal development permit was approved for construction of a bridge to mitigate existing trail impacts to Moore Creek. The *Interim Management Plan* also identifies three plant community resource management areas and addresses specific management of habitat areas for special status species.

### CITY-OWNED WETLANDS AND OTHER OPEN SPACE

The City owns and manages several other open space and wetland areas in the central area of the City. These include the San Lorenzo River, Branciforte Creek, Jessie Street Marsh, and Neary Lagoon. In the northwest area of the City, Arroyo Seco and Moore Creek (east branch) canyons provide undeveloped open space areas through residential areas.

***The San Lorenzo Riverway*** includes the lower reach of the River through central Santa Cruz, along the eastern edge of the downtown south to Monterey Bay. The river has been channelized since the late 1950s, with extensive native tree and shrub planting completed as part of the levee improvement project in the 1990s. Multi-use paved trails exist on the levee on both sides of the river, except for a short segment in the vicinity of the County Building north of Soquel Avenue.

Recreational opportunities include trail use, nature viewing, bird watching, and fishing. Public access is provided by a continuous paved pathway/service road, extending approximately 2.5 miles on each levee from Highway 1 southward, provides public access. A new pedestrian-bicycle path was developed that extends north from the northern edge of the western levee, under Highway 1 and connects to the Tannery Arts Project residences.

Improved public access is addressed in the *San Lorenzo Urban River Plan*. This document is the outcome of a planning process initiated by City Council in 1999 to update plans for the San Lorenzo River, Jessie Street Marsh, and Branciforte Creek. The plan serves as a guide for restoring and managing natural resources, riverfront development, and public access improvements for the lower San Lorenzo River. It includes conceptual ideas to promote river-oriented development, site specific recommendations for public areas along the river, and restoration recommendations.

***Neary Lagoon*** is a City-owned wetland and natural area situated in the central part of the City. Acquired by the City in 1967, the 14-acre lagoon and surrounding riparian and woodland habitat within the management area total 44 acres. Neary Lagoon was originally an oxbow of the San Lorenzo River that was gradually isolated from the main river channel and reduced dramatically in size over the past century.

The Neary Lagoon Management Plan, adopted by City Council in 1992, is a comprehensive guide integrating previous documents prepared. The Management Plan addresses public access and use, hydrology, water quality, vegetation management and habitat restoration, and wildlife and fishery management. Public access includes an interpretive trail system, nature observation areas, interpretive exhibits, and recreational facilities within designated areas. The access is designed to encourage pedestrian use, including wheelchair accessibility. Most of the public use components of the plan have been implemented. Public use guidelines contained in the Management Plan discourage bicycle riding except on designated through trails, and dogs are prohibited within the management area.

***Jessie Street Marsh*** is a City-owned wetland and open space located just to the north of the San Lorenzo River mouth. Historically, Jessie Street Marsh was part of a large tidal estuary open to the San Lorenzo River. After construction of the river levees, the tidal flows were blocked.

Freshwater continues to flow into the marsh area from storm water runoff and springs along the bluff.

The marsh area presently has informal unimproved pathways, with no developed site amenities. A developed trail descends down the bluff from Ocean View Park, along the southern Jessie Street marsh area, to East Cliff Drive. The *Jessie Street Marsh Management Plan*, adopted by the City Council in 1999, was prepared to provide a long-term plan to preserve and enhance the natural resources of the marsh, improve water quality, manage flood waters, and provide appropriate public access. This plan, not yet implemented due to budget constraints, includes recommendations for trails, interpretive signs, overlook and nature viewing areas and improved access to adjacent Ocean View Park to the northeast. An overview of proposed public access management actions:

- Construct a bridge over the marsh channel and a boardwalk adjacent to the marsh plain near Lemos Avenue and Jessie Street.
- Construct footpaths within the upper and lower marsh areas, including a connection to East Cliff Drive.
- Construct a new trail and steps to Ocean View Park and improve the existing trail connection to the adjacent park.
- Construct gates, fencing and install boulders to inhibit inappropriate public access.
- Install interpretive signs to create a nature walk experience.

***Branciforte Creek*** flows along the boundary of Lower DeLaveaga Park and continues southward, under Highway 1, to its confluence with the San Lorenzo River at the southern end of San Lorenzo Park. The lower one-mile reach of Branciforte creek was channelized in a concrete flood control channel in the late 1950s. From approximately Market Street northward, Branciforte Creek remains a natural channel with native riparian vegetation on the stream banks.

Public trail access is provided along sections of the service access road along the channel. The confluence of the creek and the San Lorenzo River is recognized as an important bird watching area and overlook area. Much of the natural channel is located within private residential properties, though public access is provided along the natural creek channel within Lower DeLaveaga Park. The *San Lorenzo Urban River Plan* includes recommendations for enhancing the creek corridor, improving water quality, and providing interpretive signage.

***Arroyo Seco Canyon*** extends from University Terrace Park/Meder Street southward to just north of Mission Street/Highway 1. An intermittent creek, City sewer line and utility access route extend along the bottom of the canyon. The access route, maintained by the City's Public Works Department, is also used as a trail by residents. Private residential parcels extend into the undeveloped canyon.

***Moore Creek Canyon (East Branch)*** extends from the UC campus lands southward, paralleling Western Drive, to its confluence with the west branch of Moore Creek just north of Highway 1. This corridor features an intermittent creek flowing through a steep-sided canyon bordered by residential areas. The east branch corridor includes private and public parcels.

The *Moore Creek Corridor Access and Management Plan* (1987) includes recommendations for public access, land dedication, open space easements, and resource management. The plan's goal is to provide public access in a manner compatible with private property, existing development, and the constraints of the natural setting. Presently, there is limited public access within the eastern Moore Creek Canyon.

### STATE-OWNED OPEN SPACE

Two State Park units, Lighthouse Field and Natural Bridges State Beaches, offer open space and recreational opportunities within the City limits. The UC campus also features large open space areas and trails accessible to the public. State Park General Plans are the primary management documents for State Park units.

***Lighthouse Field State Beach (SB)*** is a 36-acre open space situated along Monterey Bay, featuring coastal terrace, ocean cliffs, and Its Beach. The open space features grassland (primarily non-native), willows, Monterey cypress trees, and eucalyptus groves. The State of California acquired the field area and coastline west of Lighthouse Point in 1978. A 30-year agreement between the State/City/County regarding local management and maintenance of Lighthouse Field SB expired and has not been extended. At present, this State Park unit is managed and operated by California State Parks.

The *Lighthouse Field State Beach General Plan* (1984) identifies two zones within the property. The 32-acre Field Zone is designated as a low intensity use area, featuring trails and open space. The Coastal Zone is designated as a moderate to high-intensity use area, featuring coastal access, the Surfing Museum, a restroom and maintenance facility, picnicking, and parking areas. Use is restricted to day use only, with no overnight parking or camping. The parking lots and restroom/maintenance facility that presently exist were developed further to the south, toward Lighthouse Point, than depicted in the General Plan conceptual development diagram. A parking area along Pelton Avenue that is identified in the Plan has not been constructed. This eucalyptus/cypress grove area is now recognized as overwintering Monarch butterfly habitat.

***Natural Bridges State Beach (SB)*** is a 65-acre open space and wetland situated on Monterey Bay, on the western boundary of the City. Primary resources include the natural rock bridge, a beach, Monarch butterfly over wintering habitat, and the Moore Creek wetland. The initial state park acreage was established in 1933, with additional lands acquired later.

Public facilities identified in the *Natural Bridges State Beach General Plan* (1992) include a visitors' center, picnic areas, trails and walkways, restrooms, and day-use parking areas. The main entrance is presently located at the terminus of West Cliff Drive. The plan proposes developing a new main entrance off of Delaware Avenue, which is the location of the original entrance in the 1950s. Two preserves are designated within Natural Bridges State Beach: the Monarch Butterfly Natural Preserve and the Moore Creek Wetland Preserve.

***UCSC – the University of California Santa Cruz*** is a 2,020-acre campus, of which approximately 53% is located within city limits. The campus offers amenities for active and passive recreation on the main campus, and the north and upper campuses currently are undeveloped and in open space. Active recreation facilities include playing fields and a swimming pool. The main campus and recreational facilities are open to the public during daylight hours for walking, bicycling,

and visiting campus facilities, such as the Arboretum and Chadwick Gardens. Trails throughout the campus, designed primarily to provide access to campus facilities, also provide recreational opportunities for walking and hiking. The "Cowell Wilder Regional Trail" (open to hikers, bicyclists and equestrians) is located on the north campus (outside city limits) and provides a connection to between Wilder Ranch State Park to the west and Pogonip and Henry Cowell State Park to the east (University of California Santa Cruz, September 2006 – DEIR, Volume Two).

## Trails

Santa Cruz has an extensive trail network, featuring paved and unpaved pathways connecting open space, parks, the coast, downtown, and neighborhood areas. This network includes multi-use trails, some of which are wheelchair accessible, and hiking only trails. Together, the City-owned greenbelt lands, open spaces and coastal pathways provide over 50 miles of trails. In addition, State Parks, the UC campus lands, and the Santa Cruz Harbor offer many more miles of publicly accessible trails. The paths and trails support walking, jogging, hiking, and bicycling. The city and regional trail systems provide not only recreation, but access to and connections between various parks, recreation facilities, and natural and urban areas. Promenades and hiking trails (including those along the Beach/Boardwalk, San Lorenzo River Corridor, Downtown, and West Cliff Drive) provide opportunities to enjoy unique natural and historic areas. The network of walkways, bikeways, and trails will become increasingly important for

The Santa Cruz Circle Trail concept focuses on establishing a continuous trail route through the City's greenbelt lands, along the San Lorenzo River, the coastline and the harbor, to create a continuous pathway encircling the City and linking downtown. Santa Cruz also features several regional trail connections, including the California Coastal Trail and Henry Cowell Redwoods State Park/Pogonip/UCSC/Wilder Ranch State Park regional trail.

The Santa Cruz County Regional Transportation Commission (SCCRTC), in association with other regional agencies, envisions the planning and construction of a Monterey Bay Sanctuary Scenic Trail (MBSST). The MBSST Network will be a multi-use system of bicycle and pedestrian facilities that allows the public to enjoy and experience the Monterey Bay National Marine Sanctuary from the vantage point of the shoreline. The master planning process is in progress, and it is envisioned that some of the recent local coastal trail projects will be part of this network, such as the Wilder Ranch Bicycle and Pedestrian Path, the Watsonville Slough Trails, the Monterey Rail/Trail, and the Monterey Bay Sanctuary Scenic Trail. Specific alignments have not yet been developed in the City of Santa Cruz.

## Coastal Recreation

The City's coastline along Monterey Bay, totaling approximately 4.6 miles, is a prime recreational destination for residents and over two-million visitors a year. Coastal recreation offers opportunities for a variety of activities, including: ocean and wildlife viewing; beach/coastside walking, jogging and bicycling; surfing, bodyboarding, swimming, and standup paddling; fishing; kayaking and boating; windsurfing/kiteboarding; sunbathing; and picnicking. Coastal facilities and visitors centers also offer educational opportunities about the coastal and marine environment.

Coastal recreation within the City of Santa Cruz includes City and State beaches, coastal pathways, the Municipal Wharf, Santa Cruz Surfing Museum, Santa Cruz Harbor, and the Boardwalk Amusement Park. Coastal-oriented environmental education facilities include the Seymour Marine Discovery Center at UCSC's Long Marine Laboratory and the future Monterey Bay National Marine Sanctuary Visitors' Center.

### CITY BEACHES AND THE MUNICIPAL WHARF

City-owned and managed beaches include Main Beach, Cowells Beach, the western portion of Its Beach, and Mitchell's Cove. Main Beach is a broad expanse of sand extending from the San Lorenzo River mouth west to the Municipal Wharf. Volleyball courts are available on Main Beach. Cowells Beach lies to the west of the wharf, extending to the West Cliff Drive bluff. Both beaches are heavily used by visitors and residents during summer months for sunbathing, wading and swimming. Cowells Beach is also a popular surf break with access from the beach and a stairway along West Cliff Drive. The City of Santa Cruz provides seasonal life guard towers and service on Cowells and Main Beach. Dogs are prohibited by the City on Main Beach and Cowells Beach.

On the coastal bluff along West Cliff Drive, a pedestrian/bicycle path extends from Cowells Beach to Natural Bridges State Beach. Situated along West Cliff Drive, two smaller sandy beaches are accessible by stairways. Its Beach, located to the west of Lighthouse Point, is owned by the City and State. The access stairs are located on State Parks property. Further to the west is Mitchell's Cove, which is open to off-leash dog use during certain hours.

Stairways along the West Cliff Drive pedestrian/bicycle path also provide access to popular surfing breaks, including Steamer Lane and Mitchell's Cove. Stairs are located (east to west) at Pelton Avenue next to the Surfer Statute, Steamer Lane, Its Beach and Mitchells Cove. Other surfing breaks along West Cliff Drive are not accessible by constructed stairways.

Lighthouse Point, owned and managed by the City, features the Surfing Museum which is located within the Abbott Memorial Lighthouse. The Point offers an overlook of the Steamer Lane surfing area and opportunities for viewing sea lions, otters, migrating whales, and marine birds. A grassy area at Lighthouse Point is used for informal play and picnicking, and special events.

The Municipal Wharf, constructed in 1914, extends 2,700 feet into Monterey Bay and separates Main Beach from Cowells Beach. Popular with visitors and residents, the wharf features public walkways, overlooks, seating areas, interpretive exhibits, restaurants, shops, kayak and boat rentals, and parking areas. Nature viewing and fishing are also popular activities.

### STATE BEACHES

Seabright Beach is part of the Twin Lakes State Beach park unit. This wide beach extends from San Lorenzo Point southward to the west jetty of the Santa Cruz Harbor. Access to the beach is provided at the end of Cypress Avenue, a stairway at Third Avenue, and from the Harbor. A restroom is located at the Cypress Avenue entrance. Portable lifeguard towers are installed seasonally. The *Twin Lakes State Beach General Plan* (1992) plan proposes a year-round lifeguard facility and a new restroom between Third Avenue and the jetty. Popular activities include sunbathing, wading and swimming, beach walking/jogging, picnicking, and fires within designated rings. Dogs are restricted to on-leash use only.

A sandy cove beach located within Natural Bridges State Beach is popular for sunbathing, wading and swimming, tide pool visitation and surfing. Its Beach (eastern portion) is part of Lighthouse Field State Beach. This small pocket beach varies in size depending on the season and tides. Popular activities include sunbathing, wading and bodyboarding. Dogs are restricted on on-leash use only. The sandy beach area along the Santa Cruz Boat Harbor is owned and managed by the Port District. To the east within the County, the Twin Lakes State Beach also includes smaller sand beaches.

## SCHOOLS

### Regulatory Setting

Local school districts are empowered under state law to impose school impact fees, which are collected by local governments at the time of building permit issuance. In 1998, the California State Legislature enacted SB 50, which made significant amendments to existing State law governing school fees. SB 50 prohibited state or local agencies from imposing school impact mitigation fees, dedications, or other requirements in excess of those provided in the statute. Government Code Section 65995(e) provides that where payment has been made to a school district in accordance with the school fee program that payment is considered full mitigation for school impacts. The legislation also prohibits local agencies from denying or conditioning any project (including a general plan) based on the inadequacy of school facilities.

Section 23.28.030 of the City's Municipal Code regulates dedication of land as a condition of approval of a final subdivision map in accordance with the provisions of Section 66478 of the Map Act.

### Schools and Enrollments

Schools and educational services are provided to City residents by the Santa Cruz City Schools District (SCSD), as well as a number of private schools, for grades K through 12. SCSD is composed of two separate districts: the Elementary District (K-6) and the High School District (7-12), governed by a common board and administration. The Elementary District draws students from the city of Santa Cruz and includes four K-5 schools, one K-6 school and two 6-8 schools serving 2,624 students in grades K-6 (City of Santa Cruz Elementary and High School District, June 2010).

The High School District encompasses much of the northern portion of Santa Cruz County drawing its student population from the communities of: Davenport, Bonny Doon, Scotts Valley, Santa Cruz, Live Oak, Soquel and Capitola. The secondary District includes two middle schools (grades 6-8), three comprehensive schools, a continuation school, an independent studies program and a K-12 home study program with a combined enrollment of 4,217 students (City of Santa Cruz Elementary and High School District, June 2010).

Table 4.6-2 identifies school capacities and projected enrollments. It should be noted that Soquel High School and Delta Charter School are not located within the City. The Branciforte Small Schools campus includes the Alternative Family Education, Ark Independent Studies, Costanoa Continuation School, and Monarch Elementary School. The existing combined

enrollment for the Santa Cruz City Schools is 6,841 students based on data in the District's annual budget (Santa Cruz City Schools, June 2010). Delta Charter Show (grades 9-12, located outside City limits) serves 190 students (Ibid.). The enrollment numbers in Table 4.6-2 were provided by the School District during the preparation of this EIR.

**TABLE 4.6-2**
**School Capacities & Projected Enrollments**

| School | Capacity | Projected Enrollment |
|---|---|---|
| ***Elementary Schools*** | | |
| ▪ Bay View Elementary | 604 | *547* |
| ▪ Delaveaga Elementary | 641 | 633 |
| ▪ Gault Elementary | 480 | 450 |
| ▪ Westlake Elementary | 604 | 584 |
| *SUBTOTAL* | *2,329* | *2,214* |
| ***Middle Schools*** | | |
| ▪ Branciforte Middle | 651 | 471 |
| ▪ Mission Hill Middle | 690 | 606 |
| *SUBTOTAL* | *1,341* | 1,077 |
| ***High Schools*** | | |
| ▪ Harbor High | 1,155 | 995 |
| ▪ Santa Cruz High | 1,362 | 1,137 |
| ▪ Soquel High | 1,447 | 997 |
| *SUBTOTAL* | *3,964* | *3,129* |
| ***Branciforte Small Schools*** | *517* | 469 |
| **TOTAL ALL GRADES** | **8,151** | **6,889** |

**SOURCE:** Santa Cruz City Schools

The Santa Cruz City Elementary and High School Districts currently charge school impact fees. In justification studies conducted in 2006, it was indicated that enrollment in the Elementary School District had exceeded its facility capacity of 2,028 students for K-6 grades and would continue to exceed facility capacity through the 2015-16 school year. Similarly, the High School District also had exceeded its facility capacity of 4,638 students for 7-12 grades.

## WASTEWATER TREATMENT AND COLLECTION

### Regulatory Setting

#### FEDERAL AND STATE REGULATIONS/REQUIREMENTS

The Clean Water Act (CWA) regulates the discharge of pollutants to waters of the United States from any point source, enacted in 1972. The California State Water Resources Control Board (State Board) and the nine Regional Water Quality Control Boards (RWQCB) have the authority in California to protect and enhance water quality, including administration of the National Pollutant Discharge Elimination System (NPDES) permit program for discharges, storm water and construction site runoff. The discharge of treated wastewater is included in the NPDES program. Wastewater systems are closely regulated for health and environmental

concerns. The RWQCB regulates operations and discharges from sewage systems through the NPDES permit.

Federal, state and local regulations are enforced by the City of Santa Cruz through permitting, monitoring and inspections of Significant Industrial Users (SIU). SIUs are defined in accordance with the Code of Federal Regulations 40 CFR 403.3 (t) as:

- All industrial users subject to Categorical Pretreatment Standards, or
- Any other user that has any one or more of the following characteristics:
  - An average discharge flow of equal to or greater than 25,000 gallons per day of process wastewater to the wastewater treatment facility (WWTF),
  - Contributes a process wastestream which is 5% or more of the average dry weather hydraulic or organic capacity of the WWTF,
  - Has a reasonable potential to adversely affect WWTF operations, or
  - Violates any pretreatment standard or requirement (in accordance with 40 CFR 403.8 (f) (6)) (City of Santa Cruz website: "Industrial Waste Discharge Program").

#### LOCAL REGULATIONS/REQUIREMENTS

Chapter 16.08 ("Sewer System Ordinance") of the City of Santa Cruz Municipal Code regulates discharge to sanitary sewer and requires that all wastewater be discharged to public sewers, with the exception of graywater as allowed by Municipal Code Chapter 16.08. Septic tanks and cesspools are not allowed within city boundaries except as specified for limited conditions in Chapter 6.20 of the Municipal Code.

The Monterey Bay Unified Air Pollution Control District's Rule 216 requires any entity seeking to obtain an Authority to Construct or a Permit to Operate for a Wastewater or Sewage Treatment facility to obtain a permit from the District. The purpose of this Rule is to ensure that the projected served population of a Wastewater or Sewage Treatment facility is consistent with the Air Quality Plan as approved by the Monterey Bay Unified Air Pollution Control District for addressing the current State Implementation Plan requirements for maintaining federal and state ambient air quality standards.

## Wastewater Treatment

#### OVERVIEW

The City of Santa Cruz owns and operates a regional wastewater treatment facility (WWTF), located on California Street adjacent to Neary Lagoon, that provides secondary level of treatment. The City treats sewage from domestic and industrial sources and discharges the treated effluent into the Pacific Ocean under the provisions of a waste discharge permit (NPDES No. CA0048194) issued by the California RWQCB, Central Coast Region (Order No. R3 - 2005 - 0003). Monterey Bay, into which the region's treated wastewater is disposed, was designated in 1992 as a National Marine Sanctuary. Wastewater influent and effluent characteristics are carefully monitored for compliance with state water quality requirements. The City also participates in a regional receiving water monitoring program with other dischargers in the Monterey Bay area (City of Santa Cruz Water Department, February 2006).

### SERVICE AREA

The City of Santa Cruz WWTF serves a population of approximately 130,000 in the cities of Santa Cruz and Capitola and parts of unincorporated Santa Cruz County (see Figure 4.6-3). In addition to the City of Santa Cruz, the WWTF also serves the Santa Cruz County Sanitation District and Community Service Areas (CSA) 10 and 57 as further described below. The City also provides capacity for the City of Scotts Valley to discharge its treated wastewater into the Pacific Ocean via the City's discharge. The City of Santa Cruz accounts for its wastewater system as an enterprise activity, primarily relying on service charges for funding (Local Agency Formation Commission of Santa Cruz County, June 2005).

The Santa Cruz County Sanitation District provides wastewater collection service for the City of Capitola and the unincorporated communities of Aptos, Soquel and Live Oak. The District receives periodic inquiries regarding sewer service in the La Selva Beach area due to septic problems in that area, but that area lies outside its current sphere of influence (Local Agency Formation Commission of Santa Cruz County, June 2005).

County Service Areas 10 and 57 (Rolling Woods and Graham Hill) are also served by the City's WWTP. CSA 57 serves the Woods Cove subdivision off Graham Hill Road; the service area encompasses 0.1 square miles and has a current service population of 14 (7 connections). The area is expected to reach a population of 120 by 2015 as a result of buildout of the approved 60-lot Woods Cove subdivision.[4] CSA 10 serves a portion of the developed Rolling Woods subdivision also located off Graham Hill Road (Local Agency Formation Commission of Santa Cruz County, June 2005).

### TREATMENT LEVELS AND PLANT CAPACITY

**Treatment Process.** The City's WWTF was upgraded in 1998 to provide secondary treatment in order to meet state and federal waste discharge requirements. The City's treatment plant currently produces wastewater of a quality that would be classified as Disinfected Secondary-23. The treatment process consists of a series of steps, including screening, aerated grit removal, primary sedimentation, trickling filter treatment, solids contact, secondary clarification, and ultraviolet disinfection.

The City's treated wastewater is potentially suitable for some agricultural applications and for limited public access irrigation. However, the level of treatment is not sufficient for general irrigation or unrestricted use on playgrounds, parks, schoolyards, etc. Additional treatment above that currently provided would be needed to meet the state public health and safety requirements for these uses. In addition to the treatment upgrades, a distribution system, including pumps, meters, storage facilities, and separate piping would be required to convey the recycled water to customers (City of Santa Cruz Water Department, February 2006).

[4] The Board of Supervisors approved the Tentative Map on November 27, 1996. Subsequent to that, the County did supplemental environmental review to consider the developer's request to change from onsite sewage treatment to a transmission main to the City of Santa Cruz. In September 1998, the County filed a negative declaration and the County approved the revised sewer option on October 20, 1998 (County Application Number 98-0121) (McCormick, Santa Cruz LAFCO, personal communication, October 2009).

**Treatment Capacity.** The WWTF has a permitted wastewater treatment capacity of 17.0 million gallons per day (mgd) (City of Santa Cruz, 2009). In 2009, the WWTP treated 2.84 billion gallons of wastewater effluent at an average daily rate of 9.2 mgd (Ibid.). Daily dry weather flow averaged 8.5 mgd for June, July and August. With the closure of businesses within the city over the last 10 years (including, Lipton, Wrigley, Salz Tannery, and Texas Instruments), the amount of wastewater treated at the facility has decreased over that time period. Approximately 150 acre-feet per year (0.2 mgd) of treated water is retained for use at the treatment plant (Local Agency Formation Commission of Santa Cruz County, June 2005). The plant also treats excess dry weather flow of approximately ½ mgd from Neary Lagoon, typically from April through October.

The Santa Cruz County Sanitation District has treatment capacity rights of 8 mgd at the City of Santa Cruz WWTF. The City contributes approximately 5.0 mgd with a remaining capacity of 4.0 mgd. The Sanitation District contributes 5.5 mgd with a remaining capacity of 2.5 mgd. Approximately 50% of the wastewater treated at the plant is generated within the City of Santa Cruz. The total remaining treatment plant capacity, therefore, is 7.5 mgd.

#### WWTF MAINTENANCE & IMPROVEMENTS

The agreement between the Sanitation District and the City stipulates that the District shall pay 8/17 (47%) of the project costs for treatment modifications, while operational and maintenance costs are split in proportion to the total flow, Biological Oxygen Demand (BOD) and Suspended Solids (SS) actually discharged[5] by each agency (Local Agency Formation Commission of Santa Cruz County, June 2005).

The WWTF has been upgraded several times since 1928 when the plant began operations (City of Santa Cruz, 2007-Annual Report). The WWTF was upgraded in 1998 to provide a secondary biological treatment system consisting of trickling filters/solids contact tanks to improve effluent quality and satisfy federal requirements and the California Ocean Plan. According to the City's website[6], other major accomplishments at the WWTF in the last five years include:

- Completion of a photovoltaic system.
- Integration of a 1.3-megawatt cogeneration system into the facility power grid.
- Completion of a Carbon Absorption Odor Control System.
- Implementation of staffing reorganization to optimize plant efficiency.

## Treated Effluent Disposal

The treated effluent is disposed into the Monterey Bay via a deep ocean outfall constructed in 1987. The outfall extends 12,250 feet on the ocean bottom and terminates one mile offshore at a depth of approximately 110 feet below sea level. A 1,200-foot diffuser at the end of the

[5] Flows are measured daily and monthly averages are prepared. SS are measured daily and BOD is measured weekly.

[6] http://www.ci.santa-cruz.ca.us/pw/index.html, "Wastewater Treatment Facility."

pipe provides an initial dilution of greater than 139 parts seawater to one part wastewater (City of Santa Cruz Water Department, February 2006).

As previously indicated, the City of Scotts Valley discharges its treated effluent via the City's ocean outfall. The Scotts Valley Wastewater Treatment Plant has a permitted capacity of 1.5 million gpd and treats water to secondary and tertiary levels. Secondarily treated effluent that is not used for recycled water is transmitted via a main to Santa Cruz and discharged to the ocean through the outfall shared with the City of Santa Cruz.

### Wastewater Collection

The City of Santa Cruz wastewater collection system serves approximately 15,000 connections. The collection system includes 23. The City maintains over 160 miles of sewer pipeline ranging in size from 6 to 54 inches in diameter. The City has a hydraulic model for the sewer system, and continues to focus on collections system projects that reduce infiltration and inflow into the system (Wolfman, personal communication, April 2011).

The City addresses infrastructure needs during the annual budgeting process. The City's proposed 2011-2012 Capital Improvement Program includes a number of projects for improvements to the wastewater system. In addition to rehabilitation and replacement projects, the CIP includes a number of projects where closed circuit TV will be used to identify problem areas and improve maintenance and repairs. The CIP also includes funding for replacing worn and obsolete equipment, and improving automation at the wastewater treatment plant. The CIP is reviewed and adopted annually (Local Agency Formation Commission of Santa Cruz County, June 2005).

## SOLID WASTE DISPOSAL

### Regulatory Setting

The City's landfill operation is required to comply with the regulations, plans, and permits required by the California Integrated Waste Management Board and California Regional Water Quality Control Board, California Air Resources Board, and the Monterey Bay Unified Air Pollution Control District.

The California Integrated Waste Management Act of 1989 (AB 939) (Chapter 1095, Statutes of 1989, et seq.) was adopted in an effort to improve planning for solid waste facilities and reduce the volume and toxicity of solid waste that is disposed. The act requires each of the cities and unincorporated portions of counties throughout the State of California to divert 25% by 1995 and 50% by the year 2000 of the solid waste tonnage that was disposed in 1990. It also requires local governments to prepare and implement plans that would improve waste resource management by integrating solid waste management with source reduction, reuse, recycling, and composting measures.

## City of Santa Cruz Solid Waste Collection and Disposal

Solid waste collection and disposal, including recycling services, are provided by the City of Santa Cruz to residents, businesses and institutions within the City's boundaries, is provided at the Resource Recovery Facility (RRF), which includes a sanitary landfill, recycling center, greenwaste drop-off area, and Household Hazardous Waste Drop-Off Facility. The City owns and operates this facility, including a Class III sanitary landfill, which is located approximately three miles west of the City off Highway 1 on Dimeo Lane. The site covers 100 acres with 67 acres available for disposal use (Local Agency Formation Commission of Santa Cruz County, June 2005). The City's Resource Recovery Facility (RRF) and Recycling Center is located at the landfill site. The RRF only accepts municipal solid waste and serves as a sorting facility to remove any recyclable or composting materials. The Recycling Center accepts a variety of recyclable materials.

The City's solid waste operations are in full compliance with federal, state, and local air, water and waste regulations for collection vehicles, processing operations, and landfill disposal operations. The City has implemented several best management practices to improve its solid waste services, including a landfill gas collection system that is used to run an engine to produce electricity and use of bio-diesel for collection and landfill equipment to reduce CHG emissions (Local Agency Formation Commission of Santa Cruz County, June 2005).

In the mid-1990s the permitted disposal area of the landfill increased from 40 to 67 acres. The additional acreage was designed with a liner system that meets EPA requirements for new municipal solid waste landfills. The new area replaced the former leachate evaporation ponds, which were cleaned and closed in 1997. The expansion increased the life of the landfill by approximately 30 years at that time, (City of Santa Cruz Department of Planning and Community Development, April 2004), but the lifespan has been increased through additional waste reduction as discussed further below.

Since 1990 the Public Works Refuse Division has focused on maximizing the capacity of the RRF, waste diversion, and implementing environmental improvements to minimize the impacts of the facility to public health and the surrounding environment (City of Santa Cruz Department of Planning and Community Development, April 2004). Major capital improvement projects that have been implemented at the RRF to minimize its impact to the environment include the following:

- Construction of two triple lined leachate collection impoundments.
- Construction of a three-mile leachate pipeline from the landfill to the City's sanitary sewer system.
- Construction of a groundwater cutoff wall downgradient of the landfill's lowest elevation.
- Construction of a freshwater bypass tunnel system to reroute two streams around the landfill.
- Construction of two of the four lined cells planned for the 27-acre expansion area.
- Expansion of the recycling processing facility and conversion to an automated, single-stream processing line.
- Construction of a gas trench wall to prevent offsite migration of landfill gas.

- Improvement of the landfill gas collection and power generation system.
- Improvement of leachate containment and erosion control methods.
- Expansion of environmental monitoring network, including groundwater, soil pore gas, surface water and air quality (City of Santa Cruz Department of Planning and Community Development, April 2004).

The City of Santa Cruz met has met the state-mandated waste diversion goals of 25% of their 1990 waste-streams from landfill disposal by 1995 and 50% by 2000 through community education regarding the three "R"s (i.e. reduce, reuse and recycle) and the implementation of expanded curbside recycling programs. The programs included the collection of most forms of clean paper (e.g. office, junk mail, newspaper, magazines, paper board, and card board), containers (e.g. glass, metal, aluminum, and plastic nos. 1-7), and yard waste materials. The programs also included the diversion and reuse of construction and demolition debris (e.g. concrete rubble, asphalt, and wood) and wastewater treatment plant sludge. In the year 2000, the City established a Zero-Waste goal with the ultimate intention of eliminating the City's need for a landfill (City of Santa Cruz Department of Planning and Community Development, April 2004). As of 2009, the City had achieved a diversion rate of 63-65%, which exceeds the state requirements.

Assuming growth trends similar to the past 10-15 years in the City of Santa Cruz, the RRF has more than adequate capacity to accommodate all municipal solid waste generated by City residents, visitors and businesses. Based on continued waste reduction, annual aerial surveys, and calculations, the landfill is estimated to have capacity through the year 2058 (Arman, personal communication, April 2011). State law requires that facilities begin planning for future waste disposal/reuse facilities at least 15 years in advance of existing landfill closure dates, which would be after the year 2030 and the proposed *General Plan 2030* planning horizon.

Planned programs and improvements include the following as outlined in the *General Plan 2030* Background Report City of Santa Cruz Department of Planning and Community Development, April 2004 include expansion of the waste diversion programs and continued pursuit of operational improvements and efficiencies to increase the life of the landfill. Several capital improvement projects are planned to promote waste diversion, improve the environment, and maintain the landfill's capacity. These include two additional lined landfill cells and improvements at the wastewater treatment plant to enable food wastes to be added to the digesters to generate gas for energy generation. The City recently acquired a 5.5-acre parcel adjacent to the landfill on the south, which will be used for support uses ancillary to the landfill and RRF uses. Specific uses have not been identified, but the property will not be used for landfill disposal operations.

## ELECTRICAL & NATURAL GAS UTILITIES

Pacific Gas and Electric Company (PG&E) provides electrical and natural gas service to the City. Incorporated in California in 1905, PG&E is one of the largest combination natural gas and electric utilities in the United States. PG&E and other utilities in the state are regulated by the California Public Utilities Commission (Pacific Gas and Electric Company website, 2011). It currently provides service to approximately 15 million people throughout a 70,000-square-mile service area in northern and central California from Eureka in the north to Bakersfield in the

south, and from the Pacific Ocean in the west to the Sierra Nevada in the east. The service area includes 141,215 circuit miles of electric distribution lines, 18,616 circuit miles of interconnected transmission lines. 42,141 miles of natural gas distribution pipelines and 6,438 miles of transportation pipelines. PG&E and other utilities in the state are regulated by the California Public Utilities Commission (Pacific Gas and Electric Company website, 2011).

The state's per capita electrical use in 2009 was 6,691 kilowatt hour per capita, the lowest of any state in the nation (California Energy Commission website, 2011). Within PG&E's service area, electrical use is projected to increase by approximately 1.22% between 2010 and 2020, which is a lower increase than experienced between 1990 and 2000, but slightly higher than between 2000 and 2010 (California Energy Commission, December 2009). Total efficiency/conservation electricity consumption savings are projected to reach 80,000 gigawatt hours in 2020; the majority of savings from building and appliance standards (Ibid.). State projections indicated that natural gas consumption will increase only minimally during the same time period (Ibid.).

State forecasts show a similar electrical and natural gas trend for the PG&E service area with a slightly higher rate of increase in electrical consumption between 2010 and 2020 (1.27%) (California Energy Commission, December 2009). However, the per capita electricity consumption is projected to slightly decline in PG&E's service area due to continued savings from energy efficiency programs (Ibid.). Forecasts show an overall decrease in natural gas consumption over 1990 levels by the year 2020 (Ibid.).

Data developed as part of the preparation of the City's draft "Climate Action Plan" reveals that approximately 290,000,000 kilowatt hours (kWh) of electricity were consumed within the City in 2008 and approximately 18,000,000 therms of natural gas was used. This accounts for municipal, residential and commercial/industrial uses. Nearly 8,000,000 kWh of electricity was generated by renewable sources.

Studies have demonstrated the value and cost-effectiveness of weather-stripping, replacing single pane windows, old appliances and lighting, and increasing insulation in reducing energy use and saving money. Significant energy and cost savings have already been achieved through the implementation of such measures throughout the City of Santa Cruz, although further savings could be achieved (City of Santa Cruz Climate Action Program, September 2010). Over the past 15 years, the combined influences of energy efficiency rebate programs, a public education campaign, and significant increases in energy prices have led to a 22% reduction in energy use within Santa Cruz homes. While this drop in energy use is significant, home energy use in Santa Cruz is again on the rise, but still far below 1996 levels (Ibid.).

In 2007, Santa Cruz became one of the first municipalities in the nation to require new construction to include the adoption of environmentally superior building materials and designs. Builders in Santa Cruz now use best practices for their construction projects that enhance building energy efficiency and water conservation as well as to improve air quality, waste reduction and recycling, and erosion and runoff control. The Green Building Program currently includes residential and commercial development (City of Santa Cruz Climate Action Program, September 2010). Reviews conducted as part of the preparation of the City's draft "Climate Action Plan" indicates that an "award-winning" home under the City's Green Building Program

produces a home that is more efficient than standard homes built in 2008 and almost twice as efficient as homes built in 1990 (City of Santa Cruz, September 2010).

The AMBAG Energy Watch Program is a partnership between AMBAG and PG&E, which seeks to reduce energy use in the Monterey Bay region by providing the resources listed below to eligible PG&E customers.

- Energy assessments and audits;
- Direct installation of energy efficient equipment;
- Technical assistance and financial incentives for energy efficient retrofits in municipal buildings;
- Energy efficiency seminars and training courses in the region; and
- nformation on other PG&E energy efficiency programs and services

Additionally, the Monterey Bay Regional Energy Plan was prepared by AMBAG to update goals and actions Program regarding energy use in the Monterey Bay region. A draft update to the 2006 Plan reported that the Energy Watch Program tracked and reported the following energy savings in 2008 throughout the region: 5,201,582 killowatt hours (kWh) for municipalities; 17,697,292 kWh the hospitality industry; and 1,293,653 kWh for residential uses (AMBAG, 2008).

## 4.6.2 RELEVANT PROJECT ELEMENTS

### PROPOSED GOALS, POLICIES & ACTIONS

The proposed *General Plan 2030* includes goals, policies and actions that address provision of public services. In general, Policies LU1.3 and LU1.4 seek to ensure that facilities and services required by future development are available and that new development pays its proportional share. The Plan also seeks to provide community services and facilities to meet needs of the population (CC2.1) and update and replace facilities (CC2.1.1).

Goals, policies and actions in the following chapters also address specific public services.

- The CIVIC AND COMMUNITY FACILITIES chapter of the draft *General Plan 2030* includes the following four goals addressing public services:

  GOAL CC4 *A sustainable and efficient wastewater system.*

  GOAL CC6 *Minimal solid waste production.*

  GOAL CC7 *A safe and secure community.*

  GOAL CC8 *Excellent educational opportunities and resources.*

These goals address the following public services:

- Wastewater - one goal with three associated policies and eight specific actions;
- Solid Waste Management – one goal with four associated policies and 27 actions;
- Police Protection – one goal with six associated policies and 23 actions ; and
- Schools – two policies with four actions that address school sites and facilities and two additional policies and accompanying actions that address educational programs and safe access to schools.

- The HAZARDS, SAFETY & NOISE chapter of the draft *General Plan 2030* includes two policies and 13 specific actions related to fire protection and safety and provision of emergency access.

- The PARKS, RECREATION AND OPEN SPACE chapter of the draft *General Plan 2030* includes goals, policies and actions that address parks and recreational facilities, open space, trails and recreation programs. This chapter includes three goals with 16 associated policies and 38 specific actions that address parks, open space and recreational facility public services. A fourth goal with policies and actions address recreational programs, activities and events. These goals are identified below. Several policies and actions in other chapters of the proposed General Plan also seek to protect, preserve and/or manage open space and natural areas throughout the City (CD 1.1.3, LU 2.3, LU 3.11 NRC 1.1 river access]).

  GOAL PR1 *Ample, accessible, safe and well-maintained parks, open space, and active recreational facilities.*

  GOAL PR2 *High-quality, affordable recreational programs, activities, events, and services for all.*

  GOAL PR3 *Well managed, clean and convenient public access to open space lands and coastline.*

  GOAL PR4 *An integrated system of citywide and regional trails.*

  The draft plan also strives to maintain park service standards, which call for a neighborhood park at ratio of 2.0 acres per 1,000 population (PR1.3.2) and a community parks ratio of 2.5 acres per 1000 population (PR1.3.3). Service standards are not provided for other public services, although Action CC7.1.7 calls for updating and maintaining police response time standards, while Action CC9.4.2 seeks to provide emergency services at accident or disaster scenes within an average time of 4 minutes or less and within 5 minutes or less 90 percent of the time.

- The NATURAL RESOURCES AND CONSERVATION chapter of the draft *General Plan 2030* includes the following goal with four associated policies and 20 accompanying actions related to energy conservation. Its four policies and accompanying actions would promote reduction of electricity and natural gas consumption, use of renewable

energy sources, and use of energy-efficient lighting, vehicles, and water fixtures and appliances.

GOAL NRC7 *Reduction in energy use, and significant production and use of renewable energy.*

## PROPOSED IMPROVEMENTS

The draft *General Plan 2030* includes several policies and actions that address specific improvements or general types of future improvements to public service facilities. Generally, the plan calls for updating and replacing facilities as appropriate (CC2.1.1) and providing community facilities to meet the needs of the City's population (CC2.1). Specific referenced service improvements include maintenance and upgrading the sewer system (CC4.1, CC4.1.1 - CC4.1.3, CC4.1.5); monitoring the wastewater treatment plant capacity to address future needs (CC4.1.8); and exploring the potential for recycling wastewater (CC4.3). The draft Plan the development of a new countywide Emergency Operations Center facility (HZ1.1.5), but a specific location within the City or elsewhere in the county is not identified.

Policy LU4.3 encourages the development and expansion of neighborhood facilities such as parks, schools, daycare centers, and neighborhood commercial services. However, there are no specifically designated new park or school sites. A number of policies promote provision of trails and access to open space lands and the coast (PR4.1 and accompanying actions) with enhancing the recreational value of the San Lorenzo River walkway and East and West Cliff Drive pathways (PR4.1.3) and creating a continuous pathway along the coast by enhancing the physical links between West Cliff and East Cliff Drives and the Beach Promenade (PR4.1.4).

## FUTURE DEVELOPMENT POTENTIAL

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan / Local Coastal Program, except for three new mixed use land designations that have been developed and applied to the following major transportation corridors: Mission Street, Ocean Street, Soquel, Avenue, and Water Street. Some of the draft *General Plan 2030* policies and actions support specific types of land uses and/or development, including new mixed-use use districts and/or intensified redevelopment, as summarized in the LAND USE (Chapter 4.1) section of this EIR.

# 4.6.3 IMPACTS AND MITIGATION MEASURES

## CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

6a Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or need for new or physical altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

- Fire Protection
- Police Protection
- Schools

6b Increase the use of existing neighborhood and community parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

6c Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

6d Result in wastewater flows exceed sewer line or treatment plant capacity or contribute substantial increases to flows in existing sewer lines that exceed capacity.

6e Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.

6f Result in the wasteful or inefficient use of energy.

## IMPACT ANALYSIS

Based on the significance criteria identified above, the following impact analyses address potential impacts to the City's fire and police services (6a); potential impacts on City park facilities (6b-c); potential impacts on school facilities (6a); potential impacts related to wastewater collection and disposal (6d); potential impacts on landfill capacity (6e); and potential impacts related to energy use (6f).

### Potential Future Development & Buildout

Adoption and implementation of the proposed General Plan 2030 would not directly result in increased new development. However, the draft General Plan includes policies and a land use map that support additional development. This potential development, as summarized in the LAND USE (Chapter 4.1) section of this EIR, could result in development of 3,350 residential units, 3,140,000 square feet of commercial, office and industrial development and 300 new hotel

rooms. This level of development could result in an increased population of 8,040 residents and 8,665 new jobs.

The proposed General Plan also includes other policies and actions that could result in development that supports year-round expanded performances, events, and/or visitors. These potential uses include:

- Supporting a downtown performing arts center or expansion of the Civic Center (HA2.2.5),
- Amending the Zoning Ordinance to allow development of arts and cultural facilities in a wide variety of districts (HA2.2.4),
- Supporting Santa Cruz as a year-round conference destination (Policy ED1.4), supporting year-round events (HA3.2.4), and promoting Santa Cruz as a year-round arts destination, and
- Promoting Santa Cruz as a principal retail, cultural, recreational, entertainment and commercial destination in the region (ED1.1).

New development accommodated under the proposed General Plan will result in the demand for public services. The proposed *General Plan 2030* includes goals, policies and actions that address provision of public services. In general, Policies LU1.3 and LU1.4 seek to ensure that facilities and services required by future development are available and that new development pays its proportional share. The Plan also seeks to provide community services and facilities to meet needs of the population (CC2.1) and update and replace facilities (CC2.1.1). The impacts associated with specific services are presented below.

**Impact 4.6-1 Fire Protection**
Adoption and implementation of the *General Plan 2030* could indirectly result in increased population associated with potential development that could be accommodated by the Plan that would result in increased fire protection and emergency service demands. However, future development and growth would not result in the need to construct new or expanded fire stations. This is considered a *less-than-significant impact*.

According to the City's Fire Department, there are adequate fire protection facilities to serve the projected growth increases associated with implementation of the proposed Draft *General Plan 2030*. No new fire stations or facilities will be needed to maintain acceptable response times and service levels (Oliver, personal communication, April 2011). New development and growth accommodated by the draft plan would not reduce response times or require new or physically altered fire protection facilities that could result in significant physical impacts.

The Department's current need for a Training Facility, however, will continue in the future, and the Department plans to investigate the possibility to consolidate administration and training facilities with future fire station improvements, including potential reconstruction of Fire Station Two and relocation of Fire Station One. No sites have been identified for potential relocation. Fire Station Two is located adjacent to a city-owned, paved, public parking lot. If future

expansion were to occur at this location, there no significant impacts are expected to occur, as the site is within a developed urban area.

The draft plan includes policies and actions that would serve to reduce impacts on the City's Fire Department. Draft Policy HZ1.2 seeks to respond to emergencies rapidly. Specific actions call for annual review of service calls (HZ1.2.1) and response times and making continuous operational improvements to arrive on emergency scenes within an average time of 4 minutes or less and within 5 minutes or less 90 percent of the time (HZ1.2.2). Additionally, Policy HZ1.4 and its five specific actions seek to continue to meet fire safety and firefighting needs with staff training and equipment maintenance (HZ1.4.1), promoting built-in fire extinguishing and alarm systems (HZ1.4.2), ensuring adequate fire flow to new uses (HZ1.4.3), and continued mutual aid services with other agencies (HZ1.4.4, HZ1.4.5). A number of actions also seek to ensure that new development is sited and designed to accommodate facility emergency access and response (HZ1.2.5, HZ1.2.6, HZ1.5.5) and that street widths are adequate to safely accommodate emergency vehicles (M3.2.3). These policies and actions (as summarized on Table 4.6-3) serve to maintain fire department operations and response time and reduce impacts on fire protection services.

**TABLE 4.6-3**
**Proposed General Plan Policies & Actions that Avoid or Reduce Fire Protection Service Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| PROVIDE ADEQUATE EMERGENCY RESPONSE & PREPAREDNESS | • Adequate emergency response times: HZ1.2, HZ1.2.1, HZ1.2.2<br>• Ensure emergency preparedness: HZ1.1; HZ1.1.1 (annually update the Emergency Operations Plan.); HZ1.1.2 (City staff training)<br>• New development design and access to maintain emergency response times with adequate access: HZ1.1.3, HZ1.2.5, HZ1.2.6<br>• Ensure that street widths are adequate to safely serve emergency vehicles: M3.2.3 |
| PROVIDE ADEQUATE FIRE PROTECTION | • Meet fire safety & firefighting needs: HZ1.4, HZ1.4.1 (staff training and equipment maintenance)<br>• Adequate emergency response times: HZ1.2, HZ1.2.1, HZ1.2.2<br>• Adequate fire flow: CC3.4.1, HZ1.4.3<br>• Pre-fire surveys of select buildings: HZ1.2.3<br>• Fire prevention: HZ1.4.2 (built-in extinguishing & alarm systems), HZ1.5.6 (abatement of hazardous buildings and conditions)<br>• Adequate emergency access in new development: HZ1.2.5, HZ1.2.6, HZ1.5.5<br>• Promote fire safety & prevention programs: HZ1.5.8 |
| REDUCE WILDLAND FIRE HAZARDS | • Reduce wildfire hazards: HA1.5, HZ1.5.1,<br>• Regulate development siting/design to reduce wildland fires: HZ1.5.3 (setbacks), HZ1.5.4 (fire-resistant/retardant building materials),<br>• Continued mutual aid with other agencies: HZ1.4.4, HZ1.4.5<br>• Promote fire safety & prevention programs: HZ1.5.8<br>• Maintain & update wildland interface zones: CD1.4.4 |

Future growth could result in an indirect increased risk of wildfires in the urban-rural interface and adjacent to the City's greenbelt areas. None of the major vacant sites are within identified fire hazard zones. The City does not have the resources to adequately police and protect greenbelt areas, which increases the frequency of illegal camping that can result in fires in limited access and canyon areas (City of Santa Cruz, September 2007). Despite the fact that there has not been a recent wildland fire within the city limits, residential development into or adjacent to wildland/urban interface areas increases the danger to life and property should a fire occur. Areas targeted as "likely" to have a wildland fire include the Arroyo Seco/Meder Canyon, DeLaveaga, Pogonip, Moore Creek area and Arana Gulch. Increasing use of these areas by residents, transient encampments with fires, and young adults looking for a place to gather exacerbates the risks (Ibid.).

Policy HZ1.5 seeks to reduce potential wildfire hazards through regulation of development in and adjacent to fire hazard areas (HZ1.5.2) with adequate siting, design, and emergency access provided by new development to reduce potential hazards and facilitate emergency response (HZ1.5.3, HZ1.5.4, HZ1.5.5). The City of Santa Cruz also has initiated a number of wildfire mitigation programs in recent years including vegetation management programs at DeLaveaga Park and at the Arroyo Seco Canyon areas (City of Santa Cruz, September 2007). The City continues to maintain cooperative agreements to work with the County, UCSC, the California Department of Forestry and other fire protection agencies to collaboratively avoid or minimize the threat from wild-land/urban interface fires. The City's adopted "Local Hazard Mitigation Plan" (City of Santa Cruz, September 2007) also includes the following mitigation strategy to avoid or reduce potential wildfires that have been included in the draft General Plan.

- Cooperative fire protection agreements with other agencies.
- Reduction of fire risk in wildland/urban interface areas through improved vegetation management and appropriate code enforcement.
- Promotion of built-in fire extinguishing and warning fire alarm systems.
- Creation of a proactive (not reactive) hazard abatement program.
- Land use planning to reduce incidence of human caused wildfire.
- Adequate staffing to meet needs of City population and development.
- Fire prevention programs in schools, institutions & commercial buildings.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would result in demands for fire protection services. However, there are adequate fire protection facilities to serve the projected growth increases associated with implementation of the proposed Draft *General Plan 2030*, and no additional equipment or facilities will be needed to maintain acceptable response times and service levels (Oliver, personal communication, April 2011). New development and growth accommodated by the draft plan would not reduce response times or require new or physically altered fire protection facilities that could result in significant physical impacts. Furthermore, the proposed *General Plan 2030* includes goals, policies and actions that set forth measures to avoid and minimize adverse impacts on fire protection services as summarized on Table 4.6-3. With implementation of these proposed policies and actions, as well as implementation of the City's "Local Hazard Mitigation Plan", the

proposed *General Plan 2030*'s indirect impact on fire protection services would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.6-2 Police Protection**
Adoption and implementation of the *General Plan 2030* could indirectly result in increased population associated with potential development that could be accommodated by the Plan that would result in increased police protection service demands. However, future development and growth would not result in the need to construct new or expanded police stations. This is considered a *less-than-significant impact*.

According to the City's Police Department, there are adequate police protection facilities to serve the projected growth increases associated with implementation of the proposed Draft *General Plan 2030*. No additional equipment or facilities personnel will be needed to maintain acceptable response times and service levels (Vogel, personal communication, April 2011). New development and growth accommodated by the draft plan would not reduce response times or require new or physically altered police protection facilities that could result in significant physical impacts.

The draft plan includes policies and actions that would serve to reduce impacts on the City's Police Department. Policy CC7.1 and its specific accompanying actions seek to ensure adequate police training and resources. Specific actions seek to ensure appropriate police staff, stations, equipment and training to meet demands of increased population and tourism (CC7.1) and implement officer training and crime prevention programs (CC7.1.2, CC7.1.3). Additionally, the draft plan seeks to provide and rapid and timely response to emergencies (CC7.1.6, HZ1.2) with updating and maintaining police response time standards (CC7.1.7). Specific actions call for annual review of service calls (HZ1.2.1) and response times and making continuous operational improvements to arrive on emergency scenes within an average time of 4 minutes or less and within 5 minutes or less 90 percent of the time. (HZ1.2.2). A number of policies also seek to reduce police service demand through land use planning and project designs (CC72.5, CC7.2.7). Other actions promote cooperate with other County agencies on public safety and police issues (CC7.3, CC7.3.1, CC7.3.2). Taken together, these policies and actions (as summarized on Table 4.6-4) serve to ensure adequate police department operations and response time and reduce police protection service demand, and, thus, reduce potential impacts on police protection services.

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would result in demands for police protection services. However, there are adequate police protection facilities to serve the projected growth increases associated with implementation of the proposed Draft *General Plan 2030*, and no additional

equipment or facilities will be needed to maintain acceptable response times and service levels. New development and growth accommodated by the draft plan would not reduce response times or require new or physically altered police protection facilities that could result in significant physical impacts. Furthermore, the proposed *General Plan 2030* includes goals, policies and actions that set forth measures to avoid and minimize adverse impacts on police protection services as summarized on Table 4.6-4. With implementation of these proposed policies and actions, the proposed *General Plan 2030*'s indirect impact on police protection services would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**TABLE 4.6-4**
**Proposed General Plan Policies & Actions that Avoid or Reduce Police Protection Service Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| PROVIDE ADEQUATE EMERGENCY RESPONSE & PREPAREDNESS | • Adequate emergency response times: HZ1.2, HZ1.2.1, HZ1.2.2<br>• New development design and access to maintain emergency response times with adequate access: HZ1.1.3, HZ1.2.5, HZ1.2.6 |
| PROVIDE ADEQUATE POLICE PROECTION | • Ensure appropriate staff (including training), stations, equipment to meet population demands: CC7.1, CC7.1.1, CC7.1.2<br>• Timely response: CC7.1.6, CC7.1.7, HZ1.2, HZ1.2.1, HZ1.2.2<br>• Update police response standards: CC7.1.7<br>• Reduce demand through land use planning & project designs: CC7.2.5, CC7.2.7<br>• Participate in crime reduction & prevention programs: CC7.1.3, CC7.2.2, CC7.2.3 |

**Impact 4.3 Parks and Recreation**
Adoption and implementation of the proposed *General Plan 2030* could indirectly result in increased development and population growth that would result in an indirect demand for parks and recreational facilities. However, the estimated growth would not increase use of parks or recreational facilities such that a substantial physical deterioration would occur. With implementation of proposed policies and actions, in combined with existing regulations, impacts to parks and recreational facilities is considered a *less-than-significant impact*.

The proposed *General Plan 2030* will result in additional development and population growth, resulting in increased demands for park and recreational facilities. The Plan seeks to provide neighborhood parks at a ratio of 2.0 acres per 1,000 residents and to provide community parks at a ratio of 2.5 acres per 1,000 residents. This is the same standard included in the

City's existing General Plan. As previously discussed, the City currently does not meet the desired level of service for neighborhood parks and is deficient by approximately 16 acres. Thus, existing developed neighborhood parks could be considered at capacity use, in general, based on the City's park service standards.

The projected population increase of 8,040 new residents would result in an additional need for 16 acres of neighborhood parks and 20 acres of community parks to meet the proposed park service standard. Under existing conditions and with future growth, a total of 32 additional neighborhood park acres would be required to meet the City's service standard.[7] The City currently has sufficient community park land as summarized on Table 4.6-1.

The *General Plan 2030* does not identify any specific new park and recreation facility sites. Thus, the increased population accommodated by the proposed General Plan would result in an increased use of existing parks and recreational facilities. The largest projected increases in population would be distributed along existing transportation corridors throughout the City and in downtown. Thus, it is anticipated that the increased use of parks and recreational facilities would be distributed throughout existing neighborhood and community parks. A geographically widespread increase in use would not likely result in substantial physical deterioration of specific parks and recreational facilities, although maintenance is an ongoing requirement, including school playgrounds and joint use facilities.

The proposed *General Plan 2030* does not include any goals or policies regarding construction or expansion of a specific park or recreational facility, the construction or expansion of which may result in potentially significant impacts. The draft plan does call for developing new or expanding existing athletic fields (PR1.2.2), and coordinating with local schools to expand park and recreation opportunities. However, specific sites or locations are not identified. As specific park and recreational facility expansion projects are proposed in the future, project-specific environmental analyses will be completed as required to analyze potential significant impacts and provide the appropriate project-level mitigation as may be needed.

The proposed *General Plan 2030* includes a number of policies that serve to mitigate potential impacts to existing parks and recreation facilities as a result of new residential development and population growth accommodated by the draft *General Plan 2030*. The policies, which are summarized on Table 4.6-5, address development of new parks which would lessen the projected increased use of existing parks, as well as, maintenance of existing parks and recreational facilities. The plan seeks to update and modify park system and services to accommodate changes in the population and its recreational need (PR1.1.1). A number of policies and actions seek to provide a system of parks and recreational facilities (PR1.1.1), planning for new parks and facilities (PR1.1.2, PR1.1.4), evaluating and acquiring parks (PR1.1.3, PR3.2 [parcels that provide access to City-owned open space lands]), developing new or expanding existing athletic fields (PR1.2.2), and coordinating with local schools to expand park and recreation opportunities (PR1.2.1, PR1.2.3). To this end, the plan establishes service standards (PR1.3, PR1.3.2, PR1.3.3), seeks to ensure that adequate park land is provided in conjunction with new development (PR1.3.1), and requires park dedication or payment of in-lieu fees from new development (PR1.7, PR1.7.1). Thus, while specific new park locations are not

[7] This is based on an existing population of 58,982 in 2009 and 102 existing acres of neighborhood parks and 366 acres of community parks as summarized on Table 4.6-1.

designated in the proposed *General Plan 2030*, the policies and actions set forth a strategy to plan and acquire additional park lands in the future.

The draft plan also seeks to ensure ongoing maintenance needs are addressed in the development and funding plans for any new or expanded parks, recreational facilities, or open space areas (PR1.3.4, PR1.10). Maintenance of the City's Parks and Facilities tax also is recommended (PR1.9, PR1.91, PR1.9.2).

A number of policies and actions also promote provision of trails and access to open space lands and the coast (PR1.4) with enhancing the recreational value of the San Lorenzo River walkway and East and the West Cliff Drive pathways (PR4.1.3) and creating a continuous pathway along the coast by enhancing the physical links between West Cliff and East Cliff Drives and the Beach Promenade (PR4.1.4).

**TABLE 4.6-5**
**Proposed General Plan Policies & Actions that Reduce Parks Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| PLAN & PROVIDE FOR NEW PARKS | • Provide & manage parks: PR1.1<br>• Develop and maintain city Master Parks Plan: PR1.1.2, Pr1.1.4 (plan for adequate parks and recreation facilities)<br>• Level of Service standards: PR1.3, PR1.3.2, PR1.3.3<br>• Evaluate lands for small parks: PR1.1.3<br>• Coordinate with schools to expand parks: PR1.2.1, PR1.2.3<br>• Examine developing new or expanding existing athletic fields: PR1.2.2<br>• Development park dedication or in-lieu fees: PR1.7, 1.7.1<br>• Maintain a Parks and Recreation Facilities excise tax on new construction: PR1.9, PR1.9.1, PR1.9.2<br>• Acquire parcels that provide access to City-owned open space lands and coast: PR3.2 |
| ENSURE MAINTENANCE & MANAGEMENT | • Ensure ongoing maintenance: PR1.3.4<br>• Identify maintenance funding sources: PR1.10<br>• Protect & Manage open space: LU2.3 LU2.3.1, LU2.3.2, LU2.3.3, LU2.3.4 (UCSC), LU3.11<br>• Greenbelt Management: LU2.3.3, LU3.11.3, NRC6.3 |
| PROVIDE ACCESS TO OPEN SPACE LANDS & COAST | • Assure access to open space lands and coast: PR1.6.5, PR3.1<br>• Coastal access: PR3.2, PR3.3, PR3.3.5<br>• Access to river & riparian: NRC1.1, NRC1.1.2 |
| PROVIDE TRAILS | ▪ Provide and maintain Integrated trail system: PR4.1, PR4.1.1<br>▪ Provide and maintain trails in parks: PR4.2, PR4.2.1, PR4.2.2<br>▪ Require development to dedicate trails or easements along planned trail routes: PR4.2.3 |

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development and increased population accommodated by the plan would result in demands for parks and recreational facilities. Increased use of existing parks and school playgrounds is

expected to be spread out throughout the City so that no substantial deterioration would occur at any one facility. With implementation of the proposed *General Plan 2030* goals, policies and actions that set forth measures to avoid and minimize adverse impacts on parks and recreational facilities as summarized on Table 4.6-5, as well as compliance with local regulations, the proposed *General Plan 2030*'s indirect impact on parks and recreational facilities would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.6-4 Schools**
Adoption and implementation of the proposed *General Plan 2030* could indirectly result in increased development and population growth that would generate elementary school student enrollments that could exceed capacity of existing schools. This is considered a *potentially significant impact*.

Future residential development accommodated by the proposed *General Plan 2030* could result in construction of 3,350 new residential units. Based on student generation rates per dwelling unit of 0.273 for grades K-6 and 0.207 for grades 7-12[8], future development and growth could result in the addition of 915 students in grades K-6 and approximately 695 students in grades 7-12 for a total potential increase of 1,610 students by the year 2030.

The existing combined enrollment for the Santa Cruz City Schools is 6,841 students (Santa Cruz City Schools, June 2010). The addition of additional students in the next 20+ years could increase this total by approximately 1,610 students with approximately 915 elementary school students and 695 high school students. There would be adequate high school capacity to accommodate this growth. Elementary school enrollments could exceed school facility enrolments depending on the timing of growth. Discussions with the school district indicated that the level of enrollment likely could be accommodated within existing school facilities, including using Natural Bridges Elementary School, if needed, which is currently leased as a charter school. The School District collects school impact fees that can be used for facility expansion and/or installation of classroom modules. Such expansion, if required, would be located within existing development footprints and would not be expected to result in significant physical impacts.

The proposed *General Plan 2030* includes a number of policies that serve to mitigate potential impacts to existing school facilities as a result of new residential development and population growth accommodated by the draft *General Plan 2030*. The policies, which are summarized in Table 4.5-6, address ensuring and planning for adequate school sites (CC8.2, CC8.2.2) and cooperating with the school district to monitor impacts of housing on elementary school populations (CC8.1.1). The plan also encourages joint-use facilities that combine educational and community uses (CC8.2.1).

[8] Student generation rates were determined in the School Districts' "Developer Fee Justification Study" (October 5, 2006).

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but increased population resulting from development accommodated by the plan could increase student enrollments in grades K-12, which could exceed existing school facility capacities depending on the timing and rate of growth as the increase would not happen all at once. With required payment of school impact fees to fund necessary facility expansion and/or additions, in conjunction with potential reuse of the former Natural Bridges Elementary School if needed, the impact would be mitigated to a less-than-significant level. Potential addition or expansion of school classroom facilities is not expected to result in significant physical impacts due to the location of existing facilities within developed footprints. Implementation of the proposed *General Plan 2030* includes goals, policies and actions also set forth measures to avoid and minimize adverse impacts on school facilities as summarized on Table 4.5-6.

**Mitigation Measures**

No mitigation measures are required beyond payment of school impact fees that will be collected at the time of issuance of a building permit.

**TABLE 4.5-6**
**Proposed General Plan Policies & Actions that Reduce School Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| PLAN FOR SCHOOL SITES | • Ensure and plan for adequate future sites for educational facilities: CC8.2, CC8.2.2<br>• Monitor impact of housing on elementary school populations: CC8.1.1<br>• |
| COORDINATE WITH SCHOOL DISTRICT | • Cooperate with school district : CC8.1.1 |
| MAXIMIZE OPPORTUNITIES & ENCOURAGE JOINT-USE FACILITIES | • Encourage joint-use facilities for educational and community uses: CC8.2.1<br>• Maximize educational, developmental, and recreational opportunities: CC8.3 |

**Impact 4.6-5 Wastewater Collection & Disposal**
Adoption and implementation of the proposed *General Plan 2030* could indirectly result in increased development and population growth that would result in indirect generation of wastewater that could be accommodated by the existing wastewater treatment plant and collection system improvements, as needed and supported in the General Plan. This is considered a *less-than-significant impact*.

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased population or new development. However, the draft General Plan includes policies and a land use map that support additional development. As indicated above, anticipated development accommodated by the proposed plan could result in an increase in population and employees that would result in increases in wastewater generation.

Wastewater generation can be generally estimated based on water demand. Typically, wastewater flows are derived from water demand. The City Public Works Department generally estimates wastewater flows as a percentage of water use. Based on the water demand rates identified in Table 4.5-4 in the WATER SUPPLY (Chapter 4.5) section of this EIR, this would equate to an average daily wastewater flow increase of approximately 0.55 million gallons as summarized in Table 4.6-7. This amount is well within the remaining treatment plant capacity – both the permitted capacity as well as the City's remaining portion (4.0 mgd). No major sewer line problems or constraints have been identified (Wolfman, personal communication, April 2011), and sewer line replacement would be scheduled in the future as needed.

**TABLE 4.6-7**
**Estimated Project Wastewater Flows**

| General Plan Use | Amount | Annual Water Demand (MGY) | Average Daily Water Demand (gpd) | Average Daily Wastewater flow (mgd) |
|---|---|---|---|---|
| Residential - SFD | 840 units | 60 | 165,385 | 0.124 |
| Residential - MFD | 2,510 units | 64 | 175,345 | 0.158 |
| Commercial | 1,087,983 sq. ft. | 72 | 197,260 | 0.158 |
| Hotel Rooms | 311 rooms | 11 | 30,140 | 0.024 |
| Office | 1,273,913 sq. ft. | 23 | 63,100 | 0.055 |
| Industrial | 776,926 sq. ft. | 9 | 24,660 | 0.020 |
| **TOTAL** | | **239** | **655,890** | **0.539** |

Assumes 75% of total residential units (3,350) are multi-family units.
Wastewater generation assumed as 90% of multi-family residential water use, 75% of single-family residential water use, and 80% of non-residential water use.

The Draft *General Plan 2030* includes goals, policies and actions that set forth measures to avoid provide adequate services. Goal CC4 and its three supporting policies and eight accompanying actions seek to maintain a sustainable and efficient wastewater system. These include maintenance and upgrade of the wastewater collection, treatment and disposal systems (CC4.1, CC4.1.1 and CC4.1.3). Periodic updates of wastewater master plans are supported (CC4.1.5), including monitoring treatment plant capacity and development of a plan to address future needs (CC4.1.8). The plan calls for exploring the potential for tertiary treatment and recycling wastewater (CC3.10, CC4.2, CC4.3). Table 4.6-8 summarizes policies that directly or indirectly address wastewater collection or treatment.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would result in increased growth with resulting increases in wastewater generation. However, the City's wastewater treatment plant has adequate capacity to

serve anticipated growth, and with implementation of proposed policies and actions, the collection system will be maintained and upgraded as needed. Thus, there would a less-than-significant impact on wastewater treatment and collection facilities.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**TABLE 4.6-8**
**Proposed General Plan Policies & Actions that Reduce Wastewater Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| ENSURE ADEQUATE PROVISION OF SERVICES | ▪ Ensure that facilities and services required by a development are available: LU1.3<br>▪ Report annually on the state of City facilities and services: LU1.3.2<br>▪ Ensure that new development pays its proportional share of the costs of expanded infrastructure needed to serve new development: LU1.4 |
| WASTEWATER | ▪ Provide adequate, environmentally sound wastewater system: CC4.1<br>▪ Maintenance, upgrade & planning sewer system: CC4.1, CC4.1.1 - CC4.1.3, CC4.1.5<br>▪ Monitor wastewater treatment plant capacity to address future needs: CC4.1.8<br>▪ Explore recycling wastewater: CC3.10.1, CC4.2, CC4.3 |

**Impact 4.6-6 Solid Waste Disposal**
Adoption and implementation of the proposed *General Plan 2030* could indirectly result in increased development and population growth that would result in indirect generation of solid waste that could be accommodated within the remaining landfill capacity. This is considered a *less-than-significant impact*.

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased population or new development. However, the draft General Plan includes policies and a land use map that support additional development. As indicated above, anticipated development accommodated by the proposed plan could result in an increase in population and employees that would result in increases in solid waste generation. The City's population is estimated to increase by approximately 8,040 residents due to development and growth accommodated by the proposed plan.

Development and growth accommodated under the proposed plan is estimated to result in a solid waste generation of approximately 20 tons per day based on a per capita rate of 5.0 pounds/day provided by City staff (Arman, personal communication, April 2011). This amount of solid waste could be accommodated within the remaining capacity of the City's landfill, which is on expected to have capacity through the year 2058 (Ibid.).

The Draft *General Plan 2030* includes goals, policies and actions that set forth measures to reduce solid waste generation and promote recycling as summarized on Table 4.6-9, which would further reduce the net increase in solid waste. In particular, Policy CC6.1 seeks to achieve a "zero waste" goal. The City has also achieved a solid waste reduction of 63-65%, which exceeds the state requirement of a 50% reduction by the year 2000. With increasing waste diversion, the landfill capacity has expanded (Arman, personal communication, April 2011).

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would result in increased growth with resulting increases in solid waste generation. However, the City's landfill has adequate capacity to serve anticipated growth. Thus, there would a less-than-significant impact on wastewater treatment and collection facilities.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**TABLE 4.6-9**
**Proposed General Plan Policies & Actions that Reduce Solid Waste Impacts**

| Type of Measure / Action | Policies |
|---|---|
| REDUCE SOLID WASTE | • Zero Waste goal: CC6.1<br>• Reduce recyclable materials at landfill: CC6.4.4, CC6.1.13 (plastic bags), CC6.1.17 & HZ2.1.4 (ban polystyrene foam), CC6.4.4 |
| PROMOTE / SUPPORT RECYLING | • Prepare & implement recycling and reduction plans and incentives to encourage recycling: CC6.1.1, CC6.1.2, CC6.1.3, CC6.1.7 (new development), CC6.1.14<br>• Provide efficient waste & recycling service: CC6.2, CC6.2.2<br>• Encourage use of recycled materials: CC6.1.9, CC6.1.10, CC6.1.12, CC6.1.19 (industrial uses)<br>• Require commercial, industrial recycling & waste audits: CC6.1.4, CC6.1.5, CC6.1.6 (cement/asphalt recycling)<br>• Develop food waste & composting program: CC6.1.15, CC6.1.16 |
| LANDFILL MANAGEMENT & PLANNING | • Develop comprehensive operating plan for Resource Recovery Facility: CC6.3, CC6.3.1<br>• Develop waste management alternatives: CC6.1.18<br>• Efforts to extend landfill life: CC6.4, CC6.4.2 |

**Impact 4.6-7 Energy Use**
Adoption and implementation of the proposed *General Plan 2030* could indirectly result in increased development that would result in indirect energy demands, which would not be wasteful or an inefficient use with implementation of state and local regulations and proposed *General Plan 2030* policies and actions. This is considered a *less-than-significant impact*.

Future development would be accommodated by the draft *General Plan 2030* would result in consumption of electricity and natural gas lighting, heating and cooling of residences and other buildings. Energy use resulting from potential new development was factored into the greenhouse gas emissions calculations as discussed in Appendix E. The calculations show an energy demand of approximately 40,650 megawatt hours and 9,600 therms in 2030 without implementation of energy efficiency measures or standards. This estimated electrical use represents a per capita use of approximately 1,800 kwh per capita, which is below state projections for the PG & E planning area

Overall, the future consumption of electrical and natural gas resources would not represent unnecessary, inefficient, or wasteful use of resources given the implementation of proposed policies that address lighting and energy conservation measures. Several policies in the proposed General Plan promote energy conservation, which could minimize or incrementally reduce the consumption of these resources. Specifically, GOAL NRC7 seeks to reduce energy use with a significant production and use of renewable energy. Its four policies and accompanying actions would promote reduction of electricity and natural gas consumption, use of renewable energy sources, and use of energy-efficient lighting, vehicles, and water fixtures and appliances. A summary of the proposed *General Plan 2030* policies that serve to reduce energy and fossil fuel consumption is presented in Table 4.6-10.

In addition, new structures will be required to be constructed in accordance with specifications contained in Title 24 of the California Code of Regulations and the City's Green Building Regulations. Anticipated changes in state building and energy efficiency requirements to help reduce greenhouse gas emissions will also reduce the rate of energy consumption increases. Such measures have been factored into California energy forecasts which predict an overall reduction in per capita use of electricity due to energy efficiency standards and conservation.

In addition, new structures will be required to be constructed in accordance with specifications contained in Title 24 of the California Code of Regulations and the City's Green Building Regulations. Anticipated changes in state building and energy efficiency requirements to help reduce greenhouse gas emissions will also reduce the rate of energy consumption increases. However, future construction activities would result in the irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels (including fuel oil, natural gas, and gasoline) for automobiles and construction equipment.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would result in increased demand for electric and natural gas services. However, with implementation of local and state regulations, as well as proposed

*General Plan 2030* policies and actions, energy-efficient building designs, material and appliances would be incorporated into future developments and energy use would not be considered wasteful or inefficient. Thus, there would a less-than-significant impact related to energy use.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**TABLE 4.6-10**
**Proposed General Plan Policies and Actions that Reduce Energy Use**

| Type of Measure / Action | Policies / Actions |
|---|---|
| ENERGY CONSERVATION AND EFFICIENCY | • Reduce electricity and natural gas use by 20%: NRC7.1.1<br>• Adopt Model Lighting Ordinance: NRC7.1.2<br>• Improve energy efficiency in parks: NRC7.1.10<br>• Continue to install energy efficient systems in park and recreational facilities: NRC7.1.11<br>• Install energy-efficient street lighting: MC.2.10 |
| PROMOTE RENEWABLE ENERGY | • Increase local use and production of renewable energy:NRC7.1.3<br>• Require passive heating and cooling in new development: NRC7.1.4<br>• Require City facilities to increase green electricity: NRC7.1.5 |
| PROMOTE ENERGY EFFICIENT TRANSPORTATION | • Reduce consumption of fuels: NRC7.3.1<br>• Purchase City vehicles with fuel efficient or alternative fuel systems: NRC7.3.2, NRC7.3.4<br>• Establish telecommuting for City staff: NRC7.3.3<br>• Investigate partnerships with UCSC for electric car use: NRC7.3.5<br>• SEE TABLE 4.4-4 in Chapter 4.4 for policies-actions to reduce auto use. |
| PROMOTE ENERGY EFFICIENT WATER PROVISION & USE | • Install energy and water efficient appliances: NRC7.4.1<br>• Require new development to use high efficiency fixtures: NRC7.4.2<br>• Support gray water collection and reuse: NRC7.4.2, NRC7.4.3 |
| EDUCATION & COORDINATION | • Cooperate with other agencies: NRC7.1.7<br>• Educate public: NRC7.1.8<br>• Support legislation on renewable energy: NRC7.1.9 |

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# 4.7 HYDROLOGY, STORM DRAINAGE & WATER QUALITY

## 4.7.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Regulatory Setting
- Hydrological Setting
- Stormwater Drainage
- Water Quality
- Flood & Coastal Hazards
- Regional & Local Plans

### REGULATORY SETTING

#### Federal Regulations

The Clean Water Act (CWA), enacted in 1972, regulates the discharge of pollutants to waters of the United States from any point source. Section 401 of the CWA requires water quality certification for any activity, including the construction or operation of a facility, which may result in any discharge into navigable waters (Title 33 CFR §1341). Section 404 of the CWA requires a permit for the discharge of dredged fill material into navigable waters at specified disposal sites (Title 33 CFR §1344). In 1987, amendments to the CWA added Section 402(p), which establishes a framework for regulating non-point source stormwater discharges under the National Pollutant Discharge Elimination System (NPDES). The NPDES stormwater program is further described below under the "State Regulations" subsection.

The Federal Emergency Management Agency (FEMA) – a former independent agency that became part of the new Department of Homeland Security in March 2003 – is tasked with responding to, planning for, recovering from, and mitigating against disasters. Formed in 1979 under an executive order by President Jimmy Carter to merge many of the separate disaster-related responsibilities of the federal government into one agency, FEMA is responsible for determining flood elevations and floodplain boundaries based on U.S. Army Corps of Engineers studies and approved agencies studies and for coordinating the federal response to floods, earthquakes, hurricanes, and other natural or man-made disasters and providing disaster assistance to states, communities and individuals. FEMA distributes the Flood Insurance Rate Maps (FIRMS), which are used in the National Flood Insurance Program (NFIP). These maps identify the locations of special flood hazard areas (SFHAs), including the 100-year flood zone.

Executive Order 11988 (Flood Plain Management) links the need to protect lives and property with the need to restore and preserve natural and beneficial flood plain values. Specifically,

federal agencies are directed to avoid conducting, allowing, or supporting actions on the base floodplain unless the agency finds that the base floodplain is the only practicable alternative location. Similarly, Department of Transportation (DOT) Order 5650.2, which implements Executive Order 11988 and was issued pursuant to the National Environmental Policy Act of 1969, the National Flood Insurance Act of 1968, and the Flood Disaster Protection Act of 1973, prescribes policies and procedures for ensuring that proper consideration is given to avoidance and mitigation of adverse floodplain impacts in agency actions, planning programs, and budget requests.

## State Regulations

The California State Water Resources Control Board (State Board) and the nine Regional Water Quality Control Boards (RWQCB) have the responsibility in California to protect and enhance water quality, both through their designation as the lead agencies in implementing the Section 319 non-point source program of the federal Clean Water Act, and through the state's primary water pollution control legislation, the Porter-Cologne Water Quality Control Act. The State Board establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and state water quality statutes and regulations. The RWQCBs develop and implement Water Quality Control Plans (Basin Plans) that consider regional beneficial uses, water quality characteristics, and water quality problems. All projects resulting in discharges, whether to land or water, are subject to Section 13263 of the California Water Code (CWC) and are required to obtain approval of Waste Discharge Requirements (WDRs) by the RWQCBs. Land and groundwater-related WDRs (i.e., non-NPDES WDRs) regulate discharges of privately or publicly treated domestic wastewater and process and wash-down wastewater. WDRs for discharges to surface waters also serve as NPDES permits, which are further described below.

The Central Coast (Region 3) office of the RWQCB guides and regulates water quality in streams and aquifers throughout the central coast of California and the Monterey Bay region through designation of beneficial uses, establishment of water quality objectives, and administration of the NPDES permit program for stormwater and construction site runoff. The RWQCB is also responsible for providing permits and water quality certifications pursuant to CWA.

All dischargers of waste to waters of the State are subject to regulation under the Porter-Cologne Act and the requirement for WDRs is incorporated into the California Water Code. This includes both point and non-point source (NPS) dischargers. All current and proposed NPS discharges to land must be regulated under WDRs, waivers of WDRs, a basin plan prohibition, or some combination of these administrative tools. Dischargers of waste directly to state waters would be subject to an individual or general NPDES permit, which also serves as WDRs. The RWCQBs may issue individual WDRs to cover individual discharges or general WDRs to cover a category of discharges. WDRs may include effluent limitations or other requirements that are designed to implement applicable water quality control plans, including designated beneficial uses and the water quality objectives established to protect those uses and prevent the creation of nuisance conditions. Violations of WDRs may be addressed by issuing Cleanup and Abatement Orders (CAOs) or Cease and Desist Orders (CDOs), assessing administrative civil liability, or seeking imposition of judicial civil liability or judicial injunctive relief.

The 1987 amendments to the Clean Water Act (Section 402[p]) provided for the U.S. EPA regulation of several new categories of non-point pollution sources within the existing NPDES. The EPA has delegated management of California's NPDES stormwater permit program to the State Board and the nine RWQCB offices. In Phase 1, NPDES permits were issued for urban runoff discharges from municipalities of over 100,000 people, from plants in industries recognized by the EPA as being likely sources of stormwater pollutants, and from construction activities that disturbed more than five acres. Phase 2 implementation, effective March 10, 2003, extended NPDES urban runoff discharge permitting to cities of 50,000 to 100,000, and to construction sites that disturb between 1 and 5 acres. The State Board has developed several general permits for coverage under the Phase 2 NPDES stormwater permit program.

Construction activity on projects that disturb one or more acres of soil, or less than 1 acre but are part of a larger common plan of development that in total disturbs one or more acres, must obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 99-08-DWQ). Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of a facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Program (SWPPP). The SWPPP should identify stormwater collection and discharge points, drainage patterns across the project, and best management practices (BMPs[1]) that the discharger will use to protect stormwater runoff and the placement of those BMPs.

As mandated by Section 303(d) of the Federal Clean Water Act, the State Board maintains and updates a list of "impaired water bodies" (i.e., water bodies that do not meet State and Federal water quality standards). This list is known as the Section 303(d) list of impaired waters. The State is then required to prioritize waters/watersheds for development of Total Maximum Daily Load (TMDL) regulations. This information is compiled in a list and submitted to the EPA for review and approval. The State Board and Regional Boards monitor and assess water quality on an ongoing basis.

## Local Regulations

### STORMWATER MANAGEMENT PROGRAM

The City of Santa Cruz has developed a comprehensive Storm Water Management Program (SWMP) to fulfill the requirements for the Phase II NPDES General Permit for Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems (MS4 General Permit) and to reduce the amount of pollutants discharged in urban runoff. The SWMP includes eight programs to achieve this goal, including runoff control policies, outreach and education efforts, site visits, and the implementation of BMPs.

[1] BMPs are either pollution prevention practices or structural controls designed to reduce or eliminate pollutant discharges. BMPs typically emphasize "good housekeeping methods," chemical handling procedures, spill prevention, and proper waste storage and disposal.

## MUNICIPAL CODE REGULATIONS

**Storm Water and Urban Runoff Pollution Control**. In 1998, the City adopted an ordinance, entitled "Storm Water and Urban Runoff Pollution Control," which is Chapter 16.19 of the City's Municipal Code. The ordinance established the legal authority to prohibit illicit connections and pollutant discharges to the City storm drain system. The ordinance also provides the City with the legal authority to conduct inspections and sampling. In addition, the ordinance contains a provision requiring the implementation of BMPs, as published by the Public Works Department, by certain types of facilities. The City also has the authority to terminate illicit connections and discharges, and to initiate enforcement actions for violations of the code. Potential enforcement actions include written notices, citations, termination of discharge, and monetary penalties. The ordinance prohibits non-stormwater discharges to the storm drain system with a few exceptions (City of Santa Cruz, March 2010). The City revised the Storm Water Ordinance in July 2003 in order to update the ordinance and incorporate new Phase II stormwater regulations (Ibid.).

City Municipal Ordinance section 16.19.140 requires that any construction project, including those undertaken under any permit or approval granted pursuant to Titles 15 (Streets and Sidewalks), 18 (Buildings and Construction), and 24 (Zoning) of the City Code, shall implement best management practices including the City's mandatory BMPs as detailed in the latest BMP manual published by the City's Public Works Department. BMPs are required to be maintained in full force and effect throughout the life of a project.

In addition, the City's Ordinance 16.19.150 requires that all industrial/commercial facilities file a Notice of Intent (NOI) with the State Board and abide by the state regulations outlined in the general permit and implement best management practices to the maximum extent practicable listed in the guidelines published in the *California Storm Water Best Management Practices Handbook, Industrial/Commercial*, by the Storm Water Quality Task Force. The City's mandatory BMPs, as detailed in the latest BMP manual published by the City's Public Works Department, must also be implemented.

**Zoning Ordinance Requirements for New Development**. The Zoning Ordinance, Title 24 of the Municipal Code, currently contains provisions to ensure that new developments or remodeled sites are designed and constructed in a manner that limits alteration of drainage patterns, prevents erosion, and minimizes long-term impacts on water quality. Chapter 24.14 – Environmental Resource Management – contains a section on Conservation Regulations that includes general provisions for drainage and erosion controls. These provisions include requirements that a drainage plan be submitted for projects, both large and small, when existing drainage patterns would be altered by new construction. A drainage plan must be submitted and reviewed as part of the project approval. In addition, the ordinance requires that stormwater runoff resulting from project development be minimized, and if a proposed project includes the discharge of runoff into a natural watercourse, the drainage plan shall include methods to safeguard or enhance the existing water quality. Devices such as detention basins, percolation ponds, or sediment traps may be required by the City, where appropriate or as specified in an adopted plan or wetlands management plan. Provisions pertaining to erosion control include requirements that a site development be fitted to the topography and soil so as to create the least potential for erosion. Vegetation removal is limited to the amount necessary and according to the project's approved erosion control plans.

**Flood Management**. Section 24.14.400 ("Floodplain Management") sets forth requirements and procedures to protect properties against flood hazards and comply with National Flood Insurance Program requirements. The regulations set forth programs for floodplain management and specify circumstances in which floodproofing of structures may be required.

**Grading Regulations**. The Grading Ordinance is a subset of Title 18, Buildings and Construction, of the City's Municipal Code and is included in Chapter 18.45 – Excavation and Grading Regulations." It provides technical regulations of grading and excavation, in conjunction with the Environmental Resource Management provisions (Municipal Code, Title 24, Chapter 24.14), in order to safeguard life, health, safety and the public welfare; protect fish and wildlife, riparian corridors and habitats, water supplies, and private and public property, and to protect the environment from the effects of flooding, accelerated erosion and/or deposition of silt. The ordinance accomplishes this by providing guidelines, regulations, and minimum standards for clearing, excavation, cuts, fills, earth moving, grading operations (including cumulative grading), water runoff and sediment control. In addition, the ordinance includes provisions regarding administrative procedures for issuance of permits and approval of plans and inspections during construction and subsequent maintenance. The City revised the Grading Ordinance in April 2004 in order to strengthen the ordinance regarding implementation of BMPs, including those for erosion and sediment control (City of Santa Cruz, March 2010)

### CITY-WIDE CREEKS AND WETLANDS MANAGEMENT PLAN

The City of Santa Cruz *City-wide Creeks and Wetlands Management Plan* (2006) (Management Plan) was adopted by the City Council to provide a comprehensive approach to managing all creeks and wetlands within the City. The Management Plan was certified as a LCP amendment by the California Coastal Commission in October 2007. The long-term goals of the *Management Plan* include protection and improvement of water quality.

## HYDROLOGIC SETTING

The City of Santa Cruz encompasses approximately 12 square miles between the Monterey Bay and the Santa Cruz Mountains. A total of 39 miles of watercourses occur within the City, supporting riparian and wetland habitat and/or influencing stormwater conveyance and water quality (City of Santa Cruz Planning and Community Development Department, March 2008). Figure 4.8-2 illustrates major water courses in the City.

The San Lorenzo River, the major watercourse through the City, originates in the Santa Cruz Mountains, traverses through the center of the City and forms a major physical feature of the region. The City also supports four other major watersheds and several miscellaneous watercourses, ranging from numerous perennial, spring-fed streams on the west side of the City to intermittent streams located on the east side of the City. Table 4.8-1 in the BIOLOGICAL RESOURCES (Chapter 4.8) section of this EIR identifies the watersheds and watercourses within the City, which are summarized below. Watercourses and watersheds outside of the City from which the City obtains some of its municipal water supplies are discussed in the WATER SUPPLY (Chapter 4.5) section of this EIR.

## San Lorenzo River Watershed

The San Lorenzo River Watershed is the largest watershed in the City, with the San Lorenzo River flowing adjacent to the center of the City's downtown area. The San Lorenzo River drains a 138-square mile watershed, featuring forested and urbanized areas within the City and Santa Cruz County. Within the City limits, the lower San Lorenzo River flows southward from the Sycamore Grove area of Pogonip, through the center of Santa Cruz, to Monterey Bay. This lower reach of the San Lorenzo River encompasses much of the river's historic floodplain. Branciforte Creek and Jessie Street Marsh are tributaries to the San Lorenzo River.

The watershed is comprised predominantly of open space lands (41%) in the northern portion, and residential neighborhoods (26%) and paved roads (13%) as the river flows south through the City. Other land uses include commercial businesses and a portion of the UCSC campus. The primary tributary streams within City limits include: Carbonera Creek, Branciforte Creek, Glen Canyon Creek, and Pogonip Creek (City of Santa Cruz, March 2010).

Over the last 50 years the San Lorenzo River has been impacted by increasing development within the watershed and the channelization of the lower 2.5 miles into a levee flood control structure following a damaging flood in Santa Cruz in 1955. This flood control project, developed in cooperation with the U.S. Army Corps of Engineers (ACOE), included rip-rap levee banks, removal of all vegetation from the banks, and dredging of the river channel bottom. During construction of the levee project, Jessie Street Marsh was filled and the lower Branciforte Creek was channelized in a cement culvert. The ACOE completed another levee improvement project in 2000 that improved and raised the levees. The design incorporated native vegetation concepts and a continuous bicycle and pedestrian path along the length of the levees.

## Moore Creek Watershed

The Moore Creek watershed is located on the western side of Santa Cruz and drains directly into the Pacific Ocean at Natural Bridges State Park. The watershed is comprised primarily of open space (50%) and the UCSC campus (23%). Also within the watershed are residential areas, general industrial businesses, and parks. The primary resources located within this watershed are as follows: Younger Lagoon, Moore Creek, Antonelli Pond, Natural Bridges State Park, and Monterey Bay (City of Santa Cruz, March 2010).

## Westside Watershed

The Westside Watershed is also located on the western side of the City, between the Moore Creek Watershed and the Neary Lagoon Watershed. The southern boundary of the Westside Watershed is the Pacific Ocean. A significant portion of the watershed is comprised of residential areas (53%) and paved roads (21%). Other land uses include open space, churches and schools, and industrial facilities. The primary resources are: Bethany Creek, Arroyo Seco Corridor, Lighthouse Field State Park, and Monterey Bay (City of Santa Cruz, March 2010).

### Neary Lagoon Watershed

The Neary Lagoon Watershed is located in between the Moore Creek, Westside, and San Lorenzo River Watersheds. The watershed drains into Monterey Bay and the Pacific Ocean at Cowell Beach. The watershed drains the majority of the UCSC campus (44%) and residential neighborhoods (33%). Other land uses include roads, open spaces, churches and schools, and commercial businesses. Neary Lagoon is centrally located in the City's urban core and is comprised of approximately 44 acres of wetland, riparian and woodland habitats. The lagoon collects runoff and groundwater from approximately one half of the west side of the City, most of which is residential. A weir controls the lagoon water level. The lagoon outlets to Monterey Bay at Cowell Beach during the wet weather season via a gravity storm drain and one forced main storm drain. During the dry weather season, the lagoon's discharge is diverted to the Wastewater Treatment Facility. The primary resources are as follows: Donero Creek, Westlake Pond, Laurel Creek, Bay Creek, Neary Lagoon, Cowell Beach, and Monterey Bay (City of Santa Cruz, March 2010).

### Arana Gulch Watershed

The Arana Gulch Watershed is located on the City's eastern border and is partially within the unincorporated residential areas of the County. The watershed drains into Monterey Bay at the Santa Cruz Yacht Harbor. The watershed, within City limits, is comprised predominantly of residential neighborhoods (34%) and open space (34%). Other land uses include paved roads, churches and schools, and the Santa Cruz Port District (Yacht Harbor). The primary resources include the following: Arana Creek, West Branch Creek, Hagemann Gulch, Woods Lagoon, the Santa Cruz Yacht Harbor, and Monterey Bay (City of Santa Cruz, March 2010).

## STORMWATER DRAINAGE

The City's storm drain system is comprised of a wide variety of conveyance systems such as underground pipes, small open drainage channels, creeks, and the San Lorenzo River. The system includes numerous storm drain inlets and catch basins (approximately 1,450) throughout the City, and five pump stations that discharge stormwater directly into the San Lorenzo River. In addition, along both the east and west sides of the City, there are stormwater outfalls that discharge onto the beaches or cliffs, and into Monterey Bay (City of Santa Cruz, March 2010).

There is approximately 50 miles of underground storm drain system pipeline in the City. The majority of pipes are comprised of concrete. Old pipelines still remain that are comprised of clay, while new pipelines installed by the City are either made of PVC or high-density polyethylene (HDPE). The typical pipeline diameter is 12-15 inches although both smaller and larger pipelines, up to 72 inches, exist. Maintenance and repair of the City's storm drain system is conducted by the Public Works Department (City of Santa Cruz, March 2010).

In general, the City's downtown area drains to the San Lorenzo River. Although some stormwater reaches the river by absorption and gravity, the five pump stations along the river were installed in order to transfer the majority of the stormwater over (actually through) the river levees. There are three pump stations located on the west side of the river and two on the east side. The west side pump stations are located at Broadway and in Beach Flats area. The

east side locations pump stations are located at lower Ocean Street and at Water Street (City of Santa Cruz, March 2010).

In addition to the San Lorenzo River, there are numerous creeks traversing the City as indicated above, and summarized in Table 4.8-1 in the BIOLOGICAL RESOURCES (Chapter 4.8) section of this EIR. In certain areas of the City, natural spring water and stormwater flows through a network of conveyance systems, such as small creeks and underground piping. This is especially the case in the west side of Santa Cruz, particularly the upper west side. The upper west side is dotted by natural springs, which feed the small creeks that run through residential yards and cross streets via underground piping. These creeks drain either into Neary Lagoon or run through the storm drains system discharge from West Cliff Drive into Monterey Bay. As expected, the flow from some of these smaller creeks is seasonal or intermittent with the greatest flows occurring during the rainy season (City of Santa Cruz, March 2010).

## WATER QUALITY

Urban development often results in the degradation of water quality due to the introduction of pollutants and erosion due to construction and development. Development and pervious pavement can result in increased runoff and higher velocities in creeks and streams. These changes can, in turn, cause erosion. Urban pollutants may include toxic metals, hydrocarbons, nutrients, suspended solids, and many other chemicals (City of Santa Cruz, March 2010).

The significant sources and examples of activities that may generate pollutants are listed below as summarized in the City's "Storm Water Management Plan" (March 2010):

- *Industrial facilities*: industrial chemical processes; chemical and waste storage; fleet maintenance and vehicle washing; and landscaping.
- C*ommercial businesses* including food and vehicle service facilities: vehicle and equipment maintenance; food processing; vehicle washing; landscaping; and chemical and waste storage.
- *Residential dwellings*: vehicle washing; home vehicle repair; home painting and construction projects; chemical and waste storage; pet waste; and landscaping.
- C*onstruction and remodeling projects*: grading; vegetation removal; concrete washout; vehicle and equipment fluids; landscaping; and material and waste storage.
- *Municipal sewer system and private sewer laterals*: exfiltration from leaking, cracked, and debilitated pipelines; and overflows from blocked pipelines.

The City's "Storm Water Management Plan" (SWMP) is a comprehensive program to reduce the amount of pollutants discharged in urban runoff and to improve and protect water quality. The SWMP includes six required control programs and two recommended control programs for industrial and commercial facilities, and Best Management Practices (BMPs). The City's SWMP was approved by the Central Coast RWQCB on April 14, 2009, and thus, the City is granted coverage under the statewide NPDES Small Municipal Separate Storm Sewer Systems General Permit. The SWMP is described further in this chapter.

## Pollutants of Concern

Stormwater pollutants generated by the sources described above are numerous and quite varied. These pollutants include: metals, solvents, paint, concrete, masonry products, detergents, vehicle fuels and fluids, oil and grease, pesticides and fertilizers (organic compounds and nutrients), debris and litter, bacteria, pathogens and oxygen demanding compounds, and sediment and silt. In general, all five of the City's watersheds contain most or all of these pollutants due to the various types of land uses that are distributed throughout the City rather than certain types being concentrated in specific watersheds. However, the San Lorenzo River watershed does have a higher level of commercial and tourist activity, and the Moore Creek watershed has very little commercial land use and the Neary Lagoon watershed has practically no industrial land use (City of Santa Cruz, March 2010).

The primary pollutants of concern in the City watersheds are sediment and silt and fecal indicator bacteria. The City has targeted these primary pollutants of concern in the SWMP because certain water bodies within the City are listed on the Clean Water Act Section 303(3) list as impaired for these specific pollutants as further discussed below (City of Santa Cruz, March 2010). The other pollutants of concern will also be addressed in the City's Storm Water Management Plan, as further described below, through the measures and BMPs detailed plan. Other identified water quality issues include:

- *Central Coast Ambient Monitoring Program* Toxicity:
  - sublethal effects observed in San Lorenzo River
  - one lethal effect observed in Arana Gulch
- *Monterey Bay Sanctuary Citizen Watershed Monitoring Network*
  - Copper and Zinc: observed at elevated levels in stormwater discharges during First Flush events
- *Fecal Indicator Bacteria from transients and homeless people* (City of Santa Cruz, March 2010).

On February 15, 2008, the Central Coast RWQCB notified the City that BMPs must be adopted for the development of hydromodification criteria to protect beneficial uses and promote the desired conditions of healthy watersheds including:

I. Maximize infiltration of clean stormwater, and minimize runoff volume and rate;
II. Protect riparian areas, wetlands, and their buffer zones;
III. Minimize pollutant loading; and
IV. Provide long-term watershed protection.

The City has joined with other surrounding jurisdiction and the RWQCB in a Joint Effort to cooperatively develop hydromodification control criteria. The City will derive municipality-specific criteria for controlling hydromodification in new and redevelopment projects using approved methodology developed through the Joint Effort. In addition, the City will develop and enact a strategy for implementing LID and hydromodification control for new and redevelopment projects. Water quality and runoff flow and volume can be addressed by individual development projects through incorporation "low impact development" (LID) concepts into the project design. There is a general understanding that LID is a type of site design that strives to protect the natural hydrology once the site is developed. However, there is a common misconception that LID is only about the use of structural practices such as rain gardens, pervious

pavements, and bioswales. In fact, a good LID design incorporates both site planning principles and structural practices to achieve site performance objectives. Neglecting to incorporate LID design principles throughout the site planning and design process often results in the designer attempting to fit LID structural practices to the site after all other site design has been defined. This can result in higher costs as well as a reduced ability to meet stormwater management objectives. LID design is often an iterative process that includes evaluating the stormwater benefits (e.g., reduced surface runoff, improved water quality) during the design and going back to the design to revise and then recalculate benefits.

## Impaired Water Bodies

As indicated in the "Regulatory Setting", subsection, the Clean Water Act requires states to identify and prepare a list of water bodies that do not meet water quality objectives, and to establish Total Maximum Daily Loads (TMDL) for each water body to ensure attainment of water quality objectives. The City of Santa Cruz storm drain system (MS4) discharges into four water bodies that are currently on the 303(d) list of impaired water bodies. These water bodies and associated impairments are identified below.

- San Lorenzo River. The San Lorenzo River is listed for:
  - *Sedimentation/siltation* – potential sources are construction/land development, urban runoff, and non-point sources. There is an adopted TMDL for this impairment as discussed below.
  - *Pathogens* – the relative order of controllable sources, in descending order, is: 1) City of Santa Cruz sanitary sewer collection system spills and leaks (including private laterals connected to municipal sanitary sewer collection systems), 2) storm drain discharges to municipally-owned and operated separate storm sewer systems (MS4s), 3) pet waste in areas that do not drain to MS4s, 4) homeless person/encampment discharges in areas that do not drain to MS4s, 5) onsite wastewater disposal system discharges, and 6) farm animal and livestock discharges.
  - *Nutrients* – the potential sources being nonpoint sources and septage disposal, and pathogens. The potential sources of these are septage disposal and urban runoff/storm sewers.

- San Lorenzo River Lagoon. The San Lorenzo River Lagoon is listed for *pathogens*. The relative order of controllable sources, in descending order, is: 1) City of Santa Cruz sanitary sewer collection system spills and leaks (including private laterals connected to municipal sanitary sewer collection systems), 2) storm drain discharges to municipally-owned and operated separate storm sewer systems (MS4s), 3) pet waste in areas that do not drain to MS4s, 4) homeless person/encampment discharges in areas that do not drain to MS4s, 5) onsite wastewater disposal system discharges, and 6) farm animal and livestock discharges.

- Carbonera Creek.
  - *Sedimentation/siltation* – potential sources are construction/land development, and non-point sources. There is an adopted TMDL for this impairment as discussed below.

- *Pathogens* – the relative order of controllable sources, in descending order, is: 1) City of Santa Cruz sanitary sewer collection system spills and leaks (including private laterals connected to municipal sanitary sewer collection systems), 2) storm drain discharges to municipally-owned and operated separate storm sewer systems (MS4s), 3) pet waste in areas that do not drain to MS4s, 4) homeless person/encampment discharges in areas that do not drain to MS4s, 5) onsite wastewater disposal system discharges, and 6) farm animal and livestock discharges.
- *Nutrients* – the potential sources being nonpoint sources (septage disposal and urban runoff/storm sewers).

- Branciforte Creek.
  - *Sedimentation/siltation* – the potential sources are nonpoint source, road construction, and silviculture (not applicable in the City). The City is currently addressing these issues under the Implementation Plan for the San Lorenzo River Sediment TMDL.
  - *Pathogens* - the relative order of controllable sources, in descending order, is: 1) City of Santa Cruz sanitary sewer collection system spills and leaks (including private laterals connected to municipal sanitary sewer collection systems), 2) storm drain discharges to municipally-owned and operated separate storm sewer systems (MS4s), 3) pet waste in areas that do not drain to MS4s, 4) homeless person/encampment discharges in areas that do not drain to MS4s, 5) onsite wastewater disposal system discharges, and 6) farm animal and livestock discharges.

For these water bodies and impairments, the City's SWMP addresses the primary pollutants of concern through City measures and BMPs to the Maximum Extent Practicable. In addition, where there is an adopted TMDL, the SWMP targets these primary pollutants of concern due to their high priority. In some cases a TMDL has been adopted for these primary pollutants of concern by the RWQCB. To date, a "Total Maximum Daily Load" (TMDL) has not been established for all of the 303(d) listed water bodies/impairments identified above, although they are under development. A discussion of the adopted TMDLs for water bodies within the City of Santa Cruz is provided below.

**TMDLs for Sediment**. The San Lorenzo River and Carbonera Creek (along with Lompico Creek and Shingle Mill Creek, which are outside of the City's jurisdiction) were identified as impaired by sediment on the 1998 Clean Water Act Section 303 (d) list of impaired water bodies. On May 16, 2003, the RWQCB adopted a sediment TMDL (Resolution No. R3-2002-0063) for these water bodies and thereby incorporated the TMDL and associated Implementation Plan into the Basin Plan. Again, the sources of impairment are attributed to the following: land development, urban runoff, roads, non-point sources, and silviculture. In 2006, the State Board added additional water bodies that were on the 303(d) as impaired by sediment. Of these additions, Branciforte Creek is located within the City. Thus, the water bodies within the City included in the Implementation Plan are the San Lorenzo River, Carbonera Creek, and Branciforte Creek.

The *Implementation Plan for the San Lorenzo River Sediment TMDL* identifies the Cities of Santa Cruz and Scotts Valley, the County of Santa Cruz, and the owners and operators of construction sites of one acre and greater as Responsible Dischargers. Therefore, the City has and will take the following implementation actions within its jurisdiction:

a) Develop and implement the SWMP and Storm Water Pollution Prevention Plans (SWPPPs) consistent with NPDES Phase II Storm Water regulations.

b) Identify the San Lorenzo River Watershed as a priority for site inspection and enforcement of control measures in the SWMP and SWPPPs.

c) Incorporate sediment control programs/projects into the SWMP.

**TMDLs for Fecal Indicator Bacteria**. A TMDL for Fecal Indicator Bacteria has also been adopted for the San Lorenzo River, San Lorenzo River Lagoon, Branciforte Creek, and Carbonera Creek. Although the TMDL has been adopted by the RWQCB and the SWRCB it has not been adopted by the Office of Administrative Law and therefore an implementation schedule is not yet set. The implementation plan tasks to be performed by the City include:

1. Improved maintenance of the sanitary sewer system adjacent to the impaired bodies
2. Implementing BMPs as required by the City's SWMP.

The implementation plan also requires that the City address impacts from homeless persons and encampments.

## FLOOD & COASTAL HAZARDS

### Flood Hazards

#### OVERVIEW

Flooding and coastal storms present essentially the same risks and are frequently related types of hazards in the City of Santa Cruz. A flood is a natural event for rivers and streams. Coastal storms can cause increases in tidal elevations (called storm surge) wind speed and erosion as well as flooding Floodplains are lowlands adjacent to rivers, lakes and oceans that are subject to recurring floods (City of Santa Cruz, September 2007).

A flood occurs when a waterway receives a discharge greater than its capacity. Several factors determine the severity of floods, including rainfall intensity (or other water source) and duration. Floods may result from intense rainfall, localized drainage problems, tsunamis or failure of flood control or water supply structures such as levees, dams or reservoirs. Floodwaters can carry large objects downstream with a force strong enough to destroy stationary structures such as bridges and break utility lines. Flood waters also saturate materials and earth resulting in the instability, collapse and destruction of structures as well as the loss of human life. The City of Santa Cruz has lost bridges and other infrastructure during previous storms (City of Santa Cruz, September 2007).

Floods occur in relation to precipitation. Flood severity is determined by the quantity and rate at which water enters the waterway, increasing volume and velocity of water flow. The rate of

surface runoff, the major component to flood severity, is influenced by the topography of the region as well as the extent to which ground soil allows for infiltration in addition to the percent of impervious surfaces (City of Santa Cruz, September 2007).

Most of the known floodplains in the United States have been mapped by FEMA, which administers the National Flood Insurance Program (NFIP.) Information on Santa Cruz can be found in FEMA's most recent flood Insurance Study (FIS).

### FLOOD HAZARDS IN CITY OF SANTA CRUZ

Within the City of Santa Cruz there are several areas subject to flooding. The San Lorenzo River runs through the downtown corridor and the majority of the downtown area is in the San Lorenzo floodplain. Flooding along the coast of Santa Cruz may occur with the simultaneous occurrence of large waves and storm swells during the winter. When storms occur simultaneously with high tides, flood conditions including flooding at the mouth of the San Lorenzo River are exacerbated.

There are several smaller creeks in the City that are subject to periodic flooding. Figure 4.7-1 shows FEMA-identified floodplains in the City. Flooding is a hazard on the lower reaches of Moore Creek where only shallow stream channels are present, the lower portion of Arana Gulch, north of Santa Cruz Yacht Harbor, and along portions of Branciforte and Carbonera creeks. In these areas there is minimal impact on public structures and facilities and only a few residential structures are within these flood zones (City of Santa Cruz, September 2007).

The City of Santa Cruz has been subject to floods along the San Lorenzo River throughout recorded history from the time the Mission was first built in 1793 to the "Christmas Flood" on December 22, 1955. Eighteen floods, eight of which have been considered severe, have occurred over the last hundred years in Santa Cruz (City of Santa Cruz, September 2007).

The City of Santa Cruz has worked to improve the flood capacity of the San Lorenzo River levees over the past twenty years. Significant flood improvements along the river were completed in 2000 as part of the U.S. Army Corps of Engineers' San Lorenzo River Flood Control and Environmental Restoration Project. This project raised the river levees and rehabilitated the three downtown bridges (over the San Lorenzo River) to increase flood flow capacity. Despite recent flood control projects and improved flood rating in much of the down-town and beach area, the risk of flooding is still a concern to the City. While the levee project has resulted in a more flood-resistant downtown, floods may still occur. The levee project did not impact areas along the San Lorenzo River above the Highway One bridge (City of Santa Cruz, September 2007).

The City of Santa Cruz Storm Water Management Utility is primarily a financing mechanism for flood control and stormwater programs. The City established a stormwater utility fee in May 1994 to fund the local share of the San Lorenzo River Flood Control and Environmental Restoration Project. The funds are used to maintain and retrofit surface water, stormwater, and flood control facilities and are generated as a property tax assessment.

### FEMA RATINGS AND FLOOD INSURANCE

The Flood Insurance Rate Map (FIRM) is an official map of a community for which the Federal Insurance and Mitigation Administration has delineated the Special Flood Hazard Area (SFHA) and the risk premium zones applicable to the community. All known areas of the City subject to natural flooding hazards have been designated and mapped by the Federal Emergency Management Agency (FEMA), such as the 100-year floodplain boundaries which appear on FEMA's Flood Insurance Rate Maps, and are a source for the floodplain map included in this chapter (City of Santa Cruz, September 2007).

FEMA re-designated much of the downtown and beach area from A-11 to the A-99 Flood Zone designation in recognition of the significant flood improvements resulting from completion of the San Lorenzo River Flood Control and Environmental Restoration Project. Under the A-99 designation, new buildings and improvements are no longer mandated to meet FEMA flood construction requirements and flood insurance premiums are significantly reduced. The FEMA Community Rating System (CRS) class seven rating for the City of Santa Cruz further reduces the National Flood Insurance Program (NFIP) A-99 flood insurance rates by five percent. At present the combination of the CRS class seven rating and the A-99 designation reduces flood insurance by 45% (City of Santa Cruz, September 2007).

## Dam Failure

Dam failure can occur as a result of earthquakes, seiches, structural instability, or intense rain in excess of design capacity. Timber, rock, concrete, earth, steel or a combination of these materials may be used to build the dam. Dams must have spillway systems to safely convey normal stream and flood flows over, around, or through the dam. Spillways are commonly constructed of non-erosive materials such as concrete. Dams also have a drain or other water-withdrawal facility to control the reservoir level and to lower or drain the reservoir for normal maintenance and emergency purposes (City of Santa Cruz, September 2007).

The City of Santa Cruz owns and operates Newell Creek Dam (NCD) and Bay Street Reservoir (BSR). NCD is located near the town of Ben Lomond in the Santa Cruz Mountains and impounds Newell Creek to form Loch Lomond Reservoir. The reservoir was constructed in the early 1960s and has a maximum capacity of 2.9 billion gallons (BG). The Loch Lomond Reservoir is the City's primary raw water storage facility (City of Santa Cruz, September 2007). The Bay Street Reservoir, a former impoundment to store treated water, has been removed, and is being replaced with permanent water storage tanks.

The primary mitigation strategy is the continuation of monitoring protocols for structural integrity. These include the monitoring of the Newell Creek Dam as follows:

- Water pressures within the dam and seepage are monitored monthly and after established rainfall and earthquake triggers.
- Horizontal and vertical movement is monitored annually at Newell Creek Dam. California Department of Water Resources, Division of Safety of Dams, has just recently requested a similar monitoring protocol at BSR which will begin in the spring of 2007.

- Periodic seismic reviews are conducted at both dams to ensure stability with respect to current seismic standards.

## Coastal Issues and Hazards

### TSUNAMI HAZARD

A tsunami is a series of waves generated by an impulsive disturbance in the ocean or in a small, connected body of water. Tsunamis are produced when movement occurs on faults in the ocean floor, usually during very large earthquakes. Sudden vertical movement of the ocean floor by fault movement displaces the overlying water column, creating a wave that travels outward from the earthquake source. An earthquake anywhere in the Pacific can cause tsunamis around the entire Pacific basin. Since the Pacific Rim is highly seismically active, tsunamis are not uncommon (City of Santa Cruz, September 2007).

California is at risk from both local and distant source tsunamis. Eighty-two possible or confirmed tsunamis have been observed or recorded in California during historic times. Most of these events were small and only detected by tide gages. Eleven were large enough to cause damage and four events resulted in deaths. Two tsunami events caused major damage (City of Santa Cruz, September 2007).

There has been minimal damage and loss of life in Santa Cruz during recorded history of tsunamis (City of Santa Cruz, September 2007). However, a tsunami generated by a 9.0 magnitude earthquake in Japan in March 2011 reached Santa Cruz and caused substantial damage to the Santa Cruz Small Craft Harbor.

Even though the potential for a significant tsunami may be low or possibly uncertain, the potential outcome of such a tsunami could be significant damage and loss of life. Figure 4.7-2 illustrates tsunami inundation zones in Santa Cruz. Several active and potentially active earthquake faults are located within or near Santa Cruz. Even a moderate earthquake occurring in or near any of the nearby faults could result in local source tsunamis from submarine landsliding in Monterey Bay (City of Santa Cruz, September 2007). In the aftermath of the 1989 Loma Prieta Earthquake, several docks in the Harbor became stuck to the piers and had to be lifted manually, or were broken implying that the water level fell below the usual low tide level. A small tidal wave was observed rushing out of the harbor following the earthquake that continued for 15-20 minutes (Ibid.). Additionally, distant source tsunamis from the Cascadia Subduction Zone to the north, or Teletsunamis from elsewhere in the Pacific Ocean are also capable of causing significant destruction in Santa Cruz (Ibid.).

The US Army Corps of Engineers has looked at potential earthquake sources around the Pacific and modeled expected tsunami impacts on the coast of the Monterey Bay (US Army Corps of Engineers, 1975). The study estimated that a tsunami wave with a probability of occurrence of one every 100 years would be about 5.9 feet high. A tsunami with a probability of occurrence of one every 500 years is expected to be 11.5 feet high (City of Santa Cruz, September 2007).

### CLIMATE CHANGE – POTENTIAL SEA LEVEL RISE

There has been increasing attention paid in recent years to the issue of global climate change and its potential effects on coastal resources. Over the past century, sea level has risen nearly eight inches along the California coast, and general model scenarios suggest very substantial increase in sea level due to climate change over the coming century (California Climate Change Center, March 2009). Specifically, a 1.4 meter sea-level rise has been estimated, which would place nearly 500,000 people in California at risk of a 100-year flood event (Ibid.). The City of Santa Cruz, built on the 100-year floodplain, and only 20 feet above sea level is at risk (California Climate Action Center, July 2006). Large sections of the Pacific Coast not vulnerable to flooding are highly susceptible to coastal erosion that could be accelerated by a rising sea level (Ibid.). Additionally, changes in precipitation patterns could lead to increased flooding. According to the California Climate Change Center:

- Sea level in California could rise between approximately10 centimeters to 90 centimeters (4 to 25 inches) above existing mean sea level by 2099 as a result of climate change, also increasing the frequency of 100-year event high tide peaks (California Climate Change Center, March 2006).

- Under medium to medium-high greenhouse-gas emissions scenarios, mean sea level along the California coast is projected to rise from 1.0 to 1.4 meters (about 3 to 4.5 feet) by the year 2100 (California Climate Change Center, March 2009).

Rising sea levels, storms of increasing intensity and an alternating series of floods and drought threaten the City of Santa Cruz in the coming decades. With funding from FEMA, the City is now in the process of drafting a "Climate Change Adaptation Plan". The objectives of this Plan are to identify and evaluate the potential impacts of climate change on the City of Santa Cruz, analyze the severity of the hazards that the City faces, and develop potential adaptation responses to reduce the risk and exposure of the City to these hazards. The first step identified potential risks in a "Vulnerability Study", prepared as a collaborative effort between the City's Climate Adaptation Team and UCSC scientists. The study identified potential facilities vulnerable to risks of sea level rise, including beaches, West Cliff Drive, the City's wastewater treatment facility and the Santa Cruz Harbor (Griggs and Haddad, January 2011). The study also addressed coastal storm and cliff erosions hazards, as well as the potential for increased precipitation and flooding. Based on this study, the City has developed action items with priorities to respond to specific risks and hazards related to climate change. that will build adaptive capacity into policies, programs and infrastructure. The Plan will include provide a range of goals, objectives and actions that will build adaptive capacity into policies, programs and infrastructure and will provide a framework to continually expand understanding of climate science, community vulnerabilities and new adaptation technologies to inform current and future decisions.

## REGIONAL AND LOCAL PLANS

### Basin Plan

The Central Coast RWQCB regulates water quality in the Monterey Bay area in accordance with the Water Quality Control Plan or "Basin Plan" (Central Coast RWQCB, 2009). The Basin Plan designates beneficial uses that the RWQCB has identified for local water bodies. The Plan also provides water quality objectives for waters of the state, including surface waters and groundwater. It also includes implementation programs to achieve water quality objectives. Table 4.7-1 identifies beneficial uses designated for selected water bodies in the City of Santa Cruz.

**Table 4.7-1**
**Beneficial Uses of Surface Water Bodies within City of Santa Cruz**

| Water Body | Beneficial Uses in the Basin Plan |
|---|---|
| Younger Lagoon | GWR, REC1, REC2, WILD, COLD, WARM, SPWN, BIOL, COMM |
| Antonelli Pond | GWR, REC1, REC2, WILD, WARM, MIGR, SPWN, RARE, COMM |
| Moore Creek | MUN, AGR, GWR, REC1, REC2, WILD, COLD, WARM, SPWN, BIOL, FRESH, COMM |
| Neary's Lagoon | GWR, REC1, REC2, WILD, WARM, SPWN, RARE, COMM |
| San Lorenzo River Estuary | REC1, REC2, WILD, COLD, MIGR, SPWN, BIOL, RARE, EST, COMM |
| San Lorenzo River | MUN, AGR, IND, GWR, REC1, REC2, WILD, COLD, MIGR, SPWN, BIOL, RARE, FRESH, COMM |
| Branciforte Cree, | MUN, AGR, GWR, REC1, REC2, WILD, COLD, MIGR, SPWN, COMM |
| Carbonera Creek | MUN, AGR, IND, GWR, REC1, REC2, WILD, COLD, MIGR, SPWN, COMM |

**Source:** Central Coast Regional Water Quality Control Board, July 2009

**Beneficial Use Definitions:** Municipal and Domestic Supply (MUN); Agricultural Supply (AGR); Industrial Service Supply (IND); Ground Water Recharge (GWR); Freshwater Replenishment (FRSH); Water Contact Recreation (REC-1); Non-Contact Water Recreation (REC-2); Commercial and Sport Fishing (COMM); Warm Fresh Water Habitat (WARM); Cold Fresh Water Habitat (COLD); Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL); Rare, Threatened, or Endangered Species (RARE); Migration of Aquatic Organisms (MIGR); Spawning, Reproduction, and/or Early Development (SPWN).

The proposed *General Plan 2030* is consistent with provisions of the Basin Plan. The proposed general plan supports water quality protection through implementation of the City's Storm Water Management Plan and water quality prevention programs. Table 4.7-2 in subsection 4.7-3 below summarizes proposed policies and actions to support water quality programs and protection.

### City Plans

#### STORMWATER MANAGEMENT PROGRAM

The City of Santa Cruz has developed a comprehensive Storm Water Management Program (SWMP) to fulfill the requirements for the Phase II NPDES General Permit for Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems (MS4 General Permit) and

to reduce the amount of pollutants discharged in urban runoff. In compliance with the Phase II regulations, the City has developed a comprehensive SWMP that is designed to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP) and to protect water quality. The SWMP includes eight programs to achieve this goal, including runoff control policies, outreach and education efforts, site visits, and the implementation of BMPs. The eight programs include:

- Municipal Operations/Pollution Prevention and Good Housekeeping
- Illicit Discharge Detection and Elimination
- Public Participation
- Public Education
- Construction Site Storm Water Runoff Control
- Post Construction Storm Water Management
- Industrial Facilities
- Commercial Facilities

BMPs will include both preventative measures, such as good housekeeping practices, and structural controls. BMPs that reduce pollutants in stormwater runoff will be implemented to the technology-based standard of Maximum Extent Practicable (MEP). Project development plans are required to include the details of any and all BMPs such as the location, size, and hydraulic calculations that show how the BMP meets City requirements. Project plans are also required to include a signed certification from a licensed civil engineer or architect registered in the State of California that the proposed structural or treatment control BMP(s) meet the design standards criteria established within the City's latest BMP manual.

In addition, since improper maintenance is one of the primary reasons a structural or treatment control BMP may cease to function properly, the City will take measures to ensure that any BMP devices or systems used or installed at a site will be adequately maintained in the long-term (regardless of property owner). To this end, a property owner would be made responsible for inspection and maintenance of the BMP by agreeing in a signed statement, entitled "Maintenance Agreement", to several conditions that define the schedule, responsibility, and proof of inspections and maintenance.

As indicated above, the City of Santa Cruz Storm Water Management Utility is primarily a financing mechanism for flood control and stormwater programs. The City established a stormwater utility fee in May 1994 to fund the local share of the Army Corps of Engineers San Lorenzo River Flood Control and Environmental Restoration Project (as described above). The stormwater utility also provides funds towards development and implementation of the SWMP including staffing to promote departmental and interagency coordination, Best Management Practice compliance, permitting and enforcement, and educational efforts. Lastly, funds are used to maintain and retrofit surface water, stormwater, and flood control facilities. The fee is included on the County Property Tax statements and is payable on a biannual basis. The City bills owners of parcels who do not pay property taxes (City of Santa Cruz, March 2010).

### NEARY LAGOON MANAGEMENT PLAN

The Neary Lagoon Management Plan was developed as a comprehensive guide and directive for managing the lagoon area to ensure its viability as an ecosystem and its value as a unique resource for the community. Goals, objectives, and actions are designed with the purpose of preserving and enhancing the lagoon's environmental integrity and quality while satisfying other purposes for public use, flood protection, water quality, mosquito control and aesthetics. Many aspects of the management plan have been implemented. The Parks and Recreation Department is primarily responsible for the implementation of the management plan (City of Santa Cruz, March 2010).

### SAN LORENZO URBAN RIVER PLAN

The *San Lorenzo Urban River Plan* is the outcome of a planning process initiated by City Council in 1999 to update previous plans for the San Lorenzo River, Jessie Street Marsh, and Branciforte Creek that guided flood control, vegetation restoration and public access improvements along the San Lorenzo River. (See also discussion in the BIOLOGICAL RESOURCES (Chapter 4.8) section of this EIR.)

The "Lower San Lorenzo River and Lagoon Management Plan" is included as an appendix in the San Lorenzo Urban River Plan and provides resource management and restoration recommendations within the constraints of providing flood protection. Management and restoration recommendations address:

- Annual vegetation and sediment management,
- Summer lagoon water level management,
- Streamflow standard for inflow into lagoon and maintenance of a low flow channel,
- Enhancement of streambed aquatic cover and substrate,
- Enhancement of riverbank shoreline habitat and riparian corridor vegetation, and
- Floodplain and marsh restoration.

### CITY-WIDE CREEKS AND WETLANDS MANAGEMENT PLAN

The City-Wide Creeks and Wetlands Management Plan identifies and categorizes all watercourses in the city and establishes a riparian corridor, development setback area, and management area for each watercourse. Specific setback requirements were determined based on an evaluation of biological, hydrological, and land use characteristics, and are applied to all watercourse segments. However, setbacks for wetland areas would be subject to site-specific review. All projects must comply with the watercourse development standards, and a watercourse development permit is required unless specifically exempted or approval of a watercourse variance is obtained. The primary long-term goals of this Management Plan are to:

- Reduce and/or eliminate pollutants discharged to aquatic bodies;
- Improve water quality;
- Improve and restore natural habitat;
- Increase biodiversity;
- Lower water temperatures; and

- Increase public awareness of the value of watershed quality. (City of Santa Cruz, March 2010).

(See the BIOLOGICAL RESOURCES (Chapter 4.8) section of this EIR for further discussion of this plan.)

## 4.7.2 RELEVANT PROJECT ELEMENTS

### PROPOSED GOALS, POLICIES & ACTIONS

The CIVIC AND COMMUNITY FACILITIES chapter of the draft *General Plan 2030* includes one goal related to management of the stormwater system that is identified below, one policy (CC5.1) and 12 accompanying actions that set forth measures to manage stormwater drainage and water quality.

GOAL CC5 *A sustainable and efficient stormwater system.*

Several policies and actions in other chapters of the proposed General Plan also seek to protect critical facilities and new development from flood hazards (HZ1 and HZ6 and actions) and hazards from tsunamis or dam failure (HZ6.6).

### FUTURE DEVELOPMENT POTENTIAL

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan / Local Coastal Program, except for three new mixed use land designations have been developed and applied to the following major transportation corridors: Mission Street, Ocean Street, Soquel, Avenue, and Water Street. Additionally, some of the *General Plan 2030* policies and actions also support mixed use districts and/or intensified redevelopment, such as a Mixed Use River District and expansion of the High Density Overlay on Front and lower Pacific.

Land Use actions LU1.1.4 and LU1.1.5 address development and land use for specific sites: the Swenson property and the Golf Club Drive property, respectively. LU2.2.3 also includes addition of 5.5-acre parcel adjacent to the Dimeo Lane landfill and Resource Recovery Center, but specific uses haven't been identified, although the site will not be used as part of expansion of the landfill disposal area. In addition, the proposed *General Plan 2030* supports development of a desalination plant as part of the actions outlined to implement the City's adopted *Integrated Water Plan* (Policy CC3.1.3), but a specific site is not identified.

# 4.7.3 IMPACTS AND MITIGATION MEASURES

## CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

- 7a Substantially deplete groundwater supplies or interfere substantially with groundwater recharge;
- 7b Substantially alter the existing drainage pattern of the site or area or result in offsite drainage or flood problems;
- 7c Substantially increase the rate or amount of surface runoff, which would exceed capacity of existing or planned storm drain facilities, cause downstream or offsite drainage problems, or increase the risk or severity of flooding in downstream areas;
- 7d Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality;
- 7e Result in construction of habitable structures within a 100-year floodplain as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, which would expose people or structures to a significant risk of loss, injury or death due to flooding;
- 7f Locate structures within a 100-year flood hazard area that would impede or redirect flood flows;
- 7g Expose people or structures to a significant risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam or coastal flooding due to sea level rise and/or
- 7h Expose people or structures to a significant risk of loss, injury or death as a result in inundation by seiche, tsunami, or mudflow.

## IMPACT ANALYSIS

Potential impacts related to groundwater (7a) are addressed in the WATER SUPPLY (Chapter 4.4) section of this EIR. The following impact analyses address alteration of drainage patterns and stormwater runoff (7b-c); water quality (7d); and exposure to flood and other hazards (7e-h).

### Potential Future Development & Buildout

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased new development. However, the draft General Plan includes policies and a land use map that support additional development as summarized in subsection 4.7-2 above. Buildout projections indicate that potential new development accommodated by the draft General Plan to the year 2030 could total 3,350 residential units, 3,140,000 square feet of commercial, office and industrial development and new hotel rooms, primarily on infill and underutilized lots,

as described in the PROJECT DESCRIPTION (Chapter 3.0) and LAND USE (Chapter 4.1) sections of this EIR.

Development under the proposed General Plan would primarily occur on vacant infill sites, on underutilized properties that could be redeveloped at higher densities and/or land use intensities, and in the new mixed-use districts along the City's four major street corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. Based on the estimated development occurring under the proposed plan,[2] approximately 55% of all new housing, 45% of new commercial development and 52% of new office development would be located along these corridors. The draft plan also supports a mixed use district and high density in the lower Front Street and Pacific Avenue areas east of the San Lorenzo River (LU3.6, LU3.6.1).

**Impact 4.7-1: Alteration of Drainage Patterns and Stormwater Runoff**
Adoption and Implementation of the proposed *General Plan 2030* would accommodate future development that could result in increased stormwater runoff. With implementation of the proposed policies and actions for stormwater management and adherence to other City's plans and regulations, there would be no alteration of drainage patterns and increases in runoff would be considered a *less-than-significant impact*.

The City is primarily developed, and future development accommodated by the proposed *General Plan 2030* would be considered predominantly infill development within developed areas on vacant infill sites, on underutilized properties, and in the new mixed-use districts along the City's four major street corridors. Based on the estimated development occurring under the proposed plan, approximately one-half of new development would be located along these transportation corridors. There are a few remaining vacant lots and underdeveloped properties located within developed areas (i.e., Swenson site and Golf Club Drive area). Future development could result in an increase in impervious surfaces and runoff, although in the mixed use corridors, most areas already are covered with impervious surfaces, so there would be no net increase in runoff from those sites.

The General Plan policies and actions outlined in Table 4.7-2 and existing City regulations will serve to manage stormwater runoff from future development accommodated by the proposed General Plan. New development would result in stormwater runoff, but proposed policies and actions require that new development maintain pre-development runoff levels (CC5.1.8). Furthermore, the proposed General Plan policies specifically seek to minimize alteration of streams (HZ6.48) and maintain drainage within each drainage basin (CC5.1.5).

Furthermore, Title 24 of the Municipal Code (Zoning Ordinance) currently contains provisions to ensure that new developments or remodeled sites are designed and constructed in a manner that limits alteration of drainage patterns, prevents erosion, and minimizes long-term impacts on water quality. Chapter 24.14 – Environmental Resource Management – contains a section on Conservation Regulations that includes general provisions for drainage and erosion controls.

[2] See Table 3-3 in the PROJECT DESCRIPTION (Chapter 3.0) section of this EIR and Figure 2-3 for estimated distribution of new development per specific areas in the City.

These provisions include requirements that a drainage plan be submitted for projects, both large and small, when existing drainage patterns would be altered by new construction. A drainage plan must be submitted and reviewed as part of the project approval. In addition, the ordinance requires that stormwater runoff resulting from project development be minimized, and if a proposed project includes the discharge of runoff into a natural watercourse, the drainage plan shall include methods to safeguard or enhance the existing water quality. Devices such as detention basins, percolation ponds, or sediment traps may be required by the City, where appropriate or as specified in an adopted plan or wetlands management plan.

**TABLE 4.7-2**
**Proposed General Plan Policies & Actions that Avoid or Reduce Drainage, Water Quality and Other Hydrological Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| PREVENT ALTERATION OF DRAINAGES – DRAINAGE PATTERNS | • Minimize alteration of streams & floodplains: HZ6.4.8<br>• Strive to maintain drainage within each drainage basin: CC5.1.5, CC5.1.6 |
| MANAGE STORMWATER & DRAINAGE SYSTEM | • Develop Stormwater Master Plan & Storm Drain Master Plan: CC5.1, CC5.13<br>• Conduct annual maintenance: CC5.1.4<br>• Require new development to maintain pre-development runoff: CC5.1.8 |
| PROTECT WATER QULAITY | • Implement stormwater quality & water pollution prevention programs: CC5.1.1, CC5.1.9, CC5.1.10<br>• Discourage use of pesticides, herbicides, chemical fertilizers: NRC3.2<br>• Education efforts: CC5.1.12 |
| PROTECT AGAINST FLOOD HAZARDS | • Manage/maintain San Lorenzo River floodway: CC5.1.7<br>• Evaluate critical facilities for ability to survive flood hazards: HZ1.1.8<br>• Strengthen bridges: HZ1.1.11<br>• Address effects of global warming in areas that may have increased sea level or flooding: HZ6.4.1, NRC4.5 & 4.5.1<br>• Prepare guidelines for construction in floodplains: HZ6.4.6<br>• Use restrictions in undeveloped flood areas: HZ6.4.7<br>• Control activities that may increase flood potential: HZ6.4.9<br>• Limit impervious surfaces in flood-prone areas: HZ6.4.10 |
| PROTECT AGAINST DAM FAILURE & TSUNAMI | • Avoid or reduce risks from tsunami & dam failure: HZ6.6 & actions |

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would result in increased runoff. However, with implementation of the proposed *General Plan 2030* goals, policies and actions that set forth measures to avoid and minimize adverse impacts to drainage patterns and stormwater systems (as summarized on Table 4.7-2) and adherence to City regulations regarding project-level drainage control and design, the proposed *General Plan 2030* would not result in substantial

alteration of existing drainage patterns and its indirect impact related to increased stormwater runoff would be less than significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.7-2: Water Quality**
Adoption and Implementation of the proposed *General Plan 2030* would accommodate future development that could result in increased stormwater runoff and potential urban pollutants that contribute to water quality degradation. With implementation of the proposed policies and actions for water quality protection and adherence to other City's plans and regulations related to drainage and water quality controls, this would be considered a *less-than-significant impact*.

As indicated above, the City is primarily developed, and future development accommodated by the proposed *General Plan 2030* would be considered predominantly infill development within developed areas on vacant infill sites, on underutilized properties, and in the new mixed-use districts along the City's four major street corridors. Based on the estimated development occurring under the proposed plan, approximately one-half of new development would be located along these transportation corridors. There are a few remaining vacant lots and underdeveloped properties located within developed areas that are also located adjacent to water bodies to include:

- The Swenson Site adjacent to Antonelli Pond;
- The Golf Club Drive area adjacent to Pogonip Creek; and
- Portions of the area along Seventh Avenue that is within the City's Sphere of Influence, but outside city limits; portions of which border Arana Gulch and the Small Craft Harbor area.

Runoff from future development could carry urban pollutants into city watercourses if not properly managed. None of the larger vacant or underdeveloped areas identified below are adjacent to existing impaired water bodies. However, land use intensification is supported in areas along San Lorenzo River. The proposed General Plan does not propose any new uses that would result in a potential violation of water quality standards or waste discharge requirements. The plan does support development of a desalination facility that could result in marine discharges. However, this facility is currently subject of a site-specific environmental review process; previous program-level impacts are summarized in the WATER QUALITY (Chapter 4.4) section of this EIR.

The General Plan policies and actions outlined in Table 4.7-2 and existing City regulations will serve to manage stormwater runoff from future development accommodated by the proposed General Plan and protect water quality. The plan supports development and maintenance of a Stormwater Master Plan (CC5.1) with implementation of the City's stormwater quality program

(CC5.1.1) and stormwater pollution prevention program (CC5.1.10). The plan also seeks to reduce stormwater pollution (CC5.1.9).

Furthermore, Chapter 16.19 of the Municipal Code (Stormwater and Urban Runoff Pollution Control) and the City's recently adopted "Storm Water Management Plan" include provisions and requirements for drainage controls and implementation of BMPs to protect the water quality, beneficial uses, marine habitats, and ecosystems of the receiving waters of the City, including the San Lorenzo River and Monterey Bay, from pollutants carried by urban runoff. As indicated above under the Impact 4.7-1 discussion, Chapter 24.14 includes general provisions for drainage and erosion controls, and if a proposed project includes the discharge of runoff into a natural watercourse, the drainage plan shall include methods to safeguard or enhance the existing water quality. Devices such as detention basins, percolation ponds, or sediment traps may be required by the City, where appropriate or as specified in an adopted plan or wetlands management plan. Provisions pertaining to erosion control include requirements that a site development be fitted to the topography and soil so as to create the least potential for erosion.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would result in increased runoff and potential water quality degradation. With implementation of the proposed *General Plan 2030* goals, policies and actions to protect water quality as summarized on Table 4.7.2, and adherence to City regulations regarding project-level drainage designs to protect water quality, the proposed *General Plan 2030* would not result in a substantial degradation of surface water quality.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.7-3: Flood Hazards**
Adoption and Implementation of the proposed *General Plan 2030* would accommodate future development that could result in exposure to flood hazards, including watercourse flooding, dam failure and/or tsunami. With implementation of the proposed policies and actions related to flood control and adherence to other City's plans and regulations, the project would not result in location of habitable structures within a floodplain or substantial risk of exposure of structures or people to flood hazards. This is considered a *less-than-significant impact*.

As indicated above, the City is primarily developed, and future development accommodated by the proposed *General Plan 2030* would be considered predominantly infill development within developed areas on vacant infill sites, on underutilized properties, and in the new mixed-use districts along the City's four major street corridors. Based on the estimated development occurring under the proposed plan, approximately one-half of new development would be located along these transportation corridors. The draft plan also supports a mixed use district

and high density in the lower Front Street and Pacific Avenue areas east of the San Lorenzo River (LU3.6, LU3.6.1).

Future development accommodated by the proposed general plan could be subject to flood hazards in limited areas. These include areas of the downtown that are located in the San Lorenzo River floodplain, although recent levee improvements have increased flood protection in these areas. Additionally there are a few remaining vacant lots and underdeveloped properties located within developed areas that are also located adjacent to water bodies that could be subject to 100-year flood hazards identified on Figure 4.7-1 to include:

- The Swenson Site adjacent to Antonelli Pond;
- The Golf Club Drive area adjacent to Pogonip Creek; and
- Portions of the area along Seventh Avenue that is within the City's Sphere of Influence, but outside city limits; portions of which border Arana Gulch and the Small Craft Harbor area.

Additionally, some areas would be subject to inundation in the event of a tsunami as shown on Figure 4.7-2, and potential inundation due to dam failure.

The General Plan policies and actions outlined in Table 4.7-2 and existing City regulations will serve to manage development and prevent exposure to flood hazards. The plan supports land use restrictions in undeveloped flood areas (HZ6.4.7) and control of activities that may increase flood potential (HZ6.4.9). The plan also seeks to manage and maintain the San Lorenzo River floodway (CC5.1.7) and evaluate critical structures for ability to survive a flood (CC5.1.7). Development and maintenance of a Stormwater Master Plan (CC5.1) with implementation of the City's stormwater quality program (CC5.1.1) and stormwater pollution prevention program (CC5.1.10). The plan also seeks to reduce stormwater pollution (CC5.1.9). The proposed plan seeks to avoid or reduce risks from tsunami and dam failure (HZ6.6).

Furthermore, Section 24.14.400 ("Floodplain Management") sets forth requirements and procedures to protect properties against flood hazards and comply with National Flood Insurance Program requirements. The regulations set forth programs for floodplain management and specify circumstances in which floodproofing of structures may be required. The City's adopted "Local Hazard Mitigation Plan" (City of Santa Cruz, September 2007) also includes the mitigation strategy to protect structures and people from damages or loss of life due to flooding, tsunamis or dam failures.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan could be subjected to flood hazards, including potential tsunami and dam failures. With implementation of the proposed *General Plan 2030* goals, policies and actions regarding flood management as summarized on Table 4.7.2, and adherence to City regulations and implementation of its hazard mitigation program, the proposed *General Plan 2030* would not locate structures in a 100-year floodplain or expose people to significant risk of loss, injury or death involving flooding. This is considered a less-than-significant impact.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

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# 4.8 BIOLOGICAL RESOURCES

## 4.8.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Regulatory Setting
- Habitat Characteristics
- Special Status Species
- Sensitive Habitat Areas
- Wildlife Dispersal Corridors
- Resource Management Plans

This section is summarizes the biological background report prepared for the City of Santa Cruz by EcoSystems West Consulting Group (January, 2009) as part of the General Plan update and for this EIR. The technical report is included in Appendix F-1, which is available for review at the City of Santa Cruz Planning Department[1] and is also included on the Draft EIR CD and on the online version of the Draft EIR on the City's website at www.cityofsantacruz.com, Planning Department. The report provides information on special-status plant and wildlife species and sensitive habitats within the City's planning jurisdiction. The work effort included: review of all available documents; consultation with local experts; and conducting surveys of monarch butterfly habitat and coastal bird rookeries to update information on these resources. Additionally, a reconnaissance review was conducted on major vacant properties within the City. An accompanying geographic information system (GIS) database (geodatabase) provides spatial data created or updated as part of this work.

### REGULATORY SETTING

#### Federal Regulations

The United States Fish and Wildlife Service (USFWS) is responsible for the protection of terrestrial and freshwater organisms through the federal Endangered Species Act and the Migratory Bird Treaty Act, while the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS) is responsible for protection of anadromous fish (fish that live most of their adult life in saltwater but spawn in freshwater) and marine wildlife. The U.S. Army Corps of Engineers (ACOE) has primary responsibility for protecting wetlands and jurisdictional "other waters of the U.S." under Section 404 of the Clean Water Act.

[1] Located at 809 Center Street, Room 107, Santa Cruz, California during business hours: Monday through Thursday, 8 AM to 12 PM and 1 to 5 PM.

### FEDERAL ENDANGERED SPECIES ACT

The federal Endangered Species Act (ESA) of 1973 (Title 16 United States Code, Section 1531 *et seq.*, as amended) prohibits federal agencies from authorizing, permitting or funding any action that would result in biological jeopardy to a species listed as Threatened or Endangered. Under the ESA, the USFWS's and NMFS's responsibilities include administering the ESA, which prohibits the "take" of federally listed endangered or threatened animal species without a permit. NMFS jurisdiction under the ESA is limited to the protection of marine mammals and fish and anadromous fish; all other species are within USFWS jurisdiction. ESA defines "take" to mean to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Service regulations (50 CFR 17.3) define "harm" to include significant habitat modification or degradation which actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering. "Harassment" is defined by the Service as an intentional or negligent action that creates the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering.

Exemptions to the prohibitions against take may be obtained through coordination with the USFWS through interagency consultation for projects with federal involvement (i.e., funded, authorized, or carried out by a Federal agency) pursuant to Section 7 of the ESA; or through the issuance of an incidental take permit under Section 10(a)(1)(B) of the ESA if the applicant submits a habitat conservation plan (HCP) that meets statutory requirements including components to minimize and mitigate impacts associated with the take. Section 7 of the ESA requires all federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any listed species or result in the destruction of designated critical habitat. To ensure against jeopardy, each federal agency must consult with USFWS or NMFS, or both, if the federal agency determines that its action might affect a listed species. The ESA or its implementing regulations do not prohibit take of listed plant species. Designated "Critical Habitat" as published in the Federal Register as a formal rule, also receives protection under Section 7 of the ESA.

### BIRDS OF CONSERVATION CONCERN

USFWS' *Birds of Conservation Concern* (BCC) (2008) was developed to fulfill the mandate of the 1988 amendment to the Fish and Wildlife Conservation Act (Public Law 100-653 (102 Stat. 3825) to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973" and to stimulate coordinated and proactive conservation actions among federal and state agencies and private entities (U.S. Fish and Wildlife Service, December 2008). The bird species included on the BCC lists include "nongame birds, gamebirds without hunting seasons, and Endangered Species Act candidate, proposed endangered or threatened, and recently delisted species".

### MIGRATORY BIRD TREATY ACT

All migratory birds and their nests are federally protected under the Migratory Bird Treaty Act of 1918 (MBTA) (Title 16 United States Code, Section 703-712 as amended; 50 Code of Federal Regulations Section 21; and 50 Code of Federal Regulations Section 13) and by CDFG

codes that support the act. The MBTA makes it unlawful to "take" any migratory bird or raptor listed in the 50 Code of Federal Regulations Section 10, including their nests, eggs or products.

#### WETLANDS AND WATERS OF THE U.S.

The U.S. Army Corps of Engineers (ACOE) has regulatory authority for activities within wetlands under the Clean Water Act (CWA, 1977, as amended), which serves as the primary federal law protecting the quality of the nation's surface waters. Section 404 of the CWA establishes a program to regulate discharge of dredged or fill material into "waters of the United States," which is administered by the ACOE. The term "waters" includes wetlands and non-wetland bodies of water that meet specific criteria as defined in the Code of Federal Regulations. In general, a permit must be obtained before fill can be placed in wetlands or other waters of the U.S. The type of permit depends on the amount of acreage and the purpose of the proposed fill, subject to discretion of the Corps. Under Section 404, general permits may be issued on a nationwide, regional, or state basis for particular types of activities that will have only minimal adverse impacts. Individual permits are required for projects with potentially significant impacts.

Under section 401 of the CWA, the California Regional Water Quality Control Boards RWQCB) have regulatory authority over actions in waters of the U.S. through issuance of water quality certifications, which are issued in combination with permits issued by the ACOE under section 404 of the Clean Water Act. A 401 Certification is required from the RWQCB whenever improvements are made within Jurisdictional Waters of the U.S.

### State Regulations

The California Department of Fish and Game (CDFG) administers the California Endangered Species Act and protects streams and water bodies through the Streambed Alteration Agreement under Section 1600 of the California Fish and Game Code (CFGC 2005).

#### CALIFORNIA ENDANGERED SPECIES ACT

The 1984 California Endangered Species Act (CESA) (Fish & Game Code, Section 2050-2098) declares that deserving plant or animal species be given protection by the State because they are of ecological, historic, educational, recreational, aesthetic, economic, and scientific value to the people of the State. CESA establishes that it is state policy to conserve, protect, restore, and enhance endangered species and their habitats. Under state law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the CDFG. Listed species are generally given greater attention during the land use planning process by local governments, public agencies, and landowners than are species that have not been listed.

CESA authorizes that "[p]rivate entities may take plant or wildlife species listed as endangered or threatened under FESA and CESA, pursuant to a federal incidental take permit issued in accordance with Section 10 of the FESA, if the CDFG certifies that the incidental take statement or incidental take permit is consistent with CESA (Fish & Game Code, Section 2080.1(a).

The Habitat Conservation Planning Branch of the CDFG administers the State's rare species program. The CDFG maintains lists of designated Endangered, Threatened and Rare plant and

animal species as designated by the California Fish and Game Commission or under the California Native Plant Protection Act (NPPA). Habitat degradation or modification is not expressly included in the definition of "take" under the California Fish and Game Code; however, the CDFG has interpreted "take" to include the "killing of a member of a species which is the proximate result of habitat modification…."

Section 2081(b) and (c) of the CESA allows CDFG to issue an incidental take permit for a state-listed threatened and endangered species only if specific criteria are met. These criteria can be found in Title 14 CCR, Sections 783.4(a) and (b).

#### CDFG SPECIES OF SPECIAL CONCERN AND FULLY PROTECTED SPECIES

In addition to lists of designated Endangered, Threatened, and Rare plant and animal species, the CDFG maintains a list of animal "Species of Special Concern," most of which are species whose breeding populations in California may face extirpation. Although these species have no legal status under the CESA, the CDFG recommends considering these species during analysis of proposed project impacts to protect declining populations, and to avoid the need to list them as threatened or endangered in the future. These species may "be considered rare or endangered [under CEQA] if the species can be shown to meet the criteria". Additionally, the California Fish and Game Code contains lists of vertebrate species designated as "Fully Protected" (California Fish & Game Code 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], and 5515 [fish]. No Section 2081(b) permit may authorize the take of "fully protected" species and "specified birds." If a project is planned in an area where a species or specified bird occurs, an applicant must design the project to avoid all take; the CDFG cannot provide take authorization under CESA.

#### CDFG SENSITIVE HABITATS AND DESIGNATED ECOLOGICAL RESERVES

Sensitive habitats include: riparian habitat and corridors, wetlands, habitats for legally protected species and CDFG Species of Special Concern, areas of high biological diversity, areas providing important wildlife habitat, and unusual or regionally restricted habitat types. The California Natural Diversity Data Base (CNDDB), administered by CDFG, maintains a working list of "high priority" habitats for inventory (i.e., those habitats that are rare or endangered within the borders of California). CNDDB "high priority" habitats are generally considered sensitive habitats under CEQA.

Section 1580 of the Fish & Game Code presents the process and definition for Designated Ecological Reserves. Designated Ecological Reserves are significant wildlife habitats that are preserved in natural condition for the general public to observe and study.

#### CDFG STREAMBED ALTERATION AGREEMENTS

Jurisdictional authority of the CDFG over stream areas is established under Section 1600 of the Fish and Game Code, which pertains to activities that would disrupt the natural flow or alter the channel, bed, or bank of any lake, river, or stream. Section 1602 of the Fish and Game Code stipulates that it is unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake without notifying the CDFG, incorporating necessary mitigation, and obtaining a Streambed Alteration Agreement. Typical activities that require a Streambed Alteration Agreement include excavation or fill placed

within a channel, vegetation clearing, structures for diversion of water, installation of culverts and bridge supports, cofferdams for construction dewatering, and bank reinforcement. The Wetlands Resources Policy of the CDFG states that the Fish and Game Commission will strongly discourage development in or conversion of wetlands, unless, at a minimum, project mitigation assures that there will be no net loss of either wetland habitat values or acreage.

#### NATIVE PLANT PROTECTION

The Native Plant Protection Act of 1977 (NPPA) and implementing regulations pursuant to Section 1900 et seq. of the Fish and Game Code designate rare and endangered plants, and provide specific protection measures for identified populations. It is administered by the CDFG. The NPPA was enacted to "preserve, protect and enhance endangered or rare native plants of this state." The NPPA defines a plant as endangered when its prospects of survival and reproduction are in immediate jeopardy from one or more causes. A rare plant is defined as a plant species that, though not presently threatened with extinction, occurs in such small numbers throughout its range that it may become endangered if its present environment worsens. The NPPA prohibits the take or sale of rare and endangered species in California. However, the law includes broad exemptions to the prohibition of take, including emergency work necessary to protect life or property, agricultural operations, fire control measures, timber harvest operations authorized by a Timber Harvest Plan, removal of endangered or rare plants from a canal, lateral ditch, building site, road, or right-of-way, or the removal of endangered or rare plants by a public agency for the provision of public serves.

The California Native Plant Society has prepared and regularly updated an "Inventory of Rare and Endangered Vascular Plants of California." In general, the CDFG qualifies plant species on List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere) or List 2 (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere) of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* for consideration under CEQA. Species on CNPS List 3 (Plants About Which We Need More Information--A Review List) or List 4 (Plants of Limited Distribution--A Watch List) may, but generally do not, qualify for consideration under CEQA.

## Local Plans & Regulations

#### CITY AND STATE MANAGEMENT PLANS

Numerous resource management and park plans have been adopted by the City for management of City-owned open space areas. These include: management plans for Arana Gulch, Moore Creek Preserve, Neary Lagoon, and Pogonip; and plans prepared in conjunction with the California Department of Parks and Recreation: Natural Bridges State Beach, Twin Lakes State Beach, and Lighthouse Field State Beach. In addition the *City-Wide Creeks and Wetlands Management Plan* was adopted by the City in 2007 and certified by the California Coastal Commission as a Local Coastal Plan amendment in October 2007. The *San Lorenzo River Urban Management Plan* was adopted in 2003 for the portion of the river south of Highway 1. These plans are summarized further below in this section.

### MUNICIPAL CODE REGULATIONS

Section 24.14.080 of the City's Municipal Code includes provisions to protect wildlife habitat and protected species for areas specified in the City's existing General Plan (Maps EQ-8 and EQ-9). Section 24.08.21 also regulates development adjacent to city watercourses, consistent with provisions of the adopted *City-Wide Creeks and Wetlands Management Plan*, including requirements for issuance of a "watercourse development permit."

The City of Santa Cruz also regulates heritage trees and shrubs through a Heritage Tree Ordinance. Chapter 9.56 of the City Municipal Code defines heritage trees, establishes permit requirements for the removal of a heritage tree, and sets forth tree replacement requirements as adopted by resolution by the City Council. City regulations require tree replacement for removal of a heritage tree to consist of replanting three 15-gallon size trees or one 24-inch size specimen for each heritage tree approved for removal.

## HABITAT CHARACTERISTICS

The City of Santa Cruz is largely developed, but supports habitat areas primarily within the City-owned and managed greenbelt and open space areas and along creeks. Native trees such as coast live oak and redwood are widespread in developed areas, where they have often been planted. The key habitat types and locations within the City are summarized below. The classification and mapping follows generalized classification systems used by the CDFG and professionally recognized classification standards that are fully described in the technical biological report (EcoSystems West Consulting Group, January 2009). Vegetation types within the City are shown on Figure 4.8-1.[2]

In addition to developed areas, ruderal/landscaped/ornamental vegetation is found throughout the City, including some areas that are dominated by non-native tree groves with a dense canopy. The most widespread non-native tree in these stands is blue gum eucalyptus; other dominant, non-native trees include Monterey pine (native to small areas on the coast, including northwestern Santa Cruz County, but naturalized in the vicinity of Santa Cruz), Monterey cypress (native to the Monterey area, but naturalized in the vicinity of Santa Cruz), and acacias.

The City of Santa Cruz is situated along the Monterey Bay, which was designated a national marine sanctuary by the federal government in 1992. The Monterey Bay National Marine Sanctuary stretches from Cambria to the south to Marin County on the north, encompassing 276 miles of shoreline. It extends seaward an average of 30 miles from shore—covering more than 5,000 square miles of ocean. The Sanctuary—administered by the National Oceanic and Atmospheric Administration (NOAA)—was established to promote resource protection, research, education, and public use. It boasts one of the most diverse marine ecosystems in the world, including the nation's largest kelp forest and one of North America's largest underwater canyons.

[2] All EIR figures are included in Chapter 7.0 at the end of the EIR (before appendices) for ease of reference as some figures are referenced in several sections.

## Aquatic, Wetland and Riparian Habitats

There are 39 miles of watercourses and numerous wetland areas in the City that convey stormwater, protect water quality, and can support diverse natural habitats and aquatic and terrestrial resources. The *City-Wide Creeks and Wetland Management Plan* (described further below) includes 25 watercourses within five primary watersheds and four other watercourses. The primary watershed areas include: San Lorenzo River, Arana Gulch Creek, Neary Lagoon, Arroyo Seco, and Moore Creek. In addition there are several other miscellaneous drainages that do not fall within these primary watersheds, including Natural Bridges Creek, Lighthouse Drainage, Pilkington Creek and Bethany Creek. Table 4.8-1 summarizes the watercourses and wetlands addressed in the *City-Wide Creeks and Wetland Management Plan*, which is further described below. Figure 4.8-2 shows the major watercourses and wetlands in the City.

### AQUATIC HABITAT

Aquatic habitats are areas of permanent fresh or brackish open water. The water may be either flowing (e.g. the San Lorenzo River) or ponded (e.g. Neary Lagoon, Antonelli Pond). Aquatic habitats generally lack vegetation other than algae except along the shorelines, where moisture-loving plant species may grow partially in the water.

The San Lorenzo River is the major aquatic habitat with flowing water within the city. Some segments of Branciforte Creek are also broad enough to be considered separately as aquatic habitat. Ponded or partially ponded aquatic habitats within the city include Younger Lagoon on the University of California, Santa Cruz (UCSC) Long Marine Laboratory site; Antonelli Pond and several other ponds and lagoons in the southwestern portion of the city, including Natural Bridges State Park and Neary Lagoon. The Santa Cruz Small Craft Harbor (formerly Woods Lagoon) also provides aquatic habitat, but it has been modified by construction and maintenance of the harbor.

### WETLANDS

Wetlands are generally defined as areas that are permanently, or periodically, inundated by surface or groundwater and which support vegetation adapted to such hydrologic conditions. The specific criteria utilized to define wetlands vary depending on the agency. Wetlands are regulated by federal and state agencies, including the U.S. Army Corps of Engineers and the California Coastal Commission. Most recently, the California State Water Resources Control Board has proposed expanding wetland regulations.

Under the Federal Wetland Regulations (CFR33 Part 328.3(b)) the term "wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." The Army Corps of Engineers' *Wetlands Delineation Manual* (1987) and 2008 Regional Supplement for the Arid West Region are used to identify wetlands under the CWA Section 404 permit program. An area must meet the criteria for hydric soils, hydrophytic vegetation and wetland hydrology to be delineated as a wetland under ACOE jurisdiction.

**TABLE 4.8-1: City Watercourses and Known Wetlands**

| Watershed - Watercourse | Watercourses Included | Known Wetlands Included |
|---|---|---|
| **San Lorenzo River Watershed** | San Lorenzo River<br>Branciforte Creek<br>Carbonera Creek,<br>Glen Canyon Creek<br>Redwood Creek<br>Pogonip Creek<br>Tick Drainage<br>Arroyo de San Pedro Regaldo<br>Wagner Seep<br>Pasatiempo Creek<br>Jessie Street Channel<br>Ocean Villa Creek | <br><br><br><br><br>Salz Pond<br><br><br><br><br>Jessie Street Marsh<br> |
| **Arana Gulch Creek Watershed** | Arana Gulch Creek,<br>Hagemann Creek<br>Woods Creek | |
| **Neary Lagoon Watershed** | Laurel Creek<br>Bay Avenue Creek<br>Bayona Creek<br>Chrystal Gulch<br>Dodero Spring Creek<br>Longview Creek<br>Ojos de Agua Creek | Westlake Pond<br>Neary Lagoon<br><br><br>Kalkar Quarry Spring<br> |
| **Arroyo Seco Watershed** | Arroyo Seco Creek | |
| **Moore Creek Watershed** | Moore Creek | Antonelli Pond |
| **Other Watercourses** | Natural Bridges Creek,<br>Lighthouse Drainage<br>Pilkington Creek<br>Bethany Creek | |

The California Coastal Act, Section 30121, broadly defines a wetland as "lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, or fens." The California Coastal Commission (CCC) generally follows the CDFG's wetland definition and classification system for delineating wetlands. While all three wetland indicators (hydrophytic vegetation, hydric soils, and wetland hydrology) must be present for an area to be considered a wetland by the ACOE under the Clean Water Act, only one positive indicator must be present for an area to be delineated as a wetland according to CCC guidelines.

In April 2008, the State Water Resources Board adopted Resolution No. 2008-0026 that gave the Wetland Policy Development Team (State staff) direction to develop a statewide policy to protect wetland and riparian area. The Resolution indicates that due to recent U.S. Supreme Court rulings that have reduced the jurisdiction of the CWA over wetlands by limiting the definition of the "waters of the US," the State Water Board has acted to regulate wetlands under state law to "fill the gap" from the receding federal jurisdiction. As part of this effort, the State Water Board has been working to establish a new wetland protection policy. The Board has not yet formally adopted a new wetland definition.

The wetland types found in the City of Santa Cruz are described below.

**Salt Marsh**. Salt marshes occur in low-lying, relatively sheltered areas adjacent to the immediate coast that are subject to tidal inundation. Except around their uppermost margins, salt marshes are periodically inundated by salt water of variable frequency and duration. Salt marshes are dominated by salt-tolerant native herbs and subshrubs, including pickleweed, saltgrass, and alkali heath. The only mapped area of salt marsh in the city is within Natural Bridges State Beach on the west side of Moore Creek just inland of the beach. Topographic conditions suitable for salt marshes do not occur elsewhere in the City.

**Freshwater Wetland**. Freshwater wetland habitats are found on permanently or seasonally inundated sites. The water in freshwater wetland habitats is shallow enough to allow emergent vegetation to be rooted on the bottom. The species composition of freshwater wetlands is variable, in part due to variation in the length and depth of inundation. Where inundation is permanent or prolonged, the characteristic dominants of freshwater wetlands are tall perennial emergent plants, particularly cattails and tules.

Sizable freshwater wetland habitats occur in the extreme southwestern portion of the city (e.g. at Natural Bridges State Park and around the upper margins of Antonelli Pond) and at Neary Lagoon. Smaller, more localized freshwater wetlands occur at scattered locations elsewhere in the city; for example, in the small city park adjacent to Jessie Street, and in lower Hagemann Gulch near the upper end of the Small Craft Harbor.

### RIPARIAN HABITAT

Riparian forest and scrub habitats are found on sites where the root systems of moisture-loving woody species (trees and shrubs) can obtain abundant subsurface moisture year-round. The largest and best developed riparian forest habitats are generally on floodplain alluvial terraces bordering permanent or intermittent streams. Riparian forest habitats are dominated by moisture-loving, mostly deciduous trees and large shrubs. The canopy is typically dense. In the Santa Cruz area, the most abundant and widespread dominant species in riparian forest stands is arroyo willow. Riparian scrub is generally relatively open with individuals of large woody species relatively well spaced.

Extensive riparian forests occur at and near the bottoms of larger canyons and along larger streams within the City, including Moore Creek and its tributaries; Meder Canyon and its tributaries; Carbonera Creek; Branciforte Creek; and Arana Gulch. Extensive riparian forests also occur adjacent to Neary Lagoon. Riparian forest stands along the San Lorenzo River occupy relatively narrow zones inside the levees along the river. The San Lorenzo River channel

also supports the only substantial areas of riparian scrub within the city. Smaller stands of riparian forest occur along smaller streams and drainages within the city, as well as at isolated upland locations.

## Coastal Scrub

Coastal scrub is generally found on relatively exposed, coast-facing slopes. Coastal scrub habitats range from relatively dry to relatively moist, and are dominated by medium-sized to large, mostly evergreen shrubs. Species composition in coastal scrub stands varies considerably, largely in response to soil and moisture conditions and disturbance history. Shrub cover ranges from dense and more or less impenetrable to open. The most abundant and widespread shrub species in coastal scrub habitats in the Santa Cruz area is coyote brush. In addition to successionally stable coastal scrub habitats, scrub in which coyote brush is the only shrub species, or is overwhelmingly dominant, is widespread in and around Santa Cruz. This scrub type, which may be called "coyote brush scrub", appears to be early successional.

Within the city limits, successionally stable coastal scrub is largely confined to the western part of the City in and near the Moore Creek Preserve and in Meder Canyon. Elsewhere in the City, coastal scrub habitats are mostly small and fragmentary, and often represent the early successional "coyote brush scrub" type.

## Forest and Woodland Habitats

### REDWOOD FOREST

Redwood forest is the most extensive habitat type in the Santa Cruz Mountains. Redwood forests occur in areas that receive abundant summer fog, but generally do not occur along the immediate coast or on sites with direct coastal exposure. It should be noted that redwood forests intergrade so extensively with mixed evergreen forests in the Santa Cruz area that the boundaries between these habitat types are often indistinct. Where well developed, this habitat type is typically a dense forest, with the canopy closed or nearly so. The principal dominant tree is the coniferous species redwood (*Sequoia sempervirens*). All redwood forest stands within the Santa Cruz city limits are second-growth, having developed following heavy logging in the past. Individual old-growth redwood trees are, however, occasionally present.

Redwood forests occur only in the northern third of the city, on the lower slopes of the Santa Cruz Mountains. The most extensive redwood forest areas within the city limits are in the northern portion of the city in Pogonip, at DeLaveaga Park, Pogonip and upper Moore Creek. More limited, but still sizable, areas of redwood forest occur in the canyons of Branciforte and Carbonera creeks in the Isbel Drive-Carbonera Drive area and in DeLaveaga Park.

### REDWOOD-DOUGLAS FIR / TANBARK OAK FOREST

This habitat type is an intermediate type between the redwood forest and mixed evergreen forest habitat types, and occurs on sites that are somewhat drier than those supporting typical redwood forests. Compared to typical redwood forest, the proportion of redwood in the forest canopy is lower and the proportion of Douglas-fir is higher. Broadleaved evergreen species

such as tanbark oak, coast live oak, Shreve oak, and California bay are also more abundant than in typical redwood forest.

The only mapped area of redwood – Douglas-fir/tanbark oak forest within the city limits is located in the northern portion of the Moore Creek Preserve. Other areas referable to this habitat type may occur in Pogonip and elsewhere in the northern portion of the City, mapped as redwood forest or mixed evergreen forest.

#### MIXED EVERGREEN FOREST

The mixed evergreen forest habitat type is developed on slopes, typically on drier sites than those supporting redwood forests. Mixed evergreen forests are more extensive on south- and west-facing slopes. They range from dense, closed-canopy forests to relatively open forest with large canopy gaps. The dominant trees are predominantly broadleaved evergreen species with coast live oak being the dominant species in Santa Cruz. In drier, more exposed areas, coast live oak may be essentially the only canopy species (see mixed evergreen forest [oak woodland] below). Shreve oak is also widespread in mixed evergreen forests in the Santa Cruz area, and locally replaces coast live oak in northern parts of the city, although the two species sometimes occur together. Other tree species that are often dominants or important associates in mixed evergreen forests, especially on relatively moist sites, include California bay, Pacific madrone, Douglas-fir, tanbark oak, and redwood. The shrub and vine component of mixed evergreen forests is typically similar to, but sometimes denser than, that of redwood forests. California hazelnut is frequent in the understory, and poison-oak, creeping snowberry, Pacific blackberry, and the woody vine hairy honeysuckle are widespread and often locally abundant.

Mixed evergreen forests are widespread in the northern portions of the City, especially in Pogonip, in the Isbel Drive-Carbonera Drive area, in DeLaveaga Park, and bordering Arana Gulch north of Highway 1. A large area of mixed evergreen forest extends southward from Pogonip into the area west of Harvey West Park and the Encinal Street area. Only fragmentary remnants of mixed evergreen forest occur elsewhere in the city.

#### MIXED EVERGREEN FOREST (OAK WOODLAND)

This habitat type is similar to mixed evergreen forest and may be regarded as a phase developed on relatively dry sites, often upper slopes. The tree canopy is overwhelmingly dominated by coast live oak, which may be virtually the only tree species present. Overall tree canopy density is typically less than in mixed evergreen forest with large openings between trees containing grassland species. The shrub, vine, and herb components of this habitat type are similar to that in mixed evergreen forest on moister sites, but is often less diverse.

A large area of mixed evergreen forest (oak woodland) is mapped on the slopes of a tributary canyon in the Moore Creek Preserve. Strips of coast live oak-dominated forest referable to this habitat type also occur bordering lower Arana Gulch and Hagemann Gulch.

### Grassland

Grassland habitats within the City have two subtypes: coastal prairie and annual grassland/coastal prairie. Coastal prairie is characterized by dominance of native perennial

bunchgrasses with an assortment of native herb associates (non-native species are generally also present), while annual grassland is largely dominated by non-native, mostly annual grasses, although native grasses and herbs are often also present.

### COASTAL PRAIRIE

Annual grassland (also referred to as California annual grassland and non-native grassland) is the predominant grassland type in the Santa Cruz area. It occurs on slopes and terraces and also occurs in nearly level upland areas and on coastal terraces. Coastal prairie is the original, native grassland type in the near-coastal areas of northern and central California. Coastal prairie is characterized by dominance of native perennial bunchgrasses, with a large suite of associated native annual and perennial herbs. However, grasses that are non-native and mostly annual have largely replaced the native perennial bunchgrasses in most of the remaining coastal grasslands. In the Santa Cruz area, the principal native perennial bunchgrasses are purple needlegrass and California oatgrass. A variety of native herbs are associated with these bunchgrasses, including, at Pogonip, the special-status species San Francisco popcorn flower, Santa Cruz clover, and Gairdner's yampah. Several areas of grassland in Pogonip are mapped as coastal prairie (also referred to as coastal terrace prairie).

### ANNUAL GRASSLAND / COASTAL PRAIRIE

Most areas of grassland in the Santa Cruz area have been largely disturbed by heavy grazing at some time in the past. Large areas of grassland occur at Pogonip, Arana Gulch, Lighthouse Field, Delavega Park and the Moore Creek Preserve. The species composition of most of these grasslands has been greatly altered by grazing, other disturbances, and the introduction of weedy non-native species. Annual grassland is characterized by dominance of grasses that are primarily annual and non-native. In the Santa Cruz area, these include some combination of slender wild oat, Italian rye grass, soft chess, ripgut grass, rattlesnake grass, fescue, and others. A few non-native perennial grasses, such as Harding grass and tall fescue are occasionally dominant or abundant. Characteristic non-native herbs, found more or less throughout the grasslands in the Santa Cruz area, include hairy cat's-ear, filaree, English plantain, common vetch, wild radish, Italian thistle, black mustard, narrow-leaved clover and others.

The native perennial purple needlegrass and California oatgrass often occur in grassland areas mapped as annual grassland and annual grassland/coastal terrace prairie, and occasionally one or both of these grasses is dominant. Purple needlegrass is the more abundant and widespread of these native bunchgrasses. Areas dominated by one or both of these grasses may be regarded as remnants of the original perennial bunchgrass-dominated coastal prairie grassland or as degraded coastal prairie, especially if the diversity of native coastal prairie-associated herbs is high. Where the grasslands have less disturbance history, an assortment of native herb species, many of them more or less associated with coastal prairie, is often present. Characteristic native species, most abundant and most diverse in larger, less disturbed grassland areas, include California poppy, blue-eyed grass, checker bloom, sky lupine, sun cups, coast tarplant, Johnny-jump-up, and golden brodiaea.

Coyote brush frequently invades grasslands in the Santa Cruz Mountains, and there are many areas intermediate between grassland and the coyote brush scrub phase of coastal scrub. Some of these areas may be actively succeeding from grassland to scrub as coyote brush expands in

cover and density. This successional trend may be related to prolonged absence of fire, which would largely eliminate invading coyote brush.

### Coastal Habitats

#### SANDY BEACH

Sandy beaches are often unvegetated. Where vegetated and if native species are present, the coastal strand habitat type is found. There is a nearly continuous strip of sandy beach over a mile long in the eastern portion of the city, on both sides of the mouth of the San Lorenzo River. This includes the main city beach adjacent to the Boardwalk area. Small, isolated sandy beaches (pocket beaches) occur interspersed with sea cliffs in the western portion of the City, most notably at Natural Bridges State Park. Many of the beach areas within the City are used heavily for recreation, and are typically unvegetated or support mostly weedy non-native species. Some areas do support characteristic native coastal strand species, including beach-bur, beach evening-primrose, beach morning glory, and verbena.

#### COASTAL CLIFF HABITAT

The cliff habitat type is used for coastal bluffs directly facing the ocean and for areas of thin, sometimes rocky soil immediately adjacent to the tops of the coastal bluffs. Many areas of this habitat type within the city have a long history of extensive disturbance, and are often dominated by weedy non-native species. The mat-forming non-native ice plant (*Carpobrotus edulis*) and sea fig (*Carpobrotus chilensis*) dominate extensive areas. Native species characteristic of undisturbed coastal bluff habitats, such as the shrub lizard tail (*Eriophyllum staechadifolium*) and herb species such as seaside daisy (*Erigeron glaucus*), yarrow (*Achillea millefolium*), and sea lettuce (*Dudleya caespitosa*), are also often present and are locally dominant, especially in areas protected from disturbance by the steep topography.

The only areas mapped as "cliff" within the city are along the coastal bluffs in the extreme western portion of the city. Other areas referable to this habitat type may occur within areas mapped as "developed" in the vicinity of West Cliff Drive in the western portion of the city and East Cliff Drive in the eastern portion of the city.

## SPECIAL STATUS SPECIES

Special-status species include species listed as Threatened or Endangered under provisions of the federal ESA and species listed as Rare, Threatened, or Endangered by the state of California under provisions of the CESA and NPPA. Species formally proposed for federal listing by the USFWS are afforded limited legal protection under ESA.

Other special-status plant species are those on List 1A, List 1B, or List 2 of the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Vascular Plants of California*. These species are subject to state regulatory authority under CEQA. Species included on List 3 and List 4 of the CNPS *Inventory* may also be considered special status species. These species are considered to be of lower sensitivity, and generally do not fall under specific state or federal

regulatory authority. Specific mitigation considerations are generally not required for species in these categories.

#### PLANTS

Eight special status plant species have been identified as occurring within City limits as summarized in Table 4.8-2 Three of these species are listed: robust spineflower (federally endangered); Santa Cruz tarplant (federally threatened and state endangered); and San Francisco popcornflower (state endangered). Most of the locations are within publicly protected lands (Pogonip, Arana Gulch, Delaveaga Park, and Moore Creek Preserve), although there are two known private sites that support the spineflower or popcornflower.

#### WILDLIFE

Thirty-nine special status wildlife species have been identified as occurring or potentially occurring within City limits as summarized in Table 4.8-3. Six of these species are listed: Ohlone tiger beetle (federally endangered); coho salmon (federally and state endangered); steelhead (federally threatened); tidewater goby (federally endangered and state "Species of Special Concern"); California red-legged frog (federally threatened and state "Species of Special Concern"); and brown pelican (state endangered). Most of the locations are within publicly protected lands, although there is one known private site that supports the Ohlone tiger beetle. The remaining 32 special status plant species are not federally or state listed species, but some are state "Species of Special Concern" or have a CNDDB rarity ranking. The remaining species are mostly bird species, except for five bat species and two mammal species (San Francisco dusky-footed woodrat and American badger). Most of the remaining non-bird species are identified due to potential habitat, although the woodrat has been found within City limits.

## SENSITIVE HABITAT AREAS

Sensitive habitats are generally considered by local, state or federal agencies as those habitats that support special status species, provide important habitat values for wildlife, represent areas of unusual or regionally restricted habitat types, and/or provide high biological diversity. Habitat types considered sensitive include those listed on the California Natural Diversity Data Base (CNDDB) working list of working list as "high priority" habitats (i.e., those habitats that are rare or endangered within California). Generally, wetland and riparian communities are considered sensitive habitat due to their value to wildlife, limited distribution, and decreasing acreages statewide.

Four of the habitat types found within the City of Santa Cruz are recognized as sensitive habitat types: freshwater wetland, salt marsh, riparian forest and scrub, and coastal prairie portions of grassland habitats. Except for freshwater wetland, these habitat types correspond to habitat types that the CNDDB has designated as "high priority." In addition, coastal bird habitat is considered sensitive habitats because of high biological diversity.

Additionally, any area supporting a special status species would also be considered a sensitive habitat. Locally, the overwintering monarch butterfly habitat is considered sensitive due to its restricted range and CNDDB ranking as rare. Its habitat is also identified in the City's existing

General Plan as being a sensitive habitat. Existing known or potential monarch butterfly habitat is shown on Figure 4.8-3.

### Freshwater Wetland

Wetlands are areas that are periodically or permanently inundated by surface or ground water, and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a regional and national level because of their high inherent value to fish and wildlife, use as storage areas for storm and flood waters, and water recharge, filtration, and purification functions. Freshwater wetlands are recognized as sensitive habitats because they are wetlands subject to the jurisdiction of U.S. Army Corps of Engineers under Section 404 of the federal Clean Water Act and because they provide important wildlife habitat. In the classification scheme of CDFG (2003), the freshwater wetlands within the city mostly correspond to marsh habitat types that are not all designated as "high priority" by CNDDB. However, freshwater wetlands dominated by tules (bulrushes; *Scirpus* spp.) are referable to the bulrush alliance of CDFG (2003a), which is recognized as a CNDDB "high priority" habitat type.

### Salt Marsh

The salt marsh located within the City corresponds mostly to the "pickleweed wetland" and is recognized as a "high priority" habitat type by CNDDB. The only mapped area of salt marsh in the city is within Natural Bridges State Beach, on the west side of Moore Creek just inland of the beach.

### Riparian Forest and Scrub

The riparian forest and scrub habitats within the City mostly correspond to CNDDB "high priority" habitat types. The most widespread riparian forest type within the city, dominated by arroyo willow, is referenced in the CNDDB as "high priority" arroyo willow riparian forests and woodlands alliance. Depending on the dominant tree species, other riparian habitat includes mixed willow riparian forests and woodlands, black cottonwood riparian forests and woodlands, and red alder alliances. Riparian scrub within the city, which occurs mostly in the San Lorenzo River channel, corresponds to the central coast riparian scrub alliance of CDFG, which is not recognized as a "high priority" habitat type. Areas supporting riparian habitat as identified in the *City-Wide Creeks and Wetlands Management Plan* would also be considered sensitive habitat areas.

## TABLE 4.8-2: Special-Status Plant Species Occurring in the City of Santa Cruz, California

| Species Common Name[1] | USFWS Listing[2] | State Status[3] | CNPS Status[4] | Habitat Type[5] | Flowering Period | Occurrence |
|---|---|---|---|---|---|---|
| *Arctostaphylos andersonii* Santa Cruz Manzanita | None | None | 2-2-3 List 1B | Chaparral; openings in and edges of broadleafed upland forest and north coast coniferous forest | November-April | Kalkar QuarryPogonip (P) Delaveaga (P) |
| *Chorizanthe robusta* var. *robusta* robust spineflower | Endangered | None | 3-3-3 List 1B | Coastal dunes, coastal scrub, openings in cismontane woodland, in sandy or gravelly soil | April-September | Pogonip Private Parcel-Market St |
| *Holocarpha macradenia* Santa Cruz tarplant | Threatened | Endangered | 3-3-3 List 1B | Coastal prairie, valley and foothill grassland, coastal scrub, often in clay or sandy soils | June-October | Arana Gulch Delaveaga Park |
| *Perideridia gairdneri* ssp. *gairdneri* Gairdner's yampah | None | None | 1-2-3 List 4 | Moist sites in coastal prairie, broadleafed upland forest, chaparral, valley and foothill grassland, vernal pools | June-October | Pogonip |
| *Plagiobothrys chorisianus var. chorisianus* Choris's popcorn-flower | None | None | 2-2-3 List 1B | Moist places in chaparral, coastal prairie, coastal scrub | March-June | Lighthouse Field Arana Gulch |
| *Plagiobothrys chorisianus* var. *hickmanii* Hickman's popcorn-flower | None | None | 1-2-3 List 4 | Moist places in closed-cone coniferous forest, chaparral, coastal scrub, marshes and swamps, vernal pools | April-June | Arana Gulch |
| *Plagiobothrys diffusus* San Francisco popcornflower | None | Endangered | 3-3-3 List 1B | Coastal prairie; valley and foothill grassland | March-June | Moore Creek Preserve Private Parcel- Meder St Pogonip |
| *Trifolium buckwestiorum* Santa Cruz clover | None | None | 3-3-3 List 1B | Coastal prairie; margins of broadleafed upland forest, cismontane woodland | April-October | Pogonip |

Notes:
[1] Nomenclature follows Hickman (1993), Tibor (2001), and California Native Plant Society (2006).
[2] U.S. Fish and Wildlife Service (2006a,b,c).
[3] Section 1904, California Fish and Game Code (California Department of Fish and Game 2006a).
[4] Tibor (2001) and California Native Plant Society (2006).
*Top line:* CNPS R-E-D (Rarity-Endangerment-Distribution) code.
Rarity: 1=Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time; 2=Occurrence confined to several populations or to one extended population; 3=Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.
Endangerment: 1=Not endangered; 2=Endangered in a portion of its range; 3=Endangered throughout its range.
Distribution: 1=More or less widespread outside California; 2=Rare outside California; 3=Endemic to California.
*Bottom Line:* CNPS List. List 1B: Rare, Threatened, or Endangered in California and elsewhere. List 2: Rare, Threatened, or Endangered in California, more common elsewhere. List 3: Plants about which more information is needed. List 4: Plants of limited distribution: a watch list.
[5] Thomas (1960), Munz and Keck (1973), Hickman (1993), Tibor (2001), Morgan et al. (2005), California Native Plant Society (2006), and unpublished information.

**SOURCE:** EcoSystems West Consulting Group, January 2009

## TABLE 4.8-3: Special-Status Wildlife Species Occurring in the City of Santa Cruz, California

| Common Name<br>*Scientific Name* | Status[1]<br>Federal/State/Other | Habitat Requirements | Location[2] |
|---|---|---|---|
| **Invertebrates** | | | |
| Ohlone tiger beetle<br>*Cicindela ohlone* | E/--/-- | Coastal prairie and open grassland with barren areas for burrow construction. | Pogonip<br>Moore Creek Preserve<br>Private Parcels near Moore Creek Preserve and Meder St |
| Monarch butterfly (wintering sites)<br>*Danaus plexippus* | --/--/S3 | Eucalyptus, Monterey Pine, or Monterey Cypress tree groves. | Lighthouse Field<br>Natural Bridges<br>Lower Branciforte Creek |
| **Fish** | | | |
| Coho Salmon (Central CA ESU)<br>*Oncorhynchus kisutch* | E/E/G4S2 | Spends the first few years of its life in fresh water before migrating to the ocean. Adults will later return to the freshwater location where they were spawned to breed. | San Lorenzo River (H) |
| Steelhead (Central Coast DPS)<br>*Oncorhynchus mykiss* | T/--/G5S2 | Spends the first few years of its life in fresh water before migrating to the ocean. Adults will later return to the freshwater location where they were spawned to breed. | Carbonera Creek<br>Branciforte Creek<br>Arana Gulch<br>San Lorenzo River |
| Tidewater goby<br>*Eucyclogobius newberryi* | E/SC/G3S2S3 | Coastal lagoons and creeks up to 3 miles with protected still water areas. | Moore Creek<br>San Lorenzo River |
| North American green sturgeon (Southern DPS)<br>*Acipenser medirostris* | FT/CSC/- | Spend the majority of their lives in nearshore oceanic waters, bays, and estuaries. Spawning and early life-history stages (less than 4 years old) occurs in fresh water. | HP, CHP |
| **Amphibians and Reptiles** | | | |
| California red-legged frog<br>*Rana aurora draytonii* | T/SC/-- | Requires the presence of surface water until mid to late summer for reproduction; occupies ephemeral and/or perennial water with standing or slow moving flows; upland habitat includes leaf litter and small mammal burrows; adults are known to travel up to 2 miles overland between aquatic sites. | Moore Creek (B)<br>Antonelli Pond<br>Natural Bridges Marsh |
| Southwestern pond turtle<br>*Emmys [Clemmys] marmorata pallida* | --/SC/-- | Found in ponds, marshes, rivers, streams, and irrigation ditches containing aquatic vegetation; usually seen sunning on logs, banks, or rocks. Moves up to 3-4 miles within a creek system, especially during "walk-abouts" before a female lays eggs; nests in burrows in upland areas up to several hundred feet away from aquatic habitat, in woodlands, grasslands, or open forest. | Antonelli Pond<br>Neary Lagoon<br>Moore Creek<br>Natural Bridges Marsh<br>Pogonip-San Lorenzo River |
| **Birds (protected activity/habitat)** | | | |
| Brown Pelican<br>(communal roosts and rookeries)<br>*Pelecanus occidentalis* | Delisted* /SE**, CFP/S1S2 | Nest in large colonies mostly on small coastal islands. Preferred nesting sites provide protection from mammal predators, and sufficient elevation to prevent widescale flooding of nests (USFWS Division of Endangered Species 2007). The nests occur on the ground, in bushes, or in the tops of trees. | Cliffs from Lighthouse Point to Younger Lagoon<br>Municipal Wharf<br>San Lorenzo River |
| Double-crested Cormorant (rookeries)<br>(*Phalacrocorax auritus*) | --/SC/G5S3 | Marine and inland aquatic habitats, such as ponds, lakes, rivers, lagoons, estuaries, and open coastline. | San Lorenzo River(H)<br>(Schwan Lagoon) |

## TABLE 4.8-3: Special-Status Wildlife Species Occurring in the City of Santa Cruz, California

| Common Name<br>*Scientific Name* | Status[1]<br>Federal/State/Other | Habitat Requirements | Location[2] |
|---|---|---|---|
| Black-crowned Night Heron (rookeries)<br>(*Nycticorax nycticorax*) | --/--/G5S3 | Roosts among the dense foliage of trees (that are not always adjacent to water). It will also roost within fresh or brackish emergent wetlands, as well as on piers, and pilings (Grinnell and Miller 1944). | Branciforte Creek (H)<br>Neary Lagoon (P) |
| Sharp-shinned hawk (nesting)<br>*Accipiter striatus* | --/SC/-- | Nests in deciduous riparian forest associated with dense stands of smaller conifers. | Arana Gulch(P)<br>Meder Canyon(P)<br>Pogonip (P) |
| Cooper's hawk (nesting)<br>*Accipiter cooperi* | --/SC/-- | Nests in deciduous riparian forest, live oak, or second growth conifers usually near stream courses with dense canopy cover and open understory. | Moore Creek<br>Pogonip<br>Harvey West Park<br>DeLaveaga |
| Golden eagle (nesting & wintering)<br>Aquila chrysaetos | --/SC, FP/-- | Resident in open mountains, foothills, canyons, or plains. Nests in a mass of sticks on cliffs or in trees. Is frequently observed foraging over nearby open fields of UCSC and Moore Creek Preserve lands. | Pogonip<br>Rincon Gorge(unconfirmed) |
| Ferruginous Hawk (wintering)<br>(*Buteo regalis*) | BCC/SC/-- | Grasslands, agricultural areas, sagebrush flats, low foothills, and desert scrub (Garrett and Dunn 1981). | Antonelli Pond |
| White-tailed kite (nesting)<br>*Elanus leucurus* | --/FP/-- | Nests in conifers on the margins of open areas including grasslands and sloughs containing a high abundance of small mammals and lizards. | Pogonip<br>Natural Bridges |
| Merlin (wintering)<br>*Falco columbarius* | --/SC/G5S3 | Utilizes a wide variety of habitats, from annual grasslands to ponderosa pine and montane hardwood-conifer habitats. Also favors coastlines, lakeshores, and wetlands. Forages along shorelines in winter, to hunt for shorebirds (CDFG 2005). | Arana Gulch<br>Lighthouse Field<br>Meder Canyon<br>Antonelli Pond |
| Black Oystercatcher (nesting)<br>*Haemotopus bachmani* | BCC/--/G5S2 | Rocky shores of marine habitats, and on adjacent islands. Requires cliffs, rock outcrops, offshore rocky islets, jetties and similar features of coastal rocky intertidal habitats for roosting at high tide. | Natural Bridges/De Anza |
| Long-eared owl (nesting)<br>*Asio otus* | --/SC/-- | Utilizes abandoned stick nests of other large birds or squirrel nests in a variety of wooded areas, including orchards and usually near aquatic and open areas for foraging; forages mostly on rodents. | Neary Lagoon (P)<br>Pogonip[3] (P) |
| Burrowing Owl<br>(burrow and wintering sites)<br>*Athene cunicularia* | --/SC/G5S2 | Open grassland habitats for foraging and nesting. Suitable habitat has low-growing vegetation interspersed with bare ground; and hillocks, berms, fence posts or other slightly elevated objects available for resting/perching. | Pogonip (P)<br>Moore Creek (P)<br>Private parcels adjacent to Moore Creek (P) |
| Vaux's swift (nesting)<br>*Chaetura vauxi* | --/SC/-- | Nest in hollow trees in forested environments. Nest made of conifer needles are glued together with salvia and attached to inside wall of hallow tree usually near the bottom. Post breeding flocks up to several hundred may roost together in chimney like tree hollows. | Residential neighborhoods near Natural Bridges, Spring Street and |
| Black Swift (nesting)<br>*Cypseloides niger* | --/SC/G4S2 | Breeds along coastal bluffs and mountains. | Mitchell's Cove (H)<br>Lighthouse Point (H) |

## TABLE 4.8-3: Special-Status Wildlife Species Occurring in the City of Santa Cruz, California

| Common Name<br>*Scientific Name* | Status[1]<br>Federal/State/Other | Habitat Requirements | Location[2] |
|---|---|---|---|
| Loggerhead shrike<br>*Lanius ludovicianus* | --/SC/FWS | Grassland and shrub habitats with small reptiles and insects. | Pogonip (P)<br>Moore Creek (P)<br>Private parcels adjacent to Moore Creek (P) |
| California Horned Lark<br>*Eremophila alpestris actia* | --/SC/G5T3S3 | Open, level or gently-sloping California habitats, including sage scrub, grassland, chaparral, alkali playa, as well as agricultural and residential lands. (Grinnell and Miller 1944). Builds a grass-lined nest in a depression on the ground out in the open. | Pogonip<br>Moore Creek (P)<br>Private parcels adjacent to Moore Creek (P) |
| Oak Titmouse (nesting)<br>*Baeolophus inornatus* | --/--/G5S3 | Warm, dry oak, pine, or oak-pine woodlands. The breeding pair builds a nest of grass, moss, mud, hair, feathers, and fur (Harrison 1978) in a woodpecker hole, natural cavity, or nest box. | Lighthouse Field<br>Neary Lagoon<br>Garfield Park<br>Westside residential areas<br>lower Branciforte Creek<br>Oceanview Park<br>Jesse Street Marsh area<br>San Lorenzo River (N of Hwy 1)<br>Natural Bridges (unconfirmed) |
| Yellow warbler<br>*Dendroica petechia brewsteri* | --/SC/-- | Nests in deciduous riparian woodland with open canopy along streams or other watercourses; forages in dense understory of riparian woodland. | Arana Gulch<br>Neary Lagoon<br>Moore Creek Preserve<br>Antonelli Pond<br>Carbonera Creek<br>Branciforte Creek<br>Westlake Pond<br>San Lorenzo River<br>(H) (P) |
| Hermit Warbler (nesting)<br>*Dendroica occidentali* | --/--/G4G5S3? | Mature stands of conifers (ie., Douglas-fir, redwood, and montane hardwood-conifer habitats), with open to dense canopy for breeding and other activities. | Pogonip |
| Saltmarsh Common Yellowthroat[38]<br>*Geothlypis trichas sinuosa* | --/--/G5T2S2 | Nests in overgrown fields with scrub, on the margins of woodlands, and freshwater and saltwater marshes. Builds well-concealed open-cup nests, typically near the ground in grasses, herbaceous vegetation, cattails, tules, and scrub (including coyote brush) (Gardali and Evens date). | Neary Lagoon<br>San Lorenzo River<br>(Younger Lagoon) |
| Yellow-breasted chat (nesting)<br>*Icteria virens* | --/--/G5S3 | Dense riparian vegetation 1-8 ft. above the ground, with a well-developed understory. | San Lorenzo River (H) |
| Chipping Sparrow (nesting)<br>*Spizella passerina* | --/--/G5S3S4 | Open wooded habitats with a sparse or low herbaceous layer and few shrubs. Prefers trees for nesting, resting, singing, and other cover, but will also utilize shrubs and ground herbage. Also known to breed or winter in orchards (Grinnell and Miller 1944, McCaskie et al. 1979, Garrett and Dunn 1981). | Moore Creek<br>Pogonip |
| Grasshopper Sparrow<br>*Ammodramus savannarum* | --/--/G5S2 | Occurs in dry, dense grasslands, especially in those with a variety of grasses, tall forbs, and scattered shrubs (Grinnell and Miller 1944; McCaskie et al. 1979 and Garrett and Dunn 1981). Builds nests composed of grasses and forbs, located in a slight depression in ground at the base of an overhanging clump of grasses or forbs (Harrison 1978). | Moore Creek<br>Pogonip |

## TABLE 4.8-3: Special-Status Wildlife Species Occurring in the City of Santa Cruz, California

| Common Name<br>*Scientific Name* | Status[1]<br>Federal/State/Other | Habitat Requirements | Location[2] |
|---|---|---|---|
| Tricolored Blackbird<br>(nesting colonies)<br>*Agelaius tricolor* | BCC/SC/G2G3S2 | Breeds near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs. Their nests are usually located near fresh water, and tend to be hidden on the ground among low vegetation (Orians 1960). | Neary Lagoon (H)<br>Antonelli Pond (H) |
| **Mammals** | | | |
| Townsend's western big-eared bat<br>*Corynorhinus [Plecotus] townsendii townsendii* | --/SC/HP | Roost sites are highly associated w/ caves and mines; buildings must offer "cave-like" features; known to roost in tree hollows and under bridges. | Pogonip Clubhouse<br>undeveloped lands and open spaces (P) |
| Pallid bat<br>*Antrozous pallida* | --/SC/HP | Roost sites are primarily associated with oak, redwood, ponderosa pine, and giant sequoia forests. Will also roost under bridges and in buildings and rock outcrops. | undeveloped lands and open spaces (P) |
| Western red bat<br>*Lasiurus blossevillii* | --/**/HP | Roosts in foliage primarily in riparian and wooded habitats. | Arana Gulch<br>undeveloped lands and open spaces (P) |
| Fringed myotis<br>*Myotis thysanoides* | --/**/HP | Roosts sites in California are primarily in buildings or mines; will also roost in large conifer snags and in caves. | undeveloped lands and open spaces (P) |
| Long-legged myotis<br>*Myotis volans* | --/**/HP | Roosts primarily in large hollow tree snags, or live trees with exfoliating bark; also uses rock crevices, mines, and buildings. | undeveloped lands and open spaces (P) |
| San Francisco dusky-footed woodrat<br>*Neotoma fuscipes annectens* | --/SC/-- | Associated with riparian, oak woodland and redwood forest habitats. Builds stick nests under or in buildings, hollow trees, or in tree canopy. | undeveloped lands and open spaces |
| American Badger<br>*Taxidea taxus* | --/SC/-- | Drier open stages of most shrub, forest, and herbaceous habitats, that are composed of friable soils. American badgers dig burrows in friable soil for cover, frequently reusing old burrows. They are also known to dig a new den each night (especially in summer) (Messick and Hornocker 1981). | undeveloped lands and open spaces (P) |

**Notes:**

1 **Federal Status (USFWS 2007b, c, d; CDFG 2006)**

E = Endangered: Any species, which is in danger of extinction throughout all, or a significant portion of its range.

T = Threatened: Any species, which is likely to become an endangered species within the foreseeable future throughout all, or a significant portion of its range.

BCC= Considered by Fish and Wildlife Service as a 'Bird of Conservation Concern' with a high priority to study and take action to protect.

**State Status (CDFG 2006)**

E = Endangered: A native species or subspecies of animal which is in serious danger of becoming extinct throughout all, or a significant portion of its range, due to loss of habitat, change in habitat, over exploitation, predation, competition and/or disease.

T = Threatened: A native species or subspecies that, although no presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts.

SC = CDFG Species of Special Concern are taxa given special consideration because they are biologically rare, very restricted in distribution, declining throughout their range, or at a critical stage in their life cycle when residing in California or taxa that are closely associated with a habitat that is declining in California (e.g., wetlands)

FP = Fully Protected: This classification was the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

**(ONTINUED ON NEXT PAGE}**

** = Included on preliminary list of revised CDFG Mammal Species of Special Concern (CDFG 1996)

**Other**
O = Protected by City and/or County ordinances
HP = Considered "High Priority" on the Western Bat Working Group's (WBWG) Western Bat Species Regional Priority Matrix (1998)

CNDDB Ranking (CDFG 2011):
G = Global (worldwide status of a full species): G1 to G5
T = Status of a subspecies throughout its range: T1 to T5
S = State (statewide status of a full species or a subspecies): S1 to S5
where:

1 = Extremely endangered
2 = Endangered
3 = Restricted Range, Rare
4 = Apparently secure
5 = Demonstrably secure: commonly found throughout its historical range

2 ( ) = Locations outside of the city limits.
H = Historical Observation

B = Breeding Habitat (except birds—locations correspond to protected activity only—listed by species name)
P = Potential Habitat

HP]- Habitat Present - habitat is, or may be present. The species may be present.
CH] - Critical Habitat - project footprint is located within a designated critical habitat unit, but does not necessarily mean that appropriate habitat is present.

*On November 17, 2009 the brown pelican was removed from the Federal List of Endangered and Threatened Wildlife (USFWS 2009).
**On February 5, 2009 the Fish and Game Commission adopted the proposed changes to remove the brown pelican from the CESA list of endangered species. The Commission's decision to delist the brown pelican will now be reviewed by the Office of Administrative Law before the bird is officially removed from the state list (California Fish and Game Commission 2009).

**SOURCE:** EcoSystems West Consulting Group, January 2009

### Coastal Prairie

Coastal prairie in the Santa Cruz area corresponds to the coastal terrace prairie alliance of CDFG, which is designated as a CNDDB "high priority" habitat type. The only areas within the city specifically mapped as coastal prairie by any previous study are those mapped in Pogonip (Santa Cruz Parks and Recreation Department 1998). Other coastal prairie areas may occur in grassland areas within the city, but have not been mapped. Distinguishing coastal prairie from annual grassland is often problematical because some local grassland areas may be partly dominated by native perennial bunchgrasses and contain other native coastal prairie species, but also be heavily invaded by non-native species. To be considered coastal prairie, a stand of grassland should be essentially dominated by native perennial bunchgrasses and have a predominance of native over non-native herb species.

### Coastal Bird Habitat

The bluffs, cliffs, seastacks and rock outcrops, and small coastal islands along the shoreline from Cowell's Beach to Younger Lagoon provide roosting and perching, foraging, and breeding habitat for numerous coastal bird species. Structures on the Santa Cruz Municipal Wharf and Santa Cruz Yacht Harbor also provide communal roosting habitat, while other shorebirds nest in the trees and scrub that line the city's aquatic environments. These areas provide suitable breeding habitat because they lie beyond the reach of waves and high tide marks, offer protection from predators, and provide perches for resting and drying out. They are located near the biologically diverse surroundings of estuarine and riverine environments, lagoons and ponds, sandy beaches, and shallow ocean waters. A variety of food sources are available, including insects, fish, crustaceans, mollusks, and aquatic invertebrates, as well as amphibians, small birds and mammals.

A number of bird species are known to roost and breed within the coastal habitat of the City of Santa Cruz, including the following special-status birds: brown pelican, double-crested cormorant, black-crowned night heron, and black oystercatcher, as well as other cormorant and heron species, gulls, the great egret, the common merganser, and the pigeon guillemot. Table 4.8-4 summarizes birds known to use coastal habitat for breeding. The biological review identified 28 nest colonies and communal roost locations. Thirteen of the sites observed in 2006 support breeding seabirds. The remaining sites were observed to support roosting seabirds.

## WILDLIFE DISPERSAL CORRIDORS

Wildlife dispersal corridors, also called dispersal movement corridors, wildlife corridors or landscape linkages, are features whose primary wildlife function is to connect at least two significant or core habitat areas and which facilitate movement of animals and plants between two or more otherwise disjunct habitats. Many undeveloped or natural areas serve as core habitats for a variety of wildlife species. Providing functional connectivity between core habitats is essential to sustaining healthy wildlife populations and allowing for the continued dispersal of native plant and animal species.

In the urban/open space interface, corridors provide links between different types of habitat areas, including core habitat, supportive natural landscapes or habitat patches, and linear habitats. Core habitat areas are generally considered to support the viability of a special status plant or animal species or consist of exemplary natural communities. Providing functional connectivity between core habitats through corridors is essential to sustaining healthy plants and wildlife populations and allowing for the continued dispersal of native plant and animal species. Other areas may lack the requisite structural or spatial heterogeneity to be considered core habitat; but still provide habitat for rare plants as well as opportunities to wildlife for forage, cover, and shelter. These areas may be considered habitat patches or supportive natural landscapes. Links between core habitats and supportive natural landscapes also serve as dispersal corridors for plant species, through seed and vegetative dissemination or wildlife transport. Together, corridors, linear habitats, and supportive natural landscape areas help maintain ecological integrity and enhance core habitat (EcoSystems West Consulting Group, January 2009).

Riparian corridors and streamside buffers provide canopy cover, opportunities for foraging, refuge from predators, and, in addition, offer wildlife the opportunity to disperse. In these ways, creeks and creekside buffers serve as both linear habitats and corridors. Because riparian corridors support a disproportionate amount of biodiversity compared to other landscapes, retaining adequate riparian buffers enhances species richness by providing additional habitat with high quality habitat features. Often the boundaries between riparian corridors and buffers are ecotones or edge habitats, where two or more habitat types share a common boundary, potentially increasing available resources for wildlife. When riparian corridors and buffers serve to link core habitats (and thus allow movement among otherwise separate populations), the persistence of wildlife populations increases.

Core habitats within the City of Santa Cruz include the open, undeveloped, and natural areas, such as Moore Creek Preserve and Meder Canyon, Pogonip, Delaveaga Park, and Arana Gulch. Arana Gulch is considered a supportive natural landscape or habitat patch. Many of the undeveloped parcels within the City provide linear habitat or supportive natural landscapes for plants and animals and may fall within dispersal corridors. The City's watercourses serve both as linear habitats and provide dispersal to and from the core habitats listed above. Three main corridors were identified that could provide connectivity between core habitats within or adjacent to the city: western corridor (Moore Creek), central corridor (San Lorenzo River and major tributaries), and eastern corridor (Arana Gulch). These corridors, which are further described below, may or may not provide effective linkages for any one species. No studies have been conducted to determine which species utilize the linear habitats and dispersal corridors within the City, the frequency of wildlife movement through corridors, or the buffer width necessary to maintain corridor utility. More research would be needed to obtain this data.

**TABLE 4.8-4**
**Birds Known to Utilize Coastal Habitat for Roosting and/or Breeding Within City of Santa Cruz**

| Common Name<br>*Scientific Name* | Special-Status | General Location |
|---|---|---|
| Brown Pelican<br>*Pelecanus occidentalis* | X | Shoreline from Lighthouse Point to Younger Lagoon<br>Municipal Wharf<br>San Lorenzo River |
| Pelagic Cormorant<br>*Phalacrocoraxpelagicus* | | Natural Bridges<br>Younger Lagoon |
| Brandt's Cormorant<br>*Phalacrocorax penicillatus* | | Natural Bridges<br>Lighthouse Point Are |
| Double-crested Cormorant<br>*Phalacrocorax auritus* | X | Shoreline from Lighthouse Point to Natural Bridges<br>Antonelli Pond<br>Neary Lagoon<br>Westlake Pond<br>San Lorenzo River<br>Arana Gulch<br>Santa Cruz Yacht Harbor<br>(Schwan Lagoon) |
| Great Egret<br>*Ardea albus* | | lower Branciforte<br>Arana Gulch<br>Santa Cruz Yacht Harbor |
| Great Blue Heron<br>*Ardea herodias* | | Pogonip<br>lower Branciforte Creek<br>Arana Gulch<br>Santa Cruz Yacht Harbor |
| Green Heron<br>*Butorides virescens* | | Antonelli Pond<br>lower Moore Creek<br>San Lorenzo River<br>lower Branciforte Creek |
| Black-crowned Night Heron<br>*Nycticorax nycticorax* | X | Antonelli Pond<br>Neary Lagoon<br>lower San Lorenzo River<br>Branciforte Creek<br>Upper Santa Cruz Yacht Harbor |
| Common Merganser<br>*Mergus merganser* | | lower San Lorenzo River |
| Black Oystercatcher<br>*Haemotopus bachmani* | X | Shoreline from Cowell's Beach to Younger Lagoon |
| Heerman's Gull<br>*Larus heermanni* | | Natural Bridges<br>Lighthouse Point Area |
| Western Gull<br>*Larus occidentalis* | | Shoreline and private residences from Cowell's Beach to Younger Lagoon<br>Municipal Wharf |
| Pigeon Guillemot<br>*Cepphus Columba* | | Shoreline from Cowell's Beach to Younger Lagoon<br>Municipal Wharf |

**Notes:** ( ) = Locations outside of the city limits.
**SOURCE:** EcoSystems West Consulting Group, January 2009

### Western Corridor

Intact riparian vegetation along Moore Creek, along with adjacent intact grasslands and forests, could provide a link between core habitat areas on the western portion of the City, including habitat located on UC Santa Cruz campus, Moore Creek Preserve, Natural Bridges and Younger Lagoon (also a part of the UC Santa Cruz Campus). This nearly area includes a mosaic of largely intact vegetation located along the adjacent drainage east of the upper reach portion of Moore Creek. For some wildlife species, Highway 1 could present a barrier to migration, while other species might find this relatively narrow section of the Highway somewhat permeable.

### Central Corridor

The San Lorenzo River and two of its main tributaries, Branciforte Creek and Carbonera Creek, create a potential wildlife corridor in the central portion of the City. Here, a relatively narrow strip of riparian habitat could provide opportunities for wildlife movement between the San Lorenzo River lagoon region and core habitat located within and adjacent Pogonip, UC Santa Cruz, and Henry Cowell (via the San Lorenzo River) and DeLaveaga Park, via Branciforte and Carbonera Creeks. The majority of this area occurs mostly near the western portion of DeLaveaga Park around Carbonera and Branciforte Creeks.

### Eastern Corridor

Intact riparian, grassland, and other native forest along with dense eucalyptus groves located along Arana Gulch create a potential corridor for wildlife movement on the eastern portion of the city. For some species, such as birds, this corridor could link habitat near the mouth of the yacht harbor with core habitat on the eastern edge of DeLaveaga Park. Other species, including most mammals, are unlikely to be able to migrate between the northern and southern portions of this corridor, which is bisected by Highway 1—a two-lane highway that is currently being widened to three lanes in this region.

## RESOURCE MANAGEMENT PLANS

### Habitat Conservation Plan (HCP)

Federal agencies have requested that the City prepare a Habitat Conservation Plan (HCP) for all City activities or projects with the potential to "take" species listed under the Federal Endangered Species Act (ESA) in order to obtain federal permits (Section 10 "incidental take" authorization) for continued Citywide operations and maintenance needs. The permit and plan must be approved by the USFWS and NOAA's National Marine Fisheries Service (NMFS). The goal of the HCP is to minimize and mitigate to the maximum extent practicable the effects of City activities on listed and other sensitive species. The City entered into the HCP process in 2004, and over the past seven years, the City has coordinated and met with USFWS and NMFS on HCP-related issues. City departments involved with the HCP include Water and Public Works.

The species addressed include anadromous salmonids (coho and steelhead), Mount Hermon June Beetle (found at the Graham Hill Water Treatment Plant), California red-legged frog, and Pacific (formerly Western) pond turtle. Facilities include the City's water supply and facility sites, the Dimeo Lane landfill and Resource Recovery Facility, flood control and storm drainage maintenance projects and parks and recreational facilities. Many of the technical species' assessments are complete.

On April 5, 2011, the Santa Cruz City Council authorized the Water Director to enter into negotiations with NOAA Fisheries Service for completing the HCP and obtaining an Incidental Take Permit. At this meeting, City staff presented a proposed phased conservation strategy that improves instream flow for anadromous salmonids while recognizing that the limitations of the existing water supply system do not allow consistent achievement of optimal flows. Given potential existing take to study species, the strategy would result in less available water, resulting in a need to draw more heavily on the storage and Loch Lomond and that some augmentation of the City's existing water supply will be necessary (City of Santa Cruz Water Department. March 28, 2001).

A Draft Conservation Strategy was submitted to the NMFS in August 2011. The primary focus of the strategy is to avoid or minimize existing and potential effects of the City's activities to the maximum extent practicable as required by the Federal Endangered Species Act. A major element of the strategy is identification of minimum in-stream flows at City diversions to minimize the effect of diversions on habitat conditions for steelhead and coho salmon. Three alternatives, or tiers, of instream flow targets are specified which represent increasing levels of habitat protection. These targets vary by location, hydrologic year type and month. The three tiers represent increasing levels of habitat protection. The strategy guarantees minimum flows that ensure no further degradation of habitat (known as Tier 1). The strategy attempts to provide further protection of habitat by offering Tier 2 minimum flows under most hydrologic conditions, reverting to Tier 1 in dry years. With increasing water demand, the City will be able to provide Tier 2 flows less frequently. As the City moves toward augmenting its supply to include additional sources such as some mix of desalination, reclamation, conservation, or additional storage, over the course of the HCP further instream reservations will be possible (City of Santa Cruz, August 2011). Addition of new supply (2.5 mgd desalination, reclamation) would allow Tier 2 flows to be provided in 70% of years. Tier 3 flows would provide approximately 80% habitat value and could be provided in as much as 21% of years well into the future with the addition of 2.5 mgd of desalination.

With the Draft Conservation Strategy now submitted, negotiations can begin with NMFS. When a final strategy has been agreed upon, the Habitat Conservation Plan will be prepared. The HCP will be subject to environmental review, public review, and considered by City Council. The process could take more than two years.

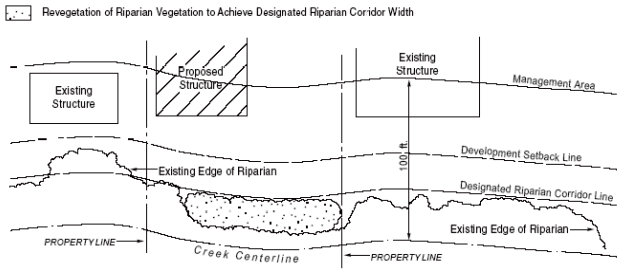
## City-Wide Creeks and Wetlands Management Plan

The *City-Wide Creeks and Wetlands Management Plan* (Santa Cruz Department of Planning and Community Development 2006) was adopted by the City Council to provide a comprehensive approach to managing all creeks and wetlands within the City. The Plan was certified by the

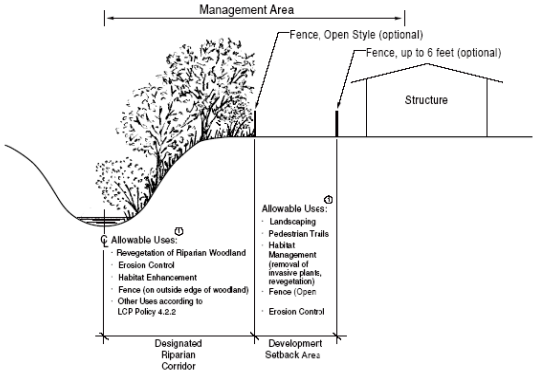
California Coastal Commission in October 2007 as a LCP amendment. Long-term goals to manage these resources include:

- Reduce and/or eliminate pollutants discharged to aquatic bodies,
- Improve water quality,
- Improve and restore natural habitat,
- Increase biodiversity,
- Lower water temperatures,
- Increase public awareness of the value of watershed quality.

The *Management Plan* recommends specific setback requirements based on biological, hydrological, and land use characteristics for various watercourse types within the City. The recommended setbacks within a designated management area include a riparian corridor, a development setback area, and an additional area that extends from the outward edge of the development area. The riparian corridor[3] is adjacent to the watercourse and is the width of a riparian and/or immediate watercourse influence area and is measured from the centerline of the watercourse. The development setback area[4] is the area outward from the edge of the designated riparian corridor where development is restricted, providing a buffer between the riparian corridor and development. The management area, riparian corridor, and development setback area distances vary depending on the watercourse area and its categorization.[5] All distances are measured from the centerline of the watercourse outward as shown on the above schematic.



PLAN VIEW (Sample Development Plan Layout)



CROSS-SECTION

[3] The riparian corridor is intended to provide an adequate riparian width to maintain or enhance habitat and water quality values. Allowable uses within the riparian corridor are limited.

[4] The development setback width is intended to provide an appropriate water quality and habitat buffer between the riparian corridor and development within the remaining management area. New development generally would be limited in this area to landscaping and limited pervious surfaces.

[5] The 25 feet outward from the edge of the development setback is intended to provide an adequate area for permit review and to be consistent with the *Management Plan* goals and City of Santa General Plan/LCP policies to maintain or enhance water quality or riparian habitat values.

The *Management Plan* outlines a process for permitting development adjacent to watercourses. In order to determine the level of permit review required for the variety of watercourse types within the city, all watercourse reaches are categorized as an "A", "B" or "C" watercourse as further described below. These categories are based on the quality, continuity, and enhancement potential of the riparian habitat associated with the watercourse, the potential for the watercourse to support special status species, and the ability of the habitat to be expanded based upon existing development.

> CATEGORY "A" includes watercourses and/or watercourse reaches that support high quality riparian habitat, with a vegetated corridor that is continuous and with few gaps. Category "A" watercourses abut undeveloped lands or rural residential yard areas, and this category generally has the known presence of or high potential for a special status species. The goals of this category include protecting and restoring existing vegetated watercourses as wildlife movement corridors through removal of invasive non-native plant species and restoration of native vegetation, as well as protection and improvement of water quality with implementation of proper erosion control and best management practices, and planting of appropriate species. Category A watercourses include all segments of the San Lorenzo River, all segments of Carbonera, Glen Canyon, Moore, and Redwood Creeks, and a segment or segments of Arana Gulch, Arroyo Seco, Branciforte, Pasatiempo, and Pogonip Creeks.
>
> CATEGORY "B" includes watercourses and/or watercourse reaches that are located in urban areas and that function primarily as a drainage system. This category includes watercourses with limited riparian habitat that is generally confined by adjacent land uses which limits its ability for the corridor to expand. Issues of water quality and flow conveyance are the focus for this category. The goals of this category include improving habitat by voluntary removal of invasive, non-native plant species and improving water quality and flow with implementation of proper erosion control and best management practices, and planting of appropriate species. Most of the watercourse segments are within this category except for those identified above in Category A and below in Category C.
>
> CATEGORY "C" includes drainage channels that are concrete or man-made, above or below ground culverts with very low to no habitat value. The corridor is fragmented or non-existent, with little to no room for restoration without significant land acquisition or easements. Category "C" watercourses are exempt from these watercourse regulations. Category C watercourses include one or more segments of Arana Gulch, Arroyo de San Pedro Regaldo, Arroyo Seco, Dodero Spring, Laurel, Longview, Ojos de Agua, Pasatiempo, and Pogonip Creeks.

The *Management Plan* establishes the requirements for obtaining a Watercourse Development Permit, and specifies uses permitted within the designated management area, development setback area and riparian corridor. The *management area* is the area where the watercourse regulations would apply. Any development located outside of the *management area* would not be subject to watercourse regulations. Generally, Watercourse Development Permits would be

required for allowed uses within any *setback area* of a Category A watercourse and for allowed uses within the *riparian corridor* and *development setback* areas of a Category B watercourses. Development activities within Category C watercourses are exempt. Allowable projects or activities would be required to comply with the applicable Watercourse Development Standards, and management guidelines are identified that property owners will be encouraged to implement. The standards address the issues identified below.

- Use of permeable paving;
- Drainage and water quality protection;
- Use of suitable plant materials;
- Use of appropriate lighting;
- Habitat enhancement;
- Construction Best Management Practices;
- Management in High Fire Hazard Areas; and
- Erosion control and bank protection measures.

## San Lorenzo Urban River Plan

The San Lorenzo River drains a 138 square mile watershed, featuring forested and urbanized areas within the City and Santa Cruz County. Within the City limits, the lower San Lorenzo River flows southward from the Sycamore Grove area of Pogonip, through the center of Santa Cruz, to Monterey Bay. This lower reach of the San Lorenzo River encompasses much of the river's historic floodplain. Branciforte Creek and Jessie Street Marsh are tributaries to the San Lorenzo River.

The *San Lorenzo Urban River Plan* is the outcome of a planning process initiated by City Council in 1999 to update previous plans for the San Lorenzo River, Jessie Street Marsh, and Branciforte Creek that guided flood control, vegetation restoration and public access improvements along the San Lorenzo River. The need for updated plans was a result of the river levee improvement project in the late 1990s, listing of steelhead and coho salmon as federally threatened species, and federal designation of the San Lorenzo River as critical habitat for these species. The plan, adopted by City Council in 2003, articulates a community vision for the corridor encompassing the lower Lorenzo River, Branciforte Creek and Jessie Street Marsh as both a wildlife area and as a community recreation and public open space amenity. It contains recommendations for habitat enhancement, as well as public access and ideas to promote river-oriented development. Recommendations regarding land use and public access are addressed in the LAND USE (Chapter 4.1) and PUBLIC SERVICES-Parks and Recreation (Chapter 4.6) sections of this EIR, respectively.

One of the key goals of the plan is to enhance and restore biotic values of the river, creek and marsh fish and wildlife habitat. The "Lower San Lorenzo River and Lagoon Management Plan" is included as an appendix in the San Lorenzo Urban River Plan and provides resource management and restoration recommendations within the constraints of providing flood protection. Management and restoration recommendations address: annual vegetation management; summer lagoon water level management; enhancement of the aquatic, shoreline and riparian habitats; and marsh restoration. Resource management recommendations for Branciforte Creek, the largest tributary to the River within the City limits, and Jessie Street

March are also included in the *San Lorenzo Urban River Plan*. These recommendations address vegetation management, native tree and riparian planting, and non-native tree removal.

## Management Plans for City-Owned Land

### ARANA GULCH MASTER PLAN

Arana Gulch is a City-owned greenbelt property situated along the City's eastern boundary, to the north of the Santa Cruz Harbor. This 67.7-acre open space site, purchased by the City in 1994, features coastal prairie, riparian and oak woodland, seasonal wetlands, and the lower reaches of Arana Gulch Creek. The *Arana Gulch Master Plan* was adopted by City Council in July 2006 as a Park Master Plan with certification of an accompanying EIR. In addition to public access and use recommendations, which are addressed in the PUBLIC SERVICES – Parks and Recreation (Chapter 4.6) section of this EIR, the *Arana Gulch Master Plan* identifies resource management areas and management guidelines for each of following areas:

- Coastal Prairie/Santa Cruz Tarplant (30.2 acres)
- Arana Gulch Creek Riparian and Wetland (34.5 acres)
- Hagemann Gulch Riparian Woodland (3.0 acres)

Arana Gulch also supports three types of Environmentally Sensitive Habitat Areas (ESHAs), as defined under the California Coastal Act. These areas include the tarplant habitat areas, riparian wetlands and seasonal wetlands.

The "Santa Cruz Tarplant Adaptive Management Program," which aims to enlarge the tarplant population by improving the quality of the coastal prairie habitat, is included as an appendix to the Master Plan. The Santa Cruz tarplant (*Holocarpha macradenia*) is a state listed endangered species and a federally-listed threatened species. In 2002, the Arana Gulch property was designated by the USFWS as critical habitat for Santa Cruz tarplant. Specific tarplant management strategies include mowing and raking, soil scraping, controlled burns, grazing, and removal/restoration of unauthorized pathways.

The Arana Gulch Creek Riparian and Wetland Management Area is limited in public access to minimize impacts to wildlife species. Management strategies focus on non-native vegetation removal, closure of unauthorized pathways, and further hydrologic analysis regarding bank erosion along the tidal reach of Arana Gulch Creek.

### JESSIE STREET MARSH MANAGEMENT PLAN

Jessie Street Marsh is a City-owned wetland and open space site located just to the north of the San Lorenzo River lagoon that was purchased by the City as part of the mitigation for the City's wastewater treatment plant expansion project. The marsh area is bounded by a bluff to the east, residential properties to the west and north, and East Cliff Drive/San Lorenzo River levee to the south. Freshwater flows into the marsh area from stormwater runoff and springs along the bluff. Historically, Jessie Street Marsh was part of a large tidal estuary open to the San Lorenzo River. After construction of the San Lorenzo River levee system in 1955, river tidal flows and most saltwater circulation were blocked from entering the marsh. Water circulation was significantly limited and a cat-tail dominated freshwater marsh replaced a more

ecologically valuable salt marsh. The southern portion of the marsh was also filled and reduced to a small, narrow drainage channel. The habitat value was further reduced by the spread of non-native plant species.

The *Jessie Street Marsh Management Plan* was adopted by City Council in 1999 to provide a long-term plan to preserve and enhance the natural resources of the marsh, improve water quality, manage flood waters, and provide appropriate public access. The plan includes specific management actions for both City-owned lands and recommendations for adjacent privately-owned properties. In addition to public access and use recommendations, which are addressed in the PUBLIC SERVICES – Parks and Recreation (Chapter 4.6) section of this EIR, the Management Plan proposes to modify the marsh area to increase the tidal exchange with the San Lorenzo River and enhance salt/brackish marsh and freshwater marsh habitat areas. Both marsh and upland woodland habitats would also be enhanced by removing invasive, non-native plants and revegetation of degraded areas. The management approach is to maximize the biodiversity of the marsh areas and enhance the biotic resources.

#### MOORE CREEK CORRIDOR ACCESS AND MANAGEMENT PLAN

The Moore Creek corridor is located along the western boundary of the City, extending from the University of California campus lands southward to Monterey Bay. Moore Creek, an intermittent stream, includes two main branches (east and west) which flow through steep sided canyons before joining together just north of Highway 1. To the south of Highway 1, the main stem flows through Antonelli Pond, an artificially created pond, and Natural Bridges State Beach to Monterey Bay. The corridor includes private property and public lands, and a mix of land uses. Habitat types within natural areas include riparian, grassland, and woodlands. Antonelli Pond is an artificial freshwater pond that was created in the early 1900s as a holding basin for logs to be milled at a sawmill on the eastern shores of the pond that is currently owned by The Land Trust of Santa Cruz County. The City purchased the upper west branch 246-acre greenbelt property in 1998 (see Moore Creek Preserve discussion below).

The *Moore Creek Corridor Access and Management Plan* was adopted by City Council in 1987 and incorporated into the City's General Plan as an area plan. This management plan was prepared as a focused effort to bring together the then existing policies from the City's General Plan and Western Drive Plan into a comprehensive document. Recommendations are included for public access, land dedication and open space easements, and resource management. In 2002, the City approved the *Moore Creek Interim Management Plan* which more specifically addresses management of the 246-acre Moore Creek Preserve area of the corridor. The *Moore Creek Corridor Access and Management Plan* provides recommendations regarding management of vegetation, water quality, and soil erosion and sedimentation. Public access and use recommendations are addressed in the PUBLIC SERVICES – Parks and Recreation (Chapter 4.6) section of this EIR.

#### MOORE CREEK PRESERVE INTERIM MANAGEMENT PLAN

Moore Creek Preserve is a City-owned greenbelt property located on the western edge of the City, to the north of Highway 1. This 246-acre natural area was purchased by the City in 1998. The State of California holds two easements over the property. One of the easements (85 acres) encompasses the canyon and oak woodlands along the Moore Creek (west branch)

corridor. The second easement (160 acres) includes the uplands, featuring primarily coastal prairie. Numerous threatened and endangered plant and wildlife species have been documented within the Preserve.

The *Moore Creek Preserve Interim Management Plan* was adopted by City Council in June 2002 as an "Interim Management Plan", not as a Park Master Plan. The document is intended to guide management of the Moore Creek Preserve until preparation/approval of a long term Park Master Plan for the property. The Plan identifies three plant community resource management areas with specific management guidelines for habitat areas for three special status species as identified below. Resource Management Guidelines are included in the Interim Plan for each of these areas. Specific management strategies include cattle grazing, mowing, non-native plant species removal, installation of grazing fencing, monitoring trail use for impacts, and conducting annual surveys.

Plant Communities
- Coastal Prairie
- Riparian and oak woodland (Moore Creek canyon and Wilder Creek canyon)
- Mixed eucalyptus and Monterey cypress grove (Monarch butterfly over-wintering habitat)

Special Status Species
- Ohlone Tiger Beetle Habitat
- San Francisco popcorn flower habitat
- California red-legged frog habitat

### NEARY LAGOON MANAGEMENT PLAN

Neary Lagoon is a City-owned wetland and natural area situated in the central part of the City (see Figure 4.6-2). Acquired by the City in 1967, the 14-acre lagoon and surrounding riparian and woodland habitat within the management area total 44 acres. The City's wastewater treatment plant is located adjacent to the lagoon. The outlet from the lagoon to Monterey Bay is located at Cowell Beach.

Neary Lagoon was originally an oxbow of the San Lorenzo River that was gradually isolated from the main river channel. During the 1850s, the lagoon covered approximately 75 acres extending to what is now Pacific Avenue in downtown. The property was used for farming with a small dairy in the late 1800s, and there were several attempts made to drain the lagoon. By the 1930s the lagoon was primarily a marsh with little open water. In the 1970s, the City designated the Neary Lagoon Park and Wildlife Refuge as a community facility.

The *Neary Lagoon Management Plan* was adopted by City Council in July 1992 and the Coastal Commission in August 1992 in fulfillment of a condition of Coastal Commission approval in 1975 of a coastal permit for the City to construct park and wildlife refuge improvements. The Plan is a comprehensive guide that addresses public access and use, hydrology, water quality, vegetation management and habitat restoration, wildlife and fishery management, cultural resources and aesthetics. Public access and use recommendations are addressed in the PUBLIC SERVICES – Parks and Recreation (Chapter 4.6) section of this EIR. The plan also addresses management of water lagoon levels, important for flood protection, water quality, management of vegetation and wildlife habitat, and mosquito control. Specific management

actions are included for each of these elements. The plan also identifies habitat types and Management Zones A through J. The habitat areas include:

- Freshwater Marsh
- Open Water
- Riparian and Mixed Oak Woodland
- Grassland, Recreational and Ruderal Areas

Habitat and wildlife/fisheries management actions include removal of non-native plant and wildlife species, maintaining a balance between freshwater marsh and open water habitat through removal of tules and cattails, establishing and enhancing islands within the lagoon for waterfowl, grassland restoration, and conducting annual surveys and monitoring.

### POGONIP MASTER PLAN

Pogonip is a City-owned greenbelt property located approximately one mile north of downtown Santa Cruz between the University of California campus and the San Lorenzo River corridor. This property features coastal prairie, woodlands, creeks, springs and a reach of the San Lorenzo River known as Sycamore Grove. Pogonip was once part of the Cowell Ranch landholdings. The property was extensively logged and features historic resources associated with the lime production industry in the mid-to-late 18th century.

The *Pogonip Master Plan* was adopted by City Council in July 1998 as a Park Master Plan. This long-range plan addresses public access, recreational uses, historic resource rehabilitation and preservation, and natural resource management and protection. Public access and use recommendations are addressed in the PUBLIC SERVICES – Parks and Recreation (Chapter 4.6) section of this EIR. The *Pogonip Master Plan* identifies six resource management areas where sensitive habitat areas, plant communities, and plant and wildlife species occur. These areas include:

- Coastal Prairie
- Wetland/Freshwater Marsh
- Central Coast Cottonwood-Sycamore Riparian Forest
- Central Coast Riparian Scrub
- Robust Spineflower Habitat
- Ohlone Tiger Beetle Habitat

Resource Management Guidelines are included in the Master Plan for each of these areas. Specific management strategies include grazing, mowing, non-native plant species removal, prescribed burns, closure of unauthorized trails, monitoring trail use for impacts, and conducting annual surveys. Within the mixed evergreen forest, upland redwood forest, and coast live oak forest, the focus is to prevent future degradation due to invasive non-native species, visitor related impacts, and illegal uses such as camping. The Master Plan also includes a Fire Management Element, which addresses values at risk from fire, fire hazards, risk of ignition, methods of fuel management, and fire management actions.

## State Park General Plans

### LIGHTHOUSE FIELD STATE BEACH GENERAL PLAN

Lighthouse Field State Beach (SB) is a 36-acre open space situated along Monterey Bay, featuring coastal terrace, ocean cliffs, and Its Beach. The open space features grassland (primarily non-native), willows, Monterey cypress trees, and eucalyptus groves. The State of California owns the field area and the western coastline, while the City owns Lighthouse Point and the eastern coastline. Lighthouse Field is classified as a State Beach, which consist of areas with frontage on the ocean, or bays, and are designed to provide beach-oriented recreational activities.

The *Lighthouse Field State Beach General Plan* was adopted in 1984 by the state. A general plan is the primary management document for a State Park unit. The plan evaluates and defines proposed land use, facilities, operations, and management of resources. In addition to public access and use recommendations, which are addressed in the PUBLIC SERVICES – Parks and Recreation (Chapter 4.6) section of this EIR, the Resource Management Plan component of the *Lighthouse Field State Beach General Plan* addresses hydrologic, geologic, plant, wildlife and aesthetic resources. An overview of some of the management recommendations includes:

- Convey stormwater primarily via existing surface channels and encourage established willows and other native species by allowing natural propagation.
- Remove invasive non-native vegetation and plant native vegetation where exotic species are removed.
- Maintain existing Monterey cypress and plant young cypress to replace declining trees.
- Allow the existing grassland to undergo natural succession.
- Prohibit the taking of marine or terrestrial life.
- Place additional rip-rap at the base of eroding coastal bluffs only when deemed necessary to reduce a severe erosion hazard. Plant native groundcover vegetation on bluffs.

### NATURAL BRIDGES STATE BEACH PLAN

Natural Bridges State Beach (SB) is a 65-acre open space and wetland situated on Monterey Bay, on the western boundary of the City. Primary resources include the natural rock bridge, a beach, Monarch butterfly overwintering habitat and the Moore Creek wetland. Natural Bridges was formally classified as a State Beach in 1962.

The preliminary *Natural Bridges State Beach General Plan* was adopted by the State Parks Commission in 1988. The final general plan document, dated 1992, is the primary management document for this State Park unit. The Resource Element of the *Natural Bridges State Beach General Plan* addresses management of wetlands, riparian vegetation, Monarch butterfly habitat, paleontological resources, marine and animal life. An overview of some of the management recommendations includes:

- Prepare management plans for the Moore Creek wetland and Monarch Butterfly habitat.

- Remove invasive exotic vegetation, except eucalyptus trees used by Monarch butterflies, and replace with native species from local population sources.

#### TWIN LAKES STATE BEACH GENERAL PLAN

Twin Lakes State Beach (SB), totaling 91.6 acres, is located within the eastern portion of the City and the unincorporated area of Santa Cruz County. Within the City limits, the State Beach lands include Seabright Beach and San Lorenzo Point along the eastern mouth of the San Lorenzo River. The preliminary *Twin Lakes State Beach General Plan* was adopted by the State Parks Commission in 1988. The final general plan document is dated 1992.

The Resource Element of the *Twin Lakes State Beach General Plan* pertaining to Seabright Beach and San Lorenzo Point primarily address resource management of bluffs, paleontological resources, shoreline protection, and marine life.

## 4.8.2 RELEVANT PROJECT ELEMENTS

### PROPOSED GOALS, POLICIES & ACTIONS

The NATURAL RESOURCES AND CONSERVATION chapter of the draft *General Plan 2030* includes the required conservation element. Three goals and 13 accompanying policies and associated actions address riparian and wetland habitat, special status species, sensitive habitat areas, wildlife movement, tree protection, and open space management. The three natural resources goals related to biological resources are:

NRC1 *Protected, enhanced, and sustainably managed creek systems, riparian environments, and wetlands*

NRC2 *Protected, enhanced, and sustainable native and natural plant and animal communities and habitats*

NRC3 *Conservation and stewardship of resources*

Several policies and actions in other chapters of the proposed General Plan also seek to protect, preserve and/or manage open space and natural areas throughout the City (CD 1.1.3, LU 2.3, LU 3.11), including the Monterey Bay National Marine Sanctuary. Biotic monitoring and fisheries conservation strategies are proposed to protect watersheds that supply water to the City (CC 3.3.6, CC 3.3.7).

### FUTURE DEVELOPMENT POTENTIAL

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan / Local Coastal Program, except for three new mixed use land designations have been developed and applied to the following major transportation corridors: Mission Street, Ocean Street, Soquel, Avenue, and Water Street. Additionally, some of the

*General Plan 2030* policies and actions also support mixed use districts and/or intensified redevelopment, such as a Mixed Use River District, expansion of the High Density Overlay on Front and lower Pacific, and additional height and intensity along Pacific north of Cathcart.

Land Use actions LU1.1.4 and LU1.1.5 address development and land use for specific sites: the Swenson property and the Golf Club Drive property, respectively. LU2.2.3 also includes addition of a 5.5-acre parcel adjacent to the Dimeo Lane landfill and Resource Recovery Center, but specific uses haven't been identified, although the site will not be used as part of expansion of the landfill disposal area. In addition, the proposed *General Plan 2030* supports development of a desalination plant (Policy CC3.1.3), but a specific site is not identified.

The proposed plan further calls for evaluation and mitigation of potential impacts from new development (NRC2.2.1). Table 4.8-6 at the end of this chapter is taken from the proposed *General Plan 2030*. It summarizes assessment protocols to be used by the City to determine if a sensitive biological resource is present on a proposed development site, and identifies general avoidance or management strategies to be employed when sensitive biological resources occur.

## 4.8.3 IMPACTS AND MITIGATION MEASURES

### CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

8a Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service;

8b Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

8c Have a substantial adverse effect, either directly or through habitat modifications on; or substantially reduce the number or restrict the range of any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

8d Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

8e Substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels or threaten to eliminate a plant or animal community;

8f Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

8g Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan;

## IMPACT ANALYSIS

Based on the significance criteria identified above, there are no currently adopted or approved Habitat Conservation[6] or Natural Community Conservation Plans (8g) that apply to lands within the City planning area. The following impact analyses address riparian, wetland and sensitive habitats (8a, 8b); special status species (8c); wildlife movement and breeding (8d); wildlife habitat reduction (8f); and conflicts with local policies and ordinances protecting biological resources (8e).

### Potential Future Development & Buildout

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased new development. However, the draft General Plan includes policies and a land use map that support additional development as summarized in subsection 4.8.2 above. Buildout projections indicate that potential new development accommodated by the draft general plan to the year 2030 could total 3,350 residential units, 3,140,000 square feet of commercial, office and industrial development and new hotel rooms, primarily on infill and underutilized lots, as described in the PROJECT DESCRIPTION (Chapter 3.0) and LAND USE (Chapter 4.1) sections of this EIR.

Development under the proposed General Plan would primarily occur on vacant infill sites, on underutilized properties that could redeveloped at higher densities and/or land use intensities, and in the new mixed-use districts along the City's four major street corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. Based on the estimated development occurring under the proposed plan,[7] approximately 55 percent of all new housing, 45 percent of new commercial development and 52 percent of new office development would located along these corridors.

[6] As discussed in the subsection 4.8.1, the City is in the process of developing a HCP, but a draft document has not been completed. See discussion on pages 4.8-25 and 26.

[7] See Table 3-3 in the PROJECT DESCRIPTION (Chapter 3.0) section of this EIR and Figure 2-3 for estimated distribution of new development per specific areas in the City.

## Sensitive Habitats

**Impact 4.8-1: Riparian and Wetland Habitats**
Adoption and Implementation of the proposed *General Plan 2030* would accommodate future development that could directly or indirectly impact riparian and/or wetland habitat areas within and adjacent to the City. With implementation of the proposed policies and actions for resource protection and adherence to other City's plans and regulations protecting these habitat areas, this is considered a *less-than-significant impact*.

The City is primarily developed, and as indicated above, new development would predominantly occur within developed areas. However, there are a few remaining vacant lots and underdeveloped properties located within developed areas that are also located adjacent to water bodies, watercourses and/or riparian habitat areas. These areas include:

- The Swenson Site adjacent to Antonelli Pond;
- The Golf Club Drive area adjacent to Pogonip Creek; and
- Portions of the area along Seventh Avenue that is within the City's Sphere of Influence, but outside City limits; portions of which border Arana Gulch and the Small Craft Harbor area.

Development in these areas or other parcels adjacent to streams and riparian habitats could result in impacts to sensitive riparian habitat areas with future development accommodated by the *General Plan 2030*. Riparian habitat and specific development setbacks are specified in the City's adopted *City-Wide Creeks and Wetlands Management Plan*. Future development, including the areas identified above, would be required to provide riparian setbacks and implement best management practices and development standards as set forth in this Plan, and included in the City's Zoning Ordinance (section 24.08, Part 12-Watercourse Development Permit). Requirements for allowed uses also are provided. Future development also would be reviewed for compliance with City policies and plans, in addition to being subject to site-specific environmental review under CEQA. Furthermore, Action LU1.1.5 sets for specific development/design directives for the Golf Club Drive area, which includes preservation of up to five acres of open space that include riparian corridors.

Known wetlands are identified in the City's adopted *City-Wide Creeks and Wetlands Management Plan*, and shown on Table 4.8-1. However, only known wetlands are mapped, and other wetlands may occur within future development areas. Of the major vacant sites, the Swenson property is located adjacent to Antonelli Pond. However, proposed Action LU1.1.4 sets forth specific development/design directives for the Swenson parcel, which include: wetland buffers, locating parking away from Antonelli Pond and preserving public access to Antonelli Pond.

In addition, to these specified properties identified for development, the proposed General Plan also includes some policies that support access and/or other passive uses in or near sensitive habitat areas. Action NRC1.1.2 does support access improvements in riparian areas, such as unpaved narrow trails, boardwalks, and vista points that could result in potential direct or indirect impacts on riparian and wetland resource. However, the action is qualified by

indicating these improvements be provided "where consistent with riparian and wetland protection,", and to this end ensures that the sensitive habitat would be protected. While trails and public access may result in indirect impacts, but the General Plan includes policies to protect riparian resources where access is provided. Similarly, the proposed Plan includes policies to encourage low-impact uses in areas upstream of City watercourses. (NRC1.2).

The General Plan policies and actions outlined in Table 4.8-5 and existing City regulations will serve to protect biological resources that may be present or encountered as part of future development accommodated by the proposed General Plan. The proposed *General Plan 2030* includes a number of policies that serve to protect riparian habitat areas, and thus, avoid or mitigate potential impacts to riparian habitat that may occur as a result of development under the General Plan. Policy NRC1.1 and its accompanying five actions seek to protect river and wetland areas. The General Plan policies and actions (summarized in Table 4.8-5) will protect riparian habitats through implementation of the *City-wide Creeks and Wetlands Management Plan* with specified development setbacks (NRC1.3.1), encouraging riparian revegetation and restoration efforts (NRC1.1.4), and protecting and managing natural and open space areas (CD1.1.3, LU2.3.3, LU3.11, LU3.11.3, NRC6.1, NRC6.3.).

The proposed plan further calls for evaluation and mitigation of potential impacts from new development (NRC2.2.1). Furthermore, the proposed *General Plan 2030* includes a table that identifies habitat assessment and management protocols for sensitive riparian and wetland habitats, including the type of reviews/studies that will be required as part of development/management of riparian habitat areas, including wetland delineations and buffer determinations, along with potential mitigation and/or management (see Table 4.8-6 at the end of this chapter). In addition to compliance with the City's Creek Management Plan and Watercourse Development zoning regulations, development adjacent to watercourses may also be subject to review and approval by the California Department of Fish and Game (CDFG) pursuant to section 1602 of the state Fish and Game Code that requires a Streambed Alteration Agreement with CDFG for any work within a creek channel.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development and increased population accommodated by the plan could result in adverse impacts to sensitive habitat areas. With implementation of the proposed *General Plan 2030* goals, policies and actions that set forth measures to avoid and minimize adverse impacts on sensitive riparian and wetland habitats as summarized on Table 4.8-5, as well as future environmental review of specific development projects and compliance with local regulations and plans, particularly the *City-Wide Creeks and Wetlands Management Plan*, the proposed *General Plan 2030*'s indirect impact on sensitive habitats would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.8-2: Other Sensitive Habitat Areas**
Implementation of the proposed *General Plan 2030* would result in future development that could directly or indirectly impact sensitive habitat areas within and adjacent to the City (other than riparian and wetland habitats). Within implementation of the proposed policies and actions for resource protection, this is considered a *less-than-significant impact*.

In addition to sensitive riparian and wetland habitat areas, coastal prairie and coastal bird habitat along coastal bluffs would be considered sensitive habitat areas. The City of Santa Cruz is primarily developed; the majority of sensitive habitat (other than riparian and wetland) are protected within the City-owned and managed greenbelt and open space areas and along creeks and watercourses as depicted on Figure 4.8-2. Of the specific vacant sites identified for future development, the Swenson site contains potential coastal prairie habitat. Generally, there is no development that would be located along the coast that would affect coastal bird habitat, although some public works or infrastructure maintenance/repairs in the future may be located in this area.

The proposed *General Plan 2030* includes a number of policies that serve to protect sensitive habitat areas (other than riparian and wetland habitats that are addressed above in Impact 4.8-1), and thus, avoid or mitigate potential impacts to sensitive habitat that may occur as a result of development accommodated by the draft the *General Plan 2030*. These policies include protection of sensitive habitat areas; management of vegetation and grading within sensitive habitats; protection of tree groves that provide habitat for monarch butterflies; and review of future development proposals for impacts and mitigation. The General Plan policies and actions (summarized in Table 4.8-5) will protect sensitive habitat areas and important vegetation communities and wildlife habitat, particularly sensitive and edge habitats ("ecotones"), which specifically includes protecting coastal roosts and rookeries to prevent disturbance during breeding or loss of habitat due to construction, recreational activities or special events (NRC2.2.2). Additionally, the proposed plan seeks to minimize grading and control pests and non-native invasive species in sensitive habitat areas (NRC2.3.4, NC3.3.5). Revegetation and restoration of native plant areas also is supported (NRC2.2.3, NRC2.2.5). Policy NRC2.4 also seeks to protect, manage, and enhance tree groves and understory that provide sensitive habitat features, specifically calling for maintenance of a Monarch Butterfly Management Plan (NRC2.4.1).

The proposed plan further indicates that as part of the CEQA review process, future development projects will be required to evaluate and mitigate potential impacts to sensitive habitat (including special-status species) for sites located within or adjacent to these areas (NRC2.2.1). Furthermore, the proposed *General Plan 2030* includes a table that identifies habitat assessment and management protocols for sensitive habitat areas, including the type of reviews/studies that will be required along with potential mitigation and/or management (see Table 4.8-6 at the end of this chapter. In addition, compliance with Section 24.14.080 of the City's Municipal Code includes provisions to protect wildlife habitat and protected species for areas specified in the City's existing General Plan (Maps EQ-8 and EQ-9). (This section of the Zoning Ordinance will require updating to reflect new maps developed as part of the *General Plan 2030*.)

**TABLE 4.8-5**
**Proposed General Plan Policies & Actions that Avoid or Reduce Biotic Resource Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| PROTECT RIPARIAN, WETLAND & OTHER SENSITIVE HABITATS | • Protect river and wetland areas: NRC1.1, NRC1.1.2, NRC1.3.1<br>• Conserve riparian & wetland resources in accordance with Creeks Plan and San Lorenzo River Plan: NRC1.3.1, CD3.1.2 (update San Lorenzo River Plan)<br>• Require riparian & wetland setbacks set forth in City's Creek Plan: NRC1.1.1<br>• Encourage restoration and enhancement of riparian and wetland resources: NRC1.3, NRC1.1.4 (revegetation in buffer areas) |
| PROTECT OTHER SENSITIVE HABITATS | • Protect sensitive habitat areas: NRC2.2, NRC2.4 (tree groves that provide sensitive habitat features)<br>• Vegetation, grading and pest control management in sensitive habitats: NRC2.2.3, NRC2.2.4, NRC2.2.5<br>• Protect coastal roosts and rookeries: NRC2.2.2<br>• Support protection of Monterey Bay National Marine Sanctuary & its environs: NRC6.2, CD1.1.2 |
| PROTECT SPECIAL STATUS SPECIES | • Protect, enhance or restore special status species habitat: NRC2.1<br>• Maintain up-to-date list, map, inventory of special status species: NRC2.1.1, NRC2.1.2, NRC2.1.5<br>• Protect sensitive tree groves and maintain Monarch Butterfly Management Plan: NRC2.4.1<br>• Biotic monitoring & habitat protection in watersheds: CC3.3.6 |
| NATIVE REVEGETATION | • Native revegetation in riparian & wetland setbacks: NRC1.1.4<br>• Encourage planting and restoration of native vegetation: NRC2.2.3<br>• Encourage eradication and control of non-native, invasive species: NRC2.2.5 |
| PROTECT WILDLIFE DISPERSAL CORRIDORS | • Protect, enhance significant dispersal corridors: NRC2.3, NRC2.3.1 |
| OPEN SPACE & RESOURCE PROTECTIN and MANAGEMENT | • Protect & manage open space / native habitat areas: LU2.3.3, LU3.11, LU3.11.3, CD1.1.3 (management plans), NRC6.1, NRC6.3.<br>• Preserve/ manage woodland areas within open spaces: NRC3.2<br>• Encourage continued preservation of UCSC open space uses pursuant to LRDP: LU2.3.4 |
| ENCOURAGE LOW-IMPACT USES & MITIGATE IMPACTS OF DEVELOPMENT | • Encourage Low-Impact Uses Upstream of City's River & Riparian Habitats: NRC1.2<br>• Evaluate & Mitigate new uses in watershed and riparian areas: NRC1.2.1, NRC1.2.2.<br>• Evaluate & Mitigate Future Development Impacts: NRC2.1.3 (special status species), NRC2.2.1 (CEQA process),<br>• Implement strategies to reduce impacts: NRC2.1.4<br>• Appropriate land uses & development standards that don't adversely impact open spaces: LU3.11.2 |
| TREE PROTECTION | • Protect tree resources & heritage trees: NRC5.1, CD4.3.4<br>• Maintain & increase urban tree canopy & tree diversity: NRC5.1.2, NRC5.2, NRC5.2.1 (additional street trees)<br>• Educational programs to promote urban forest: NRC5.1.1 |

The Monterey Bay could be deemed a sensitive habitat due to its designation as a federal marine sanctuary. The proposed *General Plan 2030* supports protection of the Monterey Bay National Marine Sanctuary and its environs (Policy 6.2), and numerous policies seek to protect water quality as further described in the HYDROLOGY, STORM DRAINAGE & WATER QUALITY (Chapter 4.7) section of this EIR. The draft general plan does support development of a desalination plant that could result in impacts to the marine environment due to intake systems and/or discharge into the ocean. Potential impacts associated with the construction and operation of a desalination facility are summarized in the WATER SUPPLY (Chapter 4.4.5) section of this EIR.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development and increased population accommodated by the plan could result in adverse impacts to sensitive habitat areas. With implementation of the proposed *General Plan 2030* goals, policies and actions as summarized on Table 4.8-5, as well as future environmental review of specific development projects and compliance with local regulations and plans, the proposed *General Plan 2030*'s indirect impact on sensitive habitats would be considered less-than-significant.

### Mitigation Measures

No mitigation measures are required, but revision of the following *General Plan 2030* actions are recommended to strengthen the identification of sensitive habitat areas that will be subject to project-level reviews in the future.

#### Recommended Revisions to the *Draft General Plan 2030*

Revise or add policies/actions as indicated below. Deleted text is shown in ~~strikeout~~ typeface, and new text is shown in underlined typeface.

NRC2.2 Protect sensitive habitat areas and important vegetation communities and wildlife habitat, to include riparian, wetland (salt marsh and freshwater wetland), coastal prairie, coastal bird habitat, and habitat that supports special status species, as well as, ~~particularly~~ sensitive and edge habitats ("ecotones").

NRC2.2.6 Amend Zoning Ordinance section 24.14.080 to provide an updated reference the sensitive habitats identified in the *General Plan 2030*.

## Special Status Species

**Impact 4.8-3: Special Status Species**
Implementation of the proposed *General Plan 2030* would result in future development that could directly or indirectly impact special status species. With implementation of the proposed policies and actions for resource protection, this is considered a *less-than-significant impact*.

The proposed *General Plan 2030* would accommodate future development pursuant to planned land use designations contained in the Plan. Development under the proposed General Plan would primarily occur on vacant infill sites, on underutilized properties that could redeveloped at higher densities and/or land use intensities, and in the new mixed-use districts along the City's four major street corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. Based on the estimated development occurring under the proposed plan,[8] approximately 55 percent of all new housing, 45 percent of new commercial development and 52 percent of new office development would located along these corridors.

The City of Santa Cruz is primarily developed, except for a few remaining vacant lots located within developed areas, the following three areas within the planning area are primarily undeveloped or underdeveloped. These areas are located adjacent to water bodies and/or watercourses.

- The Swenson Site adjacent to Antonelli Pond;
- The Golf Club Drive area adjacent to Pogonip Creek; and
- Portions of the area along Seventh Avenue that is within the City's Sphere of Influence, but outside City limits; portions of which border Arana Gulch.

Known locations of special status species have been incorporated into the City's GIS mapping system. According to the proposed General Plan assessment protocols, future species surveys and assessments will be required as part of the CEQA-review process in order to evaluate and mitigate potential impacts related to future development (see Table 4.8-6 at the end of this chapter). Additionally, the proposed *General Plan 2030* includes several policies, outlined below, that serve to protect special status species, and thus, mitigate potential impacts to sensitive habitat that may occur as a result of development under the General Plan. These policies include protection of sensitive habitat areas; management of vegetation and grading within sensitive habitats; protection of tree groves that provide habitat for monarch butterflies; and review of future development proposals for impacts and mitigation. Policy NRC2.1 and its five accompanying actions seek to protect, enhance, or restore habitat for special-status plant and animal species through maintaining up-to-date species list, map and inventory (NRC2.1.1, NRC2.1.2, NRC2.1.5) and evaluating and mitigating impacts associated with new development (NRC2.1.3, NRC2.1.4).

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development and increased

[8] See Table 2-3 in the PROJECT DESCRIPTION (Chapter 3.0) section of this EIR and Figure 3-2 for estimated distribution of new development per specific areas in the City.

population accommodated by the plan could result in adverse impacts to special status species if present at a particular development site. With implementation of the proposed *General Plan 2030* goals, policies and actions as summarized on Table 4.8-5, as well as future environmental review of specific development projects and compliance with local regulations and plans, the proposed *General Plan 2030*'s indirect impact on sensitive habitats would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

## Wildlife Movement & Breeding

**Impact 4.8-4: Wildlife Movement & Breeding**
Implementation of the proposed *General Plan 2030* would result in future development that could directly or indirectly interfere with wildlife movement and/or breeding. With implementation of the proposed policies and actions for resource protection, this is considered a *less-than-significant impact*.

The proposed *General Plan 2030* would accommodate future development pursuant to planned land use designations contained in the Plan. Development under the proposed General Plan would primarily occur on vacant infill sites, on underutilized properties, and in the new mixed-use districts along the City's four major street corridors: The primary wildlife movement corridors are located along major watercourses and within City-owned open space lands, which would be protected from future development impacts. Projects adjacent to watercourses would be subject to setback requirements set forth in the City's Creeks and Wetlands Management Plan.

The proposed *General Plan 2030* includes several policies, as summarized on Table 4.8-5, that seek to protect, enhance and maintain significant wildlife dispersal corridors and buffers (NRC2.3, NRC2.3.1). The draft plan also calls for protection of coastal roost and rookeries (NRC2.2.2). Additionally, according to the proposed General Plan assessment protocols, future species surveys and assessments will be required as part of the CEQA-review process in order to evaluate and mitigate potential impacts related to future development (see Table 4.8-6 at the end of this chapter). Additionally, LU1.1.5 requires that future development in the Golf Club Drive area preserve up to five acres of open space as an urban wildlife interface zone, community garden and riparian corridor area.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated could interfere with wildlife movement or breeding. However, with implementation of the proposed *General Plan 2030* goals, policies and actions as summarized on Table 4.8-5, as well as future environmental review of specific development projects and compliance with local regulations and plans, the proposed *General Plan 2030*'s indirect impact on sensitive habitats would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

## Habitat Reduction

**Impact 4.8-5: Habitat Reduction**
Implementation of the proposed *General Plan 2030* would result in future development that would be considered urban infill development and would not result in significant reduction of wildlife habitat or cause a wildlife or plant population to drop below self-sustaining levels or become eliminated. Therefore, there is *no impact* related to substantial habitat reduction.

As previously indicated, future development accommodated by the *General Plan 2030* would primarily occur on vacant urbanized infill sites, on underutilized properties, and in the new mixed-use districts along the City's four major street corridors. Based on the estimated development occurring under the proposed plan, approximately one-half of new development would be located along these transportation corridors. The majority of significant habitat areas within the City are found within City-owned greenbelt and open space properties. Given that future development of infill sites is surrounded by other urban development, future development accommodated by the proposed general plan would not substantially reduce the habitat of a fish or wildlife species or cause a fish or wildlife species to drop below self-sustaining levels. The protection and enhancement of habitat areas within the greenbelt and open spaces within the City are further supported (NRC6.3). Furthermore, the proposed policies and actions support protection and management of open space and natural habitat areas (LU2.3,3 LU3.11), protection and management of woodland areas within open spaces (NRC3.1), and biotic monitoring and fishery protection in watersheds (CC3.6, CC3.3.7), as summarized on Table 4.8-5.

## Conflicts with Local Policies or Regulations

**Impact 4.8-6: Tree Protection**
Implementation of the proposed *General Plan 2030* would result in future development that could directly or indirectly adversely affect heritage trees in conflict with local tree protection regulations. With implementation of the proposed policies and actions for resource protection, this is considered a *less-than-significant impact*.

Future development accommodated by the proposed plan could result in removal of trees. However, existing City regulations (Municipal Code Chapter 9.56) protect heritage trees. Removal of a heritage tree that is consistent with the criteria, provisions and requirements set forth in City ordinances is not considered a significant impact. Furthermore, the proposed *General Plan 2030* includes policies and actions to protect trees. Policy NRC5.1 and its two accompanying actions seek to protect and manage tree resources in the urban environment, with emphasis on significant and heritage trees, including maintenance and expansion of the City's

urban tree canopy (NRC5.1.2), planting additional street trees (NRC5.2), and continued educational programs to promote the City's urban forest (NRC5.1.1).

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated could result in removal of heritage trees. However, with implementation of the proposed *General Plan 2030* goals, policies and actions as summarized on Table 4.8-5, as well as compliance with local regulations and plans, the proposed *General Plan 2030*'s indirect impact on heritage trees would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.8-7: Conflicts with Local Plans and Policies**
Adoption and implementation of the proposed *General Plan 2030* would not result in conflicts or inconsistencies with policies adopted to protect biological resources. Thus, there is *no impact* related to this issue.

The City has adopted a number of management plans for open space areas, as well a Creeks and Wetlands Management Plan. The existing open space and resource management plans include management guidelines for resource protection, as well as recommendations for land use development and provision of access, in some cases. These plans do not include specific policies to protect biological resources. The proposed General Plan does not include goals, policies or actions that would conflict with the management directives of these plans. The proposed General Plan supports development and maintenance of a master plan for the long-term preservation and maintenance of each of the City's greenbelt lands (LU2.3.3), and maintenance and protection of existing open space through management plans (LU3.11). Additionally, the draft *General Plan 2030* in some instances supports these plans and/or includes broad policies or actions consistent with recommendations in these plans as summarized below:

- ***City-wide Creeks and Wetlands Management Plan.*** As previously indicated, this plan sets forth riparian setback requirements and development standards and guidelines for all watercourses in the City. The draft general plan Action NRC1.1.1 requires setbacks and implementation of standards and guidelines for development and improvements within the City and adjacent to creeks and wetlands as set forth in the *Citywide Creeks and Wetlands Management Plan*. Action NRC1.3.1 further affirms that creek, riparian, and wetland resources will be conserved in accordance with the adopted Creek Plan. Additional policies and actions summarized in Table 4.8-5 also serve to protect riparian and wetland protection. Thus, the proposed *General Plan 2030* does not result in conflicts with this plan.
- ***San Lorenzo River Urban Management Plan.*** Action NRC1.3.1 indicates that that creek, riparian, and wetland resources will be conserved in accordance with the adopted the San Lorenzo River Plan. The maintenance, updated and implementation of

the San Lorenzo Urban River Plan is explicitly supported in the draft general plan (CD3.1.2). Thus, the proposed *General Plan 2030* does not result in conflicts with this plan.

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**TABLE 4.8-6. Assessment and Management Protocols for Sensitive Species and Habitat**

| RESOURCE | REGULATORY AUTHORITY | ASSESSMENT (to determine presence) | MITIGATION/ MANAGEMENT* (if resource is present) |
|---|---|---|---|
| **Sensitive Habitats** | | | |
| Freshwater Wetland & Salt Marsh | City Ordinance & Plans<br>CDFG Wetlands Resources Policy<br>U.S. Army Corps of Engineers | Wetland Delineation | • Permit from Corps (for fill)<br>• Avoidance and/or Mitigation, such as buffers, restoration or enhancement, and water quality protection |
| Riparian Habitat | City Ordinance & Plans<br>CEQA Review | Citywide Creeks & Wetlands Management Plan or Habitat Assessment | • Comply with Creeks Plan setback requirements & development standards and guidelines<br>• Streambed Alteration Agreement from CDFG if required |
| Coastal Prairie | CEQA Review | Habitat Characterization | • Avoid direct impacts and buffer<br>• Mitigation for indirect impacts |
| Coastal Bird Rookeries | CEQA Review<br>Division of Migratory Birds- MBTA (USFWS) | Habitat Characterization<br>Breeding bird surveys | • Avoid direct impacts<br>• Conduct construction activities outside of nesting season and/or establish appropriate buffers |
| **Special Status Species** | | | |
| Listed Special-Status Plant Species<br>▪ Robust spineflower<br>▪ Santa Cruz tarplant<br>▪ San Francisco popcornflower | CEQA Review<br>CESA and NPPA (CFGC) | Botanical survey during flowering period | • Avoidance – design to avoid removal of individuals and habitat<br>• Provide appropriate buffers to protect from indirect impacts<br>• Mitigation and/or Management to protect from indirect impacts and maintain long-term viability of species<br>• Consultation with and MOU from CDFG |
| Other Special-Status Plant Species<br>▪ Santa Cruz manzanita<br>▪ Gardner's yampah<br>▪ Cloris' popcornflower<br>▪ Santa Cruz clover<br>▪ Hickman's popcorn flower | CEQA Review | Botanical survey during flowering period | Avoidance and/or Mitigation – see above. |

**TABLE 4.8-6. Assessment and Management Protocols for Sensitive Species and Habitat**

| RESOURCE | REGULATORY AUTHORITY | ASSESSMENT (to determine presence) | MITIGATION/ MANAGEMENT* (if resource is present) |
|---|---|---|---|
| Listed Special-Status Wildlife Species<br>▪ Ohlone tiger beetle | ESA (USFWS) | Survey during emergence season | • Avoidance – design plans to avoid take of individuals and habitat<br>• Mitigation and Management to protect from indirect impacts<br>• USFWS Take permit through HCP process (no federal nexus) or Section 7 (federal nexus) |
| ▪ Coho Salmon (Central CA ESU) | ESA (NOAA NMFS)<br>CESA (CDFG) | Habitat assessment | • Consultation with NMFS<br>• Avoidance of instream construction during migration period<br>• Mitigation for indirect impacts |
| ▪ Steelhead (Central CA ESU) | ESA (NOAA NMFS) | Habitat assessment | • Consultation with NMFS<br>• Avoidance of instream construction during migration period<br>• Mitigation for indirect impacts |
| ▪ Tidewater goby | ESA (USFWS) | Habitat assessment<br>Protocol level survey during sandbar formation (permit required) | • Consultation with USFWS<br>• Avoidance and/or Mitigation |
| ▪ California red-legged frog | ESA (USFWS) | Habitat Assessment<br>Protocol Level Survey (USFWS 2005b)<br>Pre-construction Survey | • Avoid take of individuals and impacts to aquatic habitat<br>• USFWS Take permit through HCP process (no federal nexus) or Section 7 (federal nexus)<br>• Mitigation to protect from indirect impacts |
| ▪ Brown pelican (communal roosts and rookeries) | ESA (USFWS)<br>CESA (CDFG) | Habitat assessment<br>Communal roosting/ breeding bird survey | • Avoid take of individuals and impacts to roosting and nesting habitat<br>• Consultation with USFWS through HCP process (no federal nexus) or Section 7 (federal nexus)<br>• Conduct construction activities outside of nesting season |
| Other Special-Status Wildlife Species<br>▪ Monarch butterfly (wintering sites) | City Ordinance<br>CEQA Review | Habitat Assessment<br>Multi-year surveys during winter roosting season | • Avoidance – design plans to avoid take of individuals and habitat<br>• Buffers to maintain suitable habitat conditions<br>• Conduct construction activities outside of winter roosting season or develop appropriate mitigation such as buffers to avoid disturbance such as smoke and fumes |

**TABLE 4.8-6. Assessment and Management Protocols for Sensitive Species and Habitat**

| RESOURCE | REGULATORY AUTHORITY | ASSESSMENT (to determine presence) | MITIGATION/ MANAGEMENT* (if resource is present) |
|---|---|---|---|
| | | | Management to protect from indirect impacts |
| ▪ Western pond turtle | CEQA Review (CDFG) | Habitat assessment<br>Focused Surveys | • Avoid take of individuals in aquatic and upland habitat.<br>• Mitigation to protect from indirect impacts such as barrier to movement |
| <u>Breeding Birds</u><br>▪ Double-crested cormorant (rookeries)<br>▪ Black-crowned night heron (rookeries)<br>▪ Sharp-shinned hawk<br>▪ Cooper's hawk<br>▪ Golden eagle (nesting and/or wintering)<br>▪ Ferruginous hawk<br>▪ White-tailed kite (nesting)<br>▪ Merlin<br>▪ Black oystercatcher<br>▪ Long-eared owl<br>▪ Burrowing owl<br>▪ Vaux' swift<br>▪ Black swift<br>▪ Loggerhead shrike<br>▪ California horned lark<br>▪ Oak titmouse<br>▪ Yellow warbler<br>▪ Hermit warbler<br>▪ Saltmarsh common yellowthroat<br>▪ Yellow-breasted chat<br>▪ Chipping sparrow<br>▪ Tricolored blackbird | CEQA Review (CDFG) | Habitat assessment<br>Breeding bird survey<br>Wintering survey for golden eagle, ferruginous hawk, white-tailed kite, merlin, burrowing owl, saltmarsh common yellowthroat, grasshopper sparrow | • Avoid direct impacts to nesting birds, occupied nests, eggs and young<br>• Conduct construction activities outside of nesting season or develop appropriate mitigation, such as buffers<br>• Consultation with USFWS (golden eagle-unoccupied nest) |
| Special-status Bats | CEQA Review (CDFG) | Habitat Assessment<br>Emergence and nighttime | Avoidance and/or Mitigation |

**TABLE 4.8-6. Assessment and Management Protocols for Sensitive Species and Habitat**

| RESOURCE | REGULATORY AUTHORITY | ASSESSMENT (to determine presence) | MITIGATION/ MANAGEMENT* (if resource is present) |
|---|---|---|---|
| | | acoustic surveys | |
| San Francisco dusky-footed woodrat | CEQA Review (CDFG) | Habitat Assessment<br>Nest survey | Avoidance and/or Mitigation |
| American Badger | CEQA Review (CDFG) | Habitat Assessment<br>Focused survey (burrow, sign, and prey base) | Avoidance and/or Mitigation |
| Nesting Raptors & Birds | Division of Migratory Birds- MBTA (USFWS)<br>Fish and Game Codes (CDFG) | Habitat assessment<br>Breeding bird survey | Avoidance during nesting season and/or Buffer Mitigation |
| **Dispersal Corridors** | **City of Santa Cruz<br>CEQA Review** | **Wildlife movement study. Determine buffer width for corridor utility.** | • **Comply with Creeks Plan setback requirements & development standards and guidelines**<br>• **Buffer from disturbances such as noise land light,** |

# 4.9 CULTURAL RESOURCES

## 4.9.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Regulatory Setting
- Historical Background
- Archaeological Resources
- Historical Resource
- Paleontological Resources

Cultural resources encompass paleontological, archaeological, and historic resources. Paleontology is the study of plant and animal fossils; paleontological resources generally are more than 10,000 years old. Archaeology is the study of prehistoric human activities and cultures. Historic resources are associated with the more recent past. In California, historic resources are typically associated with the Spanish, Mexican, and American periods in the state's history.

This section summarizes the cultural resources background report prepared for the City by LSA Associates (December 2006) as part of the General Plan update process to: describe the archaeological, ethnographic, historical, paleontological background of the City's General Plan Area; develop maps of archaeological and paleontological sensitivity; and make recommendations on proposed General Plan policies and programs. The section also summarizes the findings of a historical archaeological report prepared by LSA in August 2009, Both reports are included in Technical Appendix F-2, which is available for review at the City of Santa Cruz Planning Department[1] and is also included on the Draft EIR CD and on the online version of the Draft EIR on the City's website at www.cityofsantacruz.com - Planning Department link.

This section also draws from the City's Historic Building Survey, Volumes I and II and "Historical Context Statement for the City of Santa Cruz" (Lehmann, October 2000) prepared for the City of Santa Cruz.

[1] Located at 809 Center Street, Room 107, Santa Cruz, California during business hours: Monday through Thursday, 8 AM to 12 PM and 1to 5 PM.

# REGULATORY SETTING

## Federal Regulations

### NATIONAL REGISTER OF HISTORIC PLACES

Federal regulations for cultural resources are primarily governed by Section 106 of the National Historic Preservation Act (NHPA) of 1966, which applies to actions taken by federal agencies. The goal of the Section 106 review process is to offer a measure of protection to sites that are determined eligible for listing on the National Register of Historic Places (NRHP). The criteria for determining NRHP eligibility are found in Title 36 Code of Federal Regulations (CFR) Part 60. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and affords the federal Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The Council's implementing regulations, "Protection of Historic Properties," are found in Title 36 CFR Part 800.

The National Register of Historic Places is the official list of the Nation's historic places worthy of preservation. Authorized under the National Historic Preservation Act of 1966, it is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect the country's historic and archeological resources. The National Register is administered by the National Park Service under the Secretary of the Interior. Properties listed in the National Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. Property owners must agree to such listing. The National Register includes:

- All historic areas in the National Park System;
- National Historic Landmarks that have been designated by the Secretary of the Interior for their significance to all Americans; and
- Properties significant to the nation, state, or community which have been nominated by state historic preservation offices, federal agencies, and tribal preservation offices, and have been approved by the National Park Service. (National Park Service website).

To be considered eligible, a property must meet the National Register Criteria for Evaluation, found in Title 36 CFR Part 60.4. This involves examining the property's age, integrity, and significance as follows:

- Age and Integrity. Is the property old enough to be considered historic (generally at least 50 years old) and does it still look much the way it did in the past?
- Significance. Is the property associated with events, activities, or developments that were important in the past? With the lives of people who were important in the past? With significant architectural history, landscape history, or engineering achievements? Does it have the potential to yield information through archeological investigation about our past?

Archaeological site evaluation assesses the potential of each site to meet one or more of the criteria for NRHP eligibility based on visual surface and subsurface evidence (if available) at

each site's location, information gathered during the literature and records searches, and the researcher's knowledge of and familiarity with the historic or prehistoric context associated with each site.

The American Indian Religious Freedom Act, Title 42 U.S. Code Section 1996, protects Native American religious practices, ethnic heritage sites, and land uses.

#### NATIONAL HISTORIC LANDMARKS

National Historic Landmarks are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States. Today, fewer than 2,500 historic places bear this national distinction. National Historic Landmarks are places where nationally significant historical events occurred, that are associated with prominent Americans that represent those pivotal ideas that shaped the nation, that teach Americans about their ancient past, or that are premier examples of design or construction. While many historic places are important locally or at a state level, a lesser number have meaning for all Americans. National Historic Landmarks are places that "posses exceptional value or quality in illustrating and interpreting the heritage of the United States" (National Park Service website).

## State Regulations

#### CALIFORNIA REGISTER OF HISTORICAL RESOURCES

The California Register of Historical Resources (California Register) is a guide to cultural resources that must be considered when a government agency undertakes a discretionary action subject to CEQA. The California Register helps government agencies identify, evaluate, and protect California's historical resources, and indicates which properties are to be protected from substantial adverse change (Pub. Resources Code, Section 5024.1(a)). The California Register is administered through the State Office of Historic Preservation (SHPO) that is part of the California State Parks system.

A cultural resource is evaluated under four California Register criteria to determine its historical significance. A resource must be significant at the local, state, or national level in accordance with one or more of the following criteria set forth in the State CEQA Guidelines at Section 15064.5(a)(3):

1) It is associated with events that have made a significant contribution to the broad pattern of California's history and cultural heritage;
2) It is associated with the lives of persons important in our past;
3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4) It has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time must have passed to allow a "scholarly perspective on the events or individuals

associated with the resource." Fifty years is used as a general estimate of the time needed to understand the historical importance of a resource according to SHPO publications. The California Register also requires a resource to possess integrity, which is defined as "the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association." Archaeological resources can sometimes qualify as "historical resources" (State CEQA Guidelines, Section 15064.5(c)(1)). In addition, Public Resources Code Section 5024 requires consultation with SHPO when a project may impact historical resources located on State-owned land.

Two other programs are administered by the state: California Historical Landmarks and California "Points of Interest." California Historical Landmarks are buildings, sites, features, or events that are of statewide significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other historical value. California Points of Interest are buildings, sites, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other historical value.

#### NATIVE AMERICAN CONSULTATION

Prior to the adoption or amendment of a general plan proposed on or after March 1, 2005, Government Code Sections 65352.3 and 65352.4 require a city or county to consult with local Native American tribes that are on the contact list maintained by the Native American Heritage Commission. The purpose is to preserve or mitigate impacts to places, features, and objects described in Public Resources Code Sections 5097.9 and 5097.993 (Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property) that are located within a city or county's jurisdiction.

#### HUMAN REMAINS

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. CEQA Guidelines Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

#### PUBLIC RESOURCES CODE SECTION 5097.5

California Public Resources Code Section 5097.5 prohibits excavation or removal of any "vertebrate paleontological site…or any other archaeological, paleontological or historical feature, situated on public lands, except with express permission of the public agency having

jurisdiction over such lands." Public lands are defined to include lands owned by or under the jurisdiction of the state or any city, county, district, authority or public corporation, or any agency thereof. Section 5097.5 states that any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor.

### CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

State CEQA Guidelines Section 15064.5 defines a "historical resource," which is presented in subsection 4.9.3 below. CEQA requires that historical resources and unique archaeological resources be taken into consideration during the CEQA process (Public Resources Code, Section 21083.2). If feasible, adverse effects to the significance of historical resources must be avoided, or significant effects mitigated (CEQA Guidelines Section15064.5(b)(4)).

If the cultural resource in question is an archaeological resource, CEQA Guidelines Section 15064.5(c)(1)) requires that the lead agency first determine if the resource is a historical resource as defined in Section 15064.5(a). If the resource qualifies as a historical resource, potential adverse impacts must be considered in the same manner as a historical resource (California Office of Historic Preservation 2001a:5). If the archaeological resource does not qualify as a historical resource but does qualify as a "unique archaeological resource," then the archaeological resource is treated in accordance with Public Resources Code Section 21083.2 (see also CEQA Guidelines Section 15069.5(c)(3)). "Unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

In practice, most archaeological sites that meet the definition of a unique archaeological resource will also meet the definition of a historical resource (LSA, December 2006).

Treatment options under Public Resources Code Section 21083.2 include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation include excavation and curation or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a "unique archaeological resource").

Advice on procedures to identify cultural resources, evaluate their importance, and estimate potential effects is given in several agency publications such as the series produced by the Governor's Office of Planning and Research (OPR). The technical advice series produced by OPR strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including but not limited to, museums, historical commissions, associations and societies, be solicited as part of the process of cultural resources inventory.

### Local Regulations

The City, as part of its status as a Certified Local Government, has a historic preservation ordinance. The historic preservation ordinance (HPO) provides for the protection, enhancement, and perpetuation of significant cultural resources in the GP Area. The HPO provides the statutory framework for local preservation decisions, and contains sections governing the following topics:

- Historic District Designation (Part 2, Chapter 24.06);
- Historic Landmark Designation (Section 24.12.420);
- Archaeological Resource Procedures (Section 24.12.430);
- Procedure for Amending Historic Building Survey (Section 24.12.440);
- Procedure: New Construction in Historic Districts (Section 24.12.450);
- Historic Alteration Permit (Part 10, Chapter 24.08);
- Historic Demolition Permit (Part 11, Chapter 24.08); and
- Historic Overlay District (Part 22, Chapter 24.10).

## HISTORICAL BACKGROUND

The following overview of prehistory and history is summarized from the Cultural Resources Background Report and Historical Archaeological Report prepared as part of the General Plan Update (LSA, December 2006). As previously indicated, both are included in Technical Appendix F-2.

### Prehistory

The General Plan planning area is located within the Monterey Bay Area, a cultural-historical geographic region which spans the central California coastline from Big Sur northward to just south of the San Francisco Bay. This region generally corresponds to southern Costanoan language groups.

The prehistoric occupation of Central California is broken into three broad periods: the Paleoindian Period (10,000-6000 B.C.); the three-staged Archaic Period, consisting of the Lower Archaic (6000-3000 B.C.), Middle Archaic (3000-500 B.C.), and Upper Archaic (500 B.C.-A.D. 1000); and the Emergent Period (A.D. 1000-1800). An updated period sequence, includes the following periods: Paleoindian (9000-6500 B.C.), Millingstone (6500-3500 B.C.), Early (3500-1000 B.C.), Early/Middle Transition (1000-600 B.C.), Middle (600 B.C.-A.D. 1000), Middle/Late Transition (A.D. 1000-1200), Late (A.D. 1200-1500), Protohistoric (A.D. 1500-1769), and Historic (post A.D. 1769) periods.

Archaeological sites dating to the Paleoindian and Millingstone periods (3500 B.C. or earlier) in the Monterey Bay Area are rare, and the components are poorly defined. Sites from these periods, however, have been identified north of Santa Cruz in Scotts Valley and at Elkhorn Slough, and include crescent-shaped flaked tools, long-stemmed projectile points, cobble/core tools, and milling slabs and handstones. Archaeological evidence of the Late and Protohistoric periods (A.D. 1200-1769) is poorly represented in the Monterey Bay area, although sites

dating to this period have been identified in the Santa Cruz Mountains and within City of Santa Cruz limits. Sites dating to these periods include schist, clamshell, and abalone disc beads; small side-notched projectile points; hopper and bedrock mortars; millingslabs; pestles; and handstones.

For over a quarter century, Native American settlement and subsistence patterns in the Monterey Bay Area have been understood in terms of a forager-collector model that suggests that before 2,000 years ago, small mobile foraging groups characterized the area's settlement. Foraging groups established temporary residential bases near seasonally available resource patches and gathered food daily with no storage of food. Foragers were eventually displaced by "collectors" who occupied year-round or semi-permanent residential sites and did not relocate residential sites to seasonal resource patches. More recently, however, the validity of the forager-collector model for understanding the subsistence and settlement practices from the Monterey Bay Area has been questioned, and Native American settlement-subsistence patterns in the region are a research issue that future archaeological research may help to clarify.

## Ethnography

Penutian groups settled around Monterey Bay at approximately 500 B.C., displacing earlier Hokan populations. The descendants of the native groups who lived between the Carquinez Strait and the Monterey area prefer to be called Ohlone, although they are often referred to by the name of their linguistic group, Costanoan. Linguists have identified eight Ohlone languages. *Awaswas* was the name of the language spoken in the Santa Cruz area. *Awaswas* speakers' territory basically encompassed the San Lorenzo River watershed.

The Ohlone, like most Native California groups, were organized according to politically independent land-holding groups referred to by anthropologists as "tribelets". There were approximately 40 Ohlone tribelets. The basic Ohlone social unit was the family household of about 15 individuals, which was extended patrilineally. Households grouped together to form villages, and villages combined to form tribelets. Tribelets exchanged trade goods such as obsidian, shell beads, and baskets; participated in ceremonial and religious activities together; intermarried; and could have extensive reciprocal obligations to one another involving resource collection. At the time of the arrival of the Spanish and establishment of Mission Santa Cruz in 1791, Santa Cruz was within the territory of the Uypi tribelet.

For the Ohlone, like other native Californians, the acorn was a dietary staple, eaten as mush or bread. The Ohlone used a range of other plant resources, including buckeye, California laurel, elderberries, strawberries, manzanita berries, goose berries, toyon berries, and wild grapes. Animals eaten by the Ohlone included large fauna such as black-tailed deer, Roosevelt elk, antelope, and marine mammals such as sea lion, and sea otter; smaller mammals such as skunk, racoon, rabbit, and squirrel; birds, including geese and ducks; and fish such as salmon, sturgeon, and mollusks.

Besides providing sustenance, the Bay Area's flora and fauna provided the Ohlone with raw materials to construct dome-shaped shelters and sweat houses. Animal bones, teeth, beaks, and claws were made into awls, pins, knives, and scrapers. Pelts and feathers became clothing and

bedding, while sinews were used for cordage and bow strings. Feathers, bone, and shells were crafted into ornaments.

## History

The historic setting of Santa Cruz can be described under two periods. The first period began with the arrival of the Spanish and extended through the Mexican administration of the area, including the Mission period. The second period began in 1848 when California was ceded to the United States under the Treaty of Guadalupe Hidalgo.

### SPANISH AND MEXICAN PERIOD

The first significant Spanish exploration through present-day Santa Cruz occurred in 1769 when Gaspar de Portola, the governor of Baja California, led an expedition from San Diego to locate Monterey Bay. Later in 1791, Mission Santa Cruz was established on the banks of the San Lorenzo River. The Mission soon absorbed the surrounding Native American Ohlone population.

In 1797, Villa de Branciforte was established on the east side of the San Lorenzo River, across from the Mission. The Spanish government established Villa de Branciforte to create a self-sufficient secular settlement populated by retired soldiers, craftsmen, and farmers who could mobilize and defend the coast of Alta California from foreign invasion. After the California missions were secularized in 1834, the Mission Santa Cruz lands came under the control of Villa de Branciforte.

### AMERICAN PERIOD

Commercial development of Santa Cruz and the surrounding region's natural resources was well under way by the time California became part of the United States in 1848. Logging, lime production, and tanneries were three important industries in the early economy of Santa Cruz. The lime and logging industries thrived in response to the growing demand for building materials during San Francisco's post gold rush construction boom. By the mid-1860s, over 28 sawmills had been established in Santa Cruz County. By 1900, much of the useable timber had been logged, generating conservation efforts to save the remaining stands, including Big Basin Redwoods in 1902.

Massive production of lime from limestone found in the Santa Cruz area began in the mid-1850s when A.P. Jordan and Isaac E. Davis formed a partnership. By the 1880s, Henry Cowell had purchased both Jordan's and Davis's interest in the company. Lime quarrying and construction of lime kilns occurred within what is now Pogonip (City-owned greenbelt), the west entrance to the UC campus, and State Park lands within the County. In the 1890s, Santa Cruz's lime industry began to decline due to the depletion of fuel brought about by extensive logging of the region and the development of cement, which used a cheaper, less pure grade of limestone.

Tanneries were also important to the early economy of Santa Cruz. By1857, three tanneries were established in Santa Cruz (Kirby and Jones on Mission Hill, Porter, and C. Brown and Company on Laurel Street, and the Grove Tannery on River Street). The tanneries produced

skirting, harness, belting, bridle, and sole leather. As with the lime industry, however, the local tanneries' over-harvesting of local timber for barrel staves and fuel resulted in the industry's demise by the turn of the century.

These industries spawned the City's residential growth and infrastructure development during the 19th century. Beginning in the 1850s, Fred Hihn, who owned much of the area between Mission Hill and Beach Hill, developed land north of Lincoln Street. A water system began to develop in 1860, facilitating more residential and industrial growth. In the 1870s, housing and development expanded to the east side of the San Lorenzo River, the West Cliff area, Ocean View, and Riverside Avenue. Pacific Avenue also emerged as the business center for Santa Cruz and fostered the City's first Chinatown. In 1889, the Circles area, located southwest of Neary Lagoon, was laid out by Hihn as the first major geometric planned area in the City.

The economic focus of the City gradually shifted to tourism near the turn of the 19th century. The growth of local tourism was largely a result of railroad access to Santa Cruz County beginning in the late 1870s. Prior to this time, goods were transported and people accessed the area via ship or on narrow, rutted roads. Summer train traffic to Santa Cruz increased after 1894, when Santa Cruz received national attention in *Harper's Weekly* as a tourist destination.

Perhaps more than any other individual, Fred Swanton was responsible for developing Santa Cruz's tourism industry. Swanton, with investors including the Southern Pacific Railroad, formed the Santa Cruz Beach, Cottage, and Tent City Corporation. The corporation opened the Neptune Casino in 1904, but lost that enterprise to fire in 1906. The Casino was quickly rebuilt and reopened a year later. Swanton also built the Casa del Rey Hotel in 1910 across from the Casino to replace a "tent city," which had served as a popular tourist beach accommodation until that time. The Casa del Rey Hotel stood until the 1989 Loma Prieta earthquake, when it sustained extensive damage and was demolished soon after.

Swanton also helped establish the area's first telephone system in the 1880s and the Santa Cruz Electric Light and Power Company in 1890. Although the 1890s were an economically depressed time for the City, the street railroad was electrified and expanded during this period. Residences were also built along lines that stretched from downtown to Soquel Avenue and Seabright Avenue.

During the early 20th century, the popular beach attractions were built, including the Scenic Railway roller coaster in 1908 and the Giant Dipper Roller Coaster in 1924. World War II had a significant effect on the local economy. Tourism declined significantly in Santa Cruz due to travel restrictions and gasoline shortages. The Santa Cruz fishing economy, which was dominated by Italian immigrants, suffered as the result of Executive Order 9066, which established internment and relocation camps for Japanese, German, and Italian immigrants, including those who were United States citizens. Many Italian families were relocated inland from the waterfront and many of the fishing boats were abandoned or used in the war effort.

The commercial fishing industry never recovered after the war, although sport fishing remains a popular activity. The local tourist economy revived, with the Boardwalk undergoing major renovations in the 1950s and in 1981. The Boardwalk, which remains the focus of Santa Cruz's tourist industry, continues to operate with a mix of historic and modern amusement park attractions.

## ARCHAEOLOGICAL RESOURCES

### Pre-Historic Archaeological Resources

#### RECORDED RESOURCES

A records search identified a total of 27 documented archaeological sites in the General Plan planning area, of which 20 sites are prehistoric archaeological sites and seven sites are archaeological sites with both a prehistoric and historical component. The vast majority of these sites have not been systematically studied. Diocarbon and obsidian hydration data indicate that present-day Santa Cruz was occupied beginning in the Early Period, from at least 1750 B.C. and quite possibly earlier. Two sites are considered eligible for listing in the National Register of Historic Places based on the important information they contain for understanding the prehistory of the region.

The Native American Heritage Commission (NAHC) was contacted to request that the NAHC search their sacred lands file for any cultural resources in the General Plan planning area. The NAHC responded that the sacred lands file did not list cultural resources in the planning area.

#### NATIVE AMERICAN CONSULTATION

On behalf of the City of Santa Cruz, LSA contacted Native American tribes and tribal organizations pursuant to the requirements of California Government Code Section 65352.3 (implementation of Senate Bill 18). On September 12, 2006, LSA sent a letter to the Native American Heritage Commission (NAHC) in Sacramento requesting a Senate Bill 18 consultation list. On October 4, 2006, LSA sent letters to the tribes and tribal organizations identified by the NAHC to notify them of their opportunity to consult with the City regarding the General Plan Update. Two organizations, the Pajaro Valley Ohlone Indian Council and the Amah Mutsun Tribal Band, responded affirmatively to the letters and requested consultation with the City pursuant to Senate Bill 18. On November 3, 2006, representatives from the City and LSA met with representatives of the two tribal organizations: the Amah Mutsun Band of Ohlone/Costanoan Indians, represented by Mr. Valentin J. Lopez and the Pajaro Valley Ohlone Indian Council, represented by Mr. Patrick Orozco. Mr. Rob Edwards, Director of the Archaeology Technology Program at Cabrillo College, accompanied Mr. Orozco. The City, LSA, and tribal representatives discussed the nature of the project, the potential for impacts to cultural places, and outlined a process for continued consultation pursuant to Senate Bill 18 (LSA, December 2006).

#### ARCHAEOLOGICAL SENSITIVITY

LSA prepared an archaeological sensitivity map for the as part of the General Plan Update based. Three key factors were reviewed to determine areas that may be archaeologically sensitive: location of known recorded sites; proximity to water sources; and topography. The archaeologically sensitive areas also include: parcels on which previous studies identified (but did not formally record) archaeological materials; parcels within 65 feet of recorded archaeological deposits; and areas with concentrations of documented historical activity (e.g., the original Santa Cruz Mission lands and Mission Santa Cruz State Historic Park). Close sources

of water were a major factor that Native Americans took into account in locating habitation and resource processing sites, and was a key consideration in determining sensitivity zones.

Figure 4.9-1 illustrates archaeological sensitivity areas.[2] The "Highly Sensitive" areas are parcels with recorded archaeological deposits or confirmed archaeological sensitivity in which the property qualifies under any of the following three conditions: (1) the parcel contains all or portions of a recorded archaeological deposit; (2) the parcel lies wholly or partially within a 20-meter (65-foot) buffer around the boundaries of a recorded archaeological deposit;[3] or (3) the parcel contains unrecorded archaeological materials identified by an archaeologist during prior study. "Other Sensitive" designations apply to parcels that do not have recorded archaeological sites, but are located within sensitive areas based on the consultant's review and GIS analysis. Areas shown as "Discovery Requirement Only" are sites that have had professional archaeological investigations with negative results (i.e., no archaeological deposits were identified), but are located in sensitive areas. The remaining undesignated areas were determined not be archaeologically sensitive (LSA, December 2006).

## Historic Archaeological Resources

### BACKGROUND

The cultural resource review included characterization of the types of historical archaeological resources that may be associated with major historical periods in the project area. Historic development trends affect whether historical archeological deposits may be present. As previously indicated, two prominent historical periods occurred in Santa Cruz – the Mission Period and American Period. Mission Santa Cruz was established on the banks of the San Lorenzo River in September 1791, and quickly absorbed the surrounding Native American Ohlone population. Another colonial institution, Villa de Branciforte, was established on the other side of the San Lorenzo River across from Mission Santa Cruz in 1797. In 1834, the California missions were secularized, and Mission Santa Cruz lands came under the control of Villa de Branciforte.

Commercial development of Santa Cruz and the surrounding region was well under way by the time California became part of the United States in 1848 with redwood logging, sawmills, tanneries, and quarrying. By 1890 Santa Cruz's downtown business district and adjacent residential districts were built out. By 1925, areas west of the downtown and along the beach were developed, corresponding to the marketing of Santa Cruz as a popular seaside recreation destination. By 1940, Santa Cruz grew to most of the extent of its present area. After World War II, development occurred in the southwestern and northeastern portions of the city. Recent development has occurred along the City fringes, most closely associated with the founding of the UC campus in 1962.

[2] All EIR figures are included in Chapter 7.0 at the end of the EIR (before appendices) for ease of reference as some figures are referenced in several sections.

[3] The buffer is provided to account for the possibility that unidentified portions of the recorded deposit may lie outside of its known boundaries and extend onto adjoining parcels.

Five historical archaeological property types are potentially found within the City's General Plan area. These include: residential, industrial, service/mercantile, social (saloons, theatres, etc.), and infrastructure/public space. Before the days of organized refuse collection, some of the properties may include features such as such as refuse pits, abandoned wells, cisterns, and outhouses (over privy vaults) which were used as receptacles of the by-products of everyday living such as discarded ceramics, food bones, containers of various materials, and other items. Properties may also contain architectural remains of structures, consisting of foundations, footings, platforms, and collapsed wood buildings.

Development of municipal water and sewage systems also affects whether historic archaeological deposits may be present. This an important factor in identifying sensitive areas in Santa Cruz because changes in the City's waste disposal and water service reduced the number of building occupants who relied on backyard privies and wells. These structures, often of great interest to archaeologists because of their contents, would not likely be constructed after the widespread availability of water and sewage facilities. Most of the General Plan Update area has the potential to contain vault privies and wells, although to a much lower degree in the extreme northeastern and western portions of the city.

### HISTORIC ARCHAEOLOGICAL SENSITIVITY

Research conducted by LSA Associates indicates that most of the General Plan Update area has the potential to contain historical archaeological deposits. Some areas exceed this nominal potential and are categorized as sensitive, and other areas have heightened sensitivity due to the presence or proximity of recorded archaeological deposits. There are documented occurrences of archaeological deposits dating to the Spanish and Mexican periods in California. These eras are of high interest due to the relative paucity of intact, recoverable deposits associated with these periods. Sites associated with similar communities have had significant archaeological research value and have been found to be historically significant.

Figure 4.9-2 depicts those areas with sustained residential, institutional, industrial, and commercial activity during the Spanish and Mexican eras, including the Santa Cruz Mission and Villa de Branciforte. The second period began in 1848 when California was ceded to the United States under the Treaty of Guadalupe Hidalgo. Figure 4.9-2 also depicts the Historical American-Period Development Pattern at two points in time: 1866 and 1889. Figure 4.93 depicts the historical archaeological sensitivity areas in the City with both historic periods combined.

The following sites are included in the California Historical Landmarks: Site of Mission Santa Cruz, the site of Center of Villa Branciforte, and the Santa Cruz Beach Boardwalk (Office of Historic Preservation website).

## HISTORICAL RESOURCES

As one of California's oldest settlements, founded in 1791, Santa Cruz has many historical buildings. As a result of the City's *Historic Preservation Plan*, adopted in 1974 as an element of the General Plan, the Historic Preservation Commission and the Historic Preservation Ordinance (Section 24.12.400 of the City's Zoning Ordinance) were established to protect the City's

historic resources. Historic districts may be designated pursuant to criteria and procedures in the Zoning Ordinance as further described below. The City of Santa Cruz has designated historic buildings and landmarks as further described below. Permits are required for alteration or demolition of listed historic buildings or landmarks pursuant to the City of Santa Cruz Municipal Code Chapter 24.08 requirements.

## Historical Architectural Styles

Five styles—and several substyles—of architecture have been identified in the City:

- Spanish Mission and Spanish Colonial Style (1791-1846),
- Salt Box (c. 1850-1870),
- Romantic styles (c. 1850s-1920),
- Victorian styles (c. 1880s-1900), and
- Eclectic styles (1895-1975).

Mission period structures within the City consist of the Mission Adobe at Santa Cruz Mission State Historic Park and the Craig-Lorenzana Adobe on Branciforte Avenue. The oldest frame house in the City at 109 Sylvar was constructed circa 1850, and is an excellent example of the Salt Box-style homes scattered throughout the City. Several examples of Romantic architecture are found throughout the City, including on Mission, Washington, Cedar, Center, and Locust. Victorian is perhaps the most impressive historical architecture seen in the City, with the best examples downtown on Walnut Avenue and adjacent streets, Ocean View, and on Mission Street. Eclectic styled architecture draws its inspiration from Classical, Medieval, and Renaissance styles. Good examples of Eclectic styles, which include Colonial Revival, Mission and Spanish Colonial Revival, Bungalow, Craftsman, Moderne, and Vernacular, can be seen on Mission, Walnut, West Cliff Drive, Escalona, and King (LSA, December 2006).

## Historic Districts

Historic districts may be designated pursuant to criteria and procedures in the Zoning Ordinance (Part 2 of Section 24.06). A proposed historic district must be a geographically definable area possessing a significant concentration or continuity of sites, buildings, structures, or objects unified by past events, or aesthetically by plan or physical development, and the collective value of the historic district taken together may be greater than the value of each individual structure. Additionally, Part 22 of Section 24.10 of the City's Zoning Ordinance sets forth parameters for establishing historic overlay districts within the City. The purpose of this district is to provide a means to preserve and enhance areas of historic, architectural, and engineering significance located within the city.

Existing and potential historic districts are shown on Figure 4.9-4. Currently there are designated local historic districts (Mission Hill and Downtown Neighborhood) and one National Register district (Cowell Limes Work District). Potential historic districts are located in the Beach Hill and Ocean View Street neighborhoods.

### Historic Buildings and Landmarks

In 1976, the City completed a "Historic Building Survey," which identified and evaluated historic and architecturally significant buildings. The survey, conducted by the firm of Charles Hall Page and Associates, identified 306 properties, and structures were selected on the basis of historical and cultural, environmental and architectural significance. Volume I of the survey covered architectural development in the City from approximately 1850 to 1930. The Survey's evaluation of individual buildings considered historical and architectural significance, importance to the neighborhood, desecration of original design, and physical condition, and assigned each an overall rating of exceptional, excellent, good or fair. All properties in the 1976 survey were officially listed and protected under the City historic preservation policies and regulations (City of Santa Cruz, Historic Preservation Commission website).

In 1989, Volume II of the City Historic Building Survey was produced, which catalogues a total of 247 additional structures from three categories: significant buildings from 1930 to 1950; important structures not included in the first survey; and significant vernacular buildings from 1850 to 1910, the latter of which comprise approximately one half of the structures in Volume II. Neighborhood context was emphasized in Volume II, with a focus on contiguous rows of historic buildings. More than 90% of properties in Volume II of the Survey have been listed officially (City of Santa Cruz, Historic Preservation Commission website).

Currently, approximately 600 buildings are listed in the City's Historic Building Survey. Buildings of greatest historical and architectural significance have been designated "landmarks" pursuant to section 24.12.430 of the City's Zoning Ordinance. Currently there are 26 designated landmarks in the City as identified on Table 4.9-1. Fifteen properties are listed on the National Register of Historic Places, and one additional structure is listed on the California Register of Historic Places. The following sites are listed in the California Historical Landmarks: Site of Mission Santa Cruz, Site of Villa Branciforte.

## PALEONTOLOGICAL RESOURCES

Paleontological resources are fossilized remains of plants and animals, and associated deposits. The Society of Vertebrate Paleontology has identified vertebrate fossils, their taphonomic and associated environmental indicators, and fossiliferous deposits as significant nonrenewable paleontological resources.

The cultural resources investigation conducted as part of the General Plan Update identified 48 vertebrate fossil localities within five miles of Santa Cruz. These localities have yielded 786 recorded vertebrate fossil specimens that have been found in the Santa Margarita Sandstone, Santa Cruz Mudstone, Purisima Formation, and from the Late Pleistocene terrace deposits in and near the General Plan planning area. Based on a literature review, four geologic units in the General Plan area are known to contain fossils: Late Pleistocene alluvium; the Purisima Formation; the Santa Cruz Mudstone; and the Santa Margarita Sandstone.

**TABLE 4.9-1**
**City-Designated Landmarks and National Register Buildings (Updated June 2008)**

| ADDRESS | Volume*/Page | NAME/STYLE | DESINGATION |
|---|---|---|---|
| 215 Beach | 1/26 | La Bahia Apartments | CLM |
| 400 Beach | 1/28 | Roller Coaster & Carousel | NRHP |
| 724 California | 1/53 | Thomas Weeks House | CLM |
| 529 Chestnut | 1/60 | Hinds House | NRHP |
| 401 Cliff | 1/32 | Cliffcrest | CLM |
| 417 Cliff | 1/34 | H.S. Deming House | CLM |
| 118 Cooper | 1/89 | Hall of Records/Octagon | CLM/NRHP |
| 114 Escalona | 1/104 | Perry House | CLM |
| 519 Fair | 1/165 | St. Elias Chapel/Shrine | CLM |
| 844 Front | 1/88 | Veteran's Memorial | NRHP |
| 850 Front | 1/88 | USPS | NRHP |
| 333 Golf Club | na | Pogonip Club | Cal Landmark |
| 123 Green | 1/100 | Reynolds-Hug-Sadler | CLM |
| 1156 High | 1/152-55 | Cowell Lime Works | NRHP |
| 203 Highland | 1/105 | McPheters House | CLM |
| 1120 King | 1/50 | Byrne House | CLM |
| 319 Laurel | 1/76 | Four Palms Apts | CLM |
| 412 Lincoln | 1/80 | Cope Row Houses | CLM/NRHP |
| 315 Main | na | Carmelita Cottages | CLM/NRHP |
| 105 Mentel | 1/139 | Hagemann House | CLM/NRHP |
| 207 Mission | 1/92 | Davis-Hasley House | CLM |
| 1135 N. Branciforte | 1/117 | Dr. Carmean House | CLM |
| 1351 N. Branciforte | 1/118 | Craig-Branciforte-Lorezana Adobe | NRHP |
| 363 Ocean | 1/129 | Stick-Eastlake | NRHP |
| 250 Ocean View | 1/131 | Captain Gray Home | CLM |
| 1502 Pacific | 1/86 | Santa Cruz County National Bank | NRHP |
| 1545 Pacific | 2/58 | Compass Rose Building | CLM |
| 130 School | 1/96 | Neary-Rodriguez Adobe | CLM/NRHP |
| 105 Sylvar | 1/94 | Willey House | CLM |
| 109 Sylvar | 1/95 | Francisco Alzina House | CLM |
| 924 Third | 1/30 | Golden Gate Villa | CLM/NRHP |
| 304 Walnut | 1/73 | William Douglas Haslam House | CLM |
| 101 Water | na | Town Clock | CLM |
| 240 West Cliff | 1/40 | Period Bungalow | CLM |
| 705 Woodrow | na | Garfield Park-Carnegie Library | CLM/NRHP |

CLM – City Landmark NRHP – National Register of Historic Places

**SOURCE:** City of Santa Cruz

During the Pleistocene, 11,000 to 2.5 million years ago, the Coast Ranges of California were heavily uplifted, and locally, the sea carved a sequence of terraces into the hardened and uplifted Purisima and Santa Cruz Mudstone formations. The coastal cliffs represent the lowest and youngest terrace. These deposits along West Cliff Drive have yielded a whale vertebra and fossil shells (Perry, 1977). Paleontological resources also have been found within the City of Santa Cruz in a few other scattered locations near DeLaveaga Park and Moore Creek (Clark, 1981).

As shown on Figure 4.9-5, most sedimentary geological units in the General Plan planning area are highly sensitive for paleontological resources. Though Holocene alluvium is generally considered too young to contain paleontological resources, this geologic unit is moderately sensitive for paleontological resources because it is underlain by sedimentary geologic units that have a high paleontological sensitivity. The crystalline rocks that underlie the sedimentary rocks of the General Plan planning area have a low paleontological sensitivity because igneous and metamorphic rocks do not generally contain paleontological resources.

## 4.9.2 RELEVANT PROJECT ELEMENTS

### PROPOSED GOALS, POLICIES & ACTIONS

The proposed *General Plan 2030* includes goals, policies and actions that address cultural resources. The draft *General Plan 2030 i*ncludes a HISTORIC PRESERVATION, ARTS & CULTURE chapter that sets forth two goals and 13 associated policies and actions that address archaeological, historic and paleonotological resources, as well as arts and cultural facilities. Two other goals address arts and cultural programs and the City's identity as an arts and culture community. The two goals related to cultural resources are:

GOAL HA1 *Protection and preservation of cultural resources:*

GOAL HA2 *Facilities for arts and culture.*

Policy HA1 seeks to protect cultural resources, including archaeological, paleontological and historical resources. Eleven supporting policies and action sets address these resources. The other goals and actions relate primarily to promotion of arts and cultural programs. Several policies and actions in other chapters of the proposed General Plan also seek to protect and preserve landmarks in the City (CD2.3.2 and CD3.5.1). The Draft General Plan also encourages the protection and preservation of traditional cultural properties (HA1.7), although this type of resource does not specifically fall under the definition of a historical resource under CEQA. Traditional Cultural Properties (TCP) are a special type of resource valued by living communities for culturally important reasons, especially if they embody or help reinforce that community's values, beliefs, and customs.

### FUTURE DEVELOPMENT POTENTIAL

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan / Local Coastal Program, except that three new mixed use land designations have been developed and applied to the following major transportation corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street.

Land Use actions LU1.1.4 and LU1.1.5 address development and land use for specific sites: the Swenson property and the Golf Club Drive property, respectively. LU2.2.3 also includes addition of a 5.5-acre parcel adjacent to the Dimeo Lane landfill and Resource Recovery Center, but specific uses haven't been identified, although the site will not be used as part of

expansion of the landfill disposal area. Additionally, some of the draft *General Plan 2030* policies and actions support specific types of land uses and/or development. The draft plan supports development of a desalination plant as part of the actions outlined to implement the City's adopted *Integrated Water Plan* (Policy CC3.1.3), but a specific site is not identified. See the WATER SUPPLY (Chapter 4.5) section of this EIR for further discussion regarding a potential desalination facility and impacts.

## 4.9.3 IMPACTS AND MITIGATION MEASURES

### CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

9a Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 or to a unique archaeological resources (see definition below);

9b Disturb any human remains, including those interred outside of formal cemeteries;

9c Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 (see definition below) to include physical demolition, destruction, relocation, or alteration of historic resources or of the immediate surroundings of historic resources, such that the significance of the resources would be materially impaired (see definition below); or

9d Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

CEQA defines a "*unique archaeological resource*" as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; or
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC §21083.2(g)).

State CEQA Guidelines Section 15064.5 defines a *historical resource* as:

- A resource listed in, or determined to be eligible for listing in, the California Register;
- A resource listed in a local register of historical resources.

- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California…Generally, a resource shall be considered by the lead agency to be :historically significant." Generally a resource is considered historically significant if it meets criteria for listing in the California Register of Historical Resources, including:
    - Is associated with events that made a significant contribution to the broad patterns of California's history and cultural heritage.
    - Is associated with the lives of people important in our past.
    - Embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or possesses high artistic values.
    - Has yielded or may be likely to yield information important in prehistory or history; OR
    - A resource determined to be a historical resource by a project's lead agency.

CEQA Guidelines Section 15064.5(b) defines a "*substantial adverse change*" to a historical resource as: "physical demolition, destruction, relocation or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired. The significance of an historical resource is *materially impaired* when a project demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the California Register of Historical Resources or in registers meeting the definitions in Public Resources Code 5020.1(k) or 5024.1(g).

## IMPACT ANALYSIS

Based on the significance criteria identified above, the following impact analyses address archaeological resources (9a, 9b); historical resources (9c); and paleontological resources (9d).

### Potential Future Development & Buildout

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased new development. However, the draft General Plan includes policies and a land use map that support additional development as summarized in subsection 4.9.2 above. Buildout projections indicate that potential new development accommodated by the draft general plan to the year 2030 could total 3,350 residential units, 3,140,000 square feet of commercial, office and industrial development and new hotel rooms, primarily on infill and underutilized lots, as described in the PROJECT DESCRIPTION (Chapter 3.0) and LAND USE (Chapter 4.2) sections of this EIR.

Development under the proposed General Plan would primarily occur on remaining vacant infill sites, on underutilized properties that could be redeveloped at higher densities and/or land use intensities, and in the new mixed-use districts along the City's four major street corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. Based on the estimated development occurring under the proposed plan,[4] approximately 55% of all new housing, 45% of new commercial development, and 52% of new office development would be located along these corridors.

**Impact 4.9-1: Archaeological Resources and Human Remains**
Adoption and implementation of the proposed *General Plan 2030* would accommodate future development that could directly or indirectly disturb or alter archaeological resources, historical archaeological, and/or human remains. Even with implementation of the proposed General Plan policies and actions for cultural resource protection, this is considered a *potentially significant impact*.

The proposed *General Plan 2030* would accommodate future development pursuant to planned land use designations contained in the Plan. Development under the proposed General Plan would primarily occur on vacant infill sites, on underutilized properties that could be redeveloped at higher densities and/or land use intensities, and in the new mixed-use districts along the City's four major street corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. Based on the estimated development occurring under the proposed plan, more than half of the estimated new development would be located along major transportation corridors. Some segments along these corridors are located within mapped archaeological sensitivity areas as shown on Figure 4.9-1.

Although the City of Santa Cruz is primarily developed, except for a few remaining vacant lots located within developed areas, the following three areas within the planning area are primarily undeveloped or underdeveloped and would be subject to potential future development: the Swenson site adjacent to Antonelli Pond; the Golf Club Drive area adjacent to Pogonip Creek, and the area along Seventh Avenue that is within the City's Sphere of Influence (SOI), but outside city limits. The Swenson property and SOI area along Seventh Avenue are identified within potentially sensitive areas, and the Golf Club Drive area is within a sensitive area. The small addition to the landfill property is not within an archaeologically sensitive area.

Grading, trenching, and other subsurface construction activities associated with future development and buildout of the General Plan could have the potential to encounter undiscovered archaeological resources that could potentially be damaged or destroyed, especially in identified sensitive areas. The same development activities also have the potential to disturb or destroy burial sites if known or encountered in development areas. Additionally, historical archaeological resources representing different phases of Santa Cruz's history, including Spanish colonial, Mexican and American periods, may be encountered, especially with the sensitivity areas shown on Figure 4.9-3. Such deposits may be sufficiently intact to yield

[4] See Table 3-3 in the PROJECT DESCRIPTION (Chapter 3.0) section of this EIR and Figure 2-3 for estimated distribution of new development in specific areas in the City.

information important to the history of the City, which would qualify them for listing in the California Register, and thus, be considered historical resources.

The proposed *General Plan 2030* includes a number of policies and actions that serve to protect archaeological resources, and thus, mitigate potential impacts to archaeological resources and/or human remains that may occur as a result of development under the General Plan. These policies and actions seek to preserve, protect and manage archaeological sites and protect human remains. Additionally, Section 24.12.420 of the City's Municipal Code outlines procedures to be followed in the event that unknown archaeological resources are encountered during construction. This includes stopping work until the significance of the find is evaluated and appropriately mitigated, and/or appropriate contacts are made as specified in the event of discovery of human remains.

The General Plan policies and actions outlined in Table 4.9-2 and existing City regulations will serve to protect cultural resources that may be present or encountered as part of future development accommodated by the proposed General Plan. However, the proposed policies and actions do not provide guidance regarding when and how archaeological investigations should be implemented as part of future development proposals. Proposed Action HA1.2.1 calls for preparation of "informational materials for property owners regarding potential cultural resources and early development planning strategies", but the draft *General Plan 2030* does not include a process under which future development proposals would be screened for potential archaeological resources. Similarly, Policy HA1.5 requires that any archaeological work conducted within the City be performed by a qualified archaeologist, and companion Action HA1.5.1 calls for a review process for archaeological work and creation of guidelines for archaeological and historic reports, but the policy or action specifying when such reports would be required is absent.

The cultural resources background report prepared for the General Plan recommends that proposed development within designated "High Sensitivity" or "Sensitive" areas as shown on Figure 4.9-1 would be required to prepare an archaeological investigation prior to approval of development permits, except for exempt projects within "Sensitive" areas as further discussed below. The archaeological study would determine if a parcel contains archaeological deposits that meet the CEQA definition of historical or archaeological resources, and, if so, whether such deposits may be impacted by the permitted action. The study would also recommend ways to avoid or offset potential impacts.

No study would be required for those parcels outside the sensitive areas, including parcels identified on Figure 4.9-1 as "Discovery Requirement Only. For construction in these areas, as well as in areas not designated as "Highly Sensitive" or "Sensitive, the City's accidental discovery procedures (Municipal Code Section 24.12.430) would still apply for these parcels, should permitted construction encounter unidentified archaeological deposits. This regulation requires that construction be stopped if archaeological resources are encountered during construction, and that the Planning Director be notified and the discovery analyzed. If determined not be an archaeological resource, construction could proceed, but it is determined to be a resource, implementation of appropriate measures would be required.

**TABLE 4.9-2**
**Proposed General Plan Policies & Actions**
**That Avoid or Reduce Cultural Resource Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| ARCHAEOLOGICAL SITE & RESOURCE PROTECTION | • Preserve archaeological sites: HA1.1, HA1.1.1 (Zoning regs), HA1.1.2 (sensitivity map updates)<br>• Protect/manage archaeological resources in development: HA1.2, HA1.2.1<br>• Manage discovered archaeological sites: HA1.4<br>• Hold meetings with descendent communities for input on resource protection: HA1.3, HA1.3.1<br>• Archaeological review and report guidelines: HA1.5, HA1.5.1, HA1.5.2 |
| DISTURBANCE TO HUMAN REMAINS | • Preserve archaeological sites: HA1.1<br>• Maintain & update Zoning Ordinance archaeological protection regulations & archaeological maps: HA1.1.1, HA1.1.2<br>• Protect human remains: HA1.4, HA1.4.1, HA1.4.2 |
| HISTORICAL RESOURCE PROTECTION | • Protect, restore, rehab historic or architecturally significant buildings, sites, landmarks (HA1.8) through Zoning Ord regs and landmark status (HA1.8.1, HA1.8.2, HA1.8.3), information to property owners (HA1.8.4), incorporate historic features in public property (HA1.9.3), seek funding for preservation (HA1.11.4)<br>• Identify/preserve landmarks: CD2.3.2, HA1.8.5 (for Nat'l & State Register properties)<br>• Ensure compatible development within historic districts: HA1.9<br>• Historic building preservation guidelines: HA1.9, HA1.9.2<br>• Maintain & expand historic districts: LU3.9.4<br>• Consider historic preservation in City regulations: H1.11.6<br>• Incentives for listing, preservation and/or rehab of architecturally significant buildings, sites and landmarks: HA1.11, HA1.11.1, HA1.11.3, HA1.11.5<br>• |
| PALEONTOLOGICAL RESOURCE PROTECTION | • Preserve paleontological sites: HA1.1<br>• Maintain & update Zoning Ordinance for paleontological protection regulations & sensitivity maps: HA1.1.1, HA1.1.2<br>• Protect/manage paleontological resources in development: HA1.2, HA1.2.1 |

The cultural resources background report also recommends that small projects be exempt from requirements of an archaeological study within areas designated as "Sensitive". These projects generally include uses with minimal potential for impacting archaeological deposits, such as spot excavation to a depth of 12 inches or less below existing grade, or uses that have virtually no potential of resulting in significant impacts to archaeological deposits. Examples of possible exemptions include, but are not limited to: minor building additions, deck construction, excavation in soil that can be documented as previously disturbed. If development is within a "High Sensitivity" area, it was suggested that the City may elect to forego the archaeological

study and instead require that an archaeologist review initial ground clearance and excavation to identify archaeological deposits prior to extensive ground disturbance. Those uses that qualify for a small projects exemption would still be conditioned with the requirement to identify, evaluate, and, if necessary, mitigate impacts to accidental archaeological discoveries.

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would result in construction that may result in impacts to buried archaeological resources. Implementation of the proposed General Plan policies and actions outlined above, as well as compliance with local and state regulations, would help reduce impacts. However, the proposed Plan does not specify a process for evaluating potential archaeological resources during the development process, and thus the impact is potentially significant.

### Mitigation Measures

Implementation of Mitigation Measure 4.9-1 below, in conjunction with implementation of the proposed General Plan policies and actions and compliance with local regulations, will mitigate potential impacts of future development on archaeological resources to a less-than-significant level.

**MITIGATION 4.9-1** Add Action HA1.2.2 that establishes a procedure for preparing archaeological investigations as follows:

*HA1.2.2* Require preparation of archaeological investigations on sites proposed for development within areas identified as "Highly Sensitive" or "Sensitive" on the "Areas of Archaeological Sensitivity" and "Historical Archaeology Sensitivity" maps, except for exempt uses within "Sensitive" areas as described below, prior to approval of development permits. The investigation shall include archival research, site surveys and necessary supplemental testing as may be required, conducted by a qualified archaeologist. The significance of identified resources shall be ascertained in accordance with CEQA definitions, and impacts and mitigation measures outlined if significant impacts are identified, including, but not limited to recovery options and onsite monitoring by an archaeologist during excavation activities. A written report describing the archeological findings of the research or survey shall be provided to the City.

Allow minor projects with little excavation to be exempt from this requirement for preparation of an archaeological assessment within designated "Sensitive" areas, but not within the "High Sensitivity" areas. Minor projects generally involve spot excavation to a depth of 12 inches or less below existing grade, or uses that have virtually no

potential of resulting in significant impacts to archaeological deposits. Exempt projects may include: building additions, outdoor decks, or excavation in soil that can be documented as previously disturbed.

**Impact 4.9-2: Historical Resources**
Adoption and implementation of the proposed *General Plan 2030* would accommodate future development that could directly or indirectly disturb or alter historical resources. With implementation of the proposed General Plan policies and actions for historic resource protection, this is considered a *less-than-significant impact*.

Future development accommodated by the proposed *General Plan 2030* could potentially damage, degrade, or destroy the historic integrity of historical resources, especially along the mixed-use corridors where historic buildings may be present. Redevelopment of existing developed sites may result in removal of or damage to historic structures. As indicated above, approximately one-half of the anticipated future development would occur along existing road corridors in which historic or older buildings may be located.

The proposed *General Plan 2030* includes a number of policies and actions that serve to protect historical resources, and thus, mitigate potential impacts to these resources that may occur as a result of development under the General Plan. These policies and actions are summarized in Table 4.9-2. In particular, Policies HA1.8 and HA1.9 and supporting actions, seek to protect, restore, and/or rehabilitate historic or architecturally significant buildings, sites, and landmarks; ensure compatible development within historic districts; and utilize historic building preservation guidelines. The draft plan also promotes incentives for listing and rehabilitation of significant buildings (HA1.11 and actions). Several policies in the Land Use and Community Design sections of the draft *General Plan 2030* (as noted on Table 4.9-2) also seek to maintain and expand historic districts and landmarks (LU3.9.4, CD2.3.2).

The General Plan policies and actions outlined in Table 4.9-2 will serve to protect cultural resources that may be present or encountered as part of future development accommodated by the proposed General Plan. Additionally, compliance with local regulations regarding historic alteration or demolition permits will also serve as the mechanism for review of projects that may alter existing historical resources. The draft Plan does call for updating the Zoning Ordinance to simplify and streamline the review process for a Historic Alteration Permit (HA1.11.2), although this shouldn't affect the basic intent of the regulations to protect historic resources.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would result in construction that may result in impacts to historic resources. Compliance with local regulations regarding protection of historic resources, and implementation of the proposed General Plan policies and actions outlined above, would reduce impacts to a less-than-significant level.

**Mitigation Measures**

No mitigation measures are required a significant impact has not been identified.

**Impact 4.9-3: Paleontological Resources**
Adoption and implementation of the proposed *General Plan 2030* would accommodate future development that could directly or indirectly disturb or alter paleontological resources. Even with implementation of the proposed policies and actions for cultural resource protection, this is considered a *potentially significant impact*.

Potential development that could occur under the proposed General Plan is described above under the Impact 4.9-1 analysis. Excavation activities may also have the potential to damage or destroy paleontological resources if present.

The proposed *General Plan 2030* includes a number of policies and actions that serve to protect archaeological resources, and thus, mitigate potential impacts to paleontological resources as a result of development under the General Plan. In particular, Policy HA1.1 and associated actions seek to preserve, protect and manage paleontological resources. However, the proposed policies and actions do not provide guidance on how such protection and/or management would occur, especially as a result of development projects. The cultural resources review recommends that permit applicants within paleontologically sensitive areas (as shown on Figure 4.9-5) be provided notification of the potential for encountering paleontological resources during construction and procedures to follow if such resources are found.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would result in construction that may result in impacts to buried paleontological resources. However, with implementation of the proposed General Plan policies and actions outlined above, impacts would be reduced. However, the proposed plan does not specify a process for evaluating potential paleontological resources during the development process, and thus the impact is potentially significant.

**Mitigation Measures**

Implementation of the proposed General Plan policies and actions outlined above, and Mitigation Measure 4.9-2 identified below will mitigate potential impacts of future development to a less-than-significant level.

**MITIGATION 4.9-2** Add Action HA1.2.3 that establishes a procedure for preparing archaeological investigations as follows:

*HA1.2.3* The City shall notify applicants within paleontologically sensitive areas of the potential for encountering such resources during construction and condition approvals that

work will be halted and resources examined in the event of encountering paleontological resources during construction. If the find is significant, the City should require the treatment of the find in accordance with the recommendations of the evaluating paleontologist. Treatment may include, but is not limited to, specimen recovery and curation or thorough documentation.

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# 4.10 GEOLOGY & SOILS

## 4.10.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Regulatory Setting
- Geologic Setting
- Seismic Hazards
- Non-Seismic Geologic Hazards
- Soils & Erosion

This section summarizes technical geologic and soils conditions prepared in a report by Nolan Associates that is included in technical Appendix F-4, which is available for review at the City of Santa Cruz Planning Department[1] and is also included on the Draft EIR CD and on the online version of the Draft EIR on the City's website at www.cityofsantacruz.com - Planning Department link..

### REGULATORY SETTING

#### Federal Regulations

The Uniform Building Code (UBC) is published by the International Conference of Building Officials. It forms the basis of about half of the state building codes in the United States, including California's, and has been adopted by the California Legislature together with Additions, Amendments, and the Repeals to address the specific building conditions and structural requirements in California.

The UBC defines different regions of the United States and ranks them according to their seismic hazard potential. There are four types of these regions, which include Seismic Zones 1 through 4, with Zone 1 having the least seismic potential, and Zone 4 having the highest seismic potential. Further, the UBC provides guidance on foundation design and structural engineering for a variety of soils.

The Federal Disaster Mitigation Act (DMA) of 2000 (Public Law 106-390), adopted by Congress in October 2000, requires state and local governments to develop hazard mitigation plans as a condition for federal grant assistance. The City of Santa Cruz adopted its "Local Hazard Mitigation Plan" in September 2007. The detailed five-year plan identifies potential natural and man-made hazards, assesses their likely risk, and includes mitigation methods to reduce risks. The potential hazards identified in the plan include earthquakes and liquefaction, wildfires, floods and associated coastal storms, coastal erosion, drought, tsunami, dam failure,

[1] Located at 809 Center Street, Room 107, Santa Cruz, California during business hours: Monday through Thursday, 8 AM to 12 PM and 1to 5 PM.

and landslides. Mitigation measures proposed to address these risks include prioritized actions that include hazard event planning, emergency prepardedness coordination and education, facility upgrades, monitoring actions and other actions in response to specific hazards.

The City of Santa Cruz adopted its "Local Hazard Mitigation Plan" in September 2007. The five-year plan addresses earthquakes and liquefaction, coastal erosion and landslides.

## State Regulations

### ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT

The Alquist-Priolo Earthquake Fault Zoning Act was passed by the state of California in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The purpose of the act is to prevent the construction of buildings used for human occupancy over the surface trace of active faults. The Act requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of active faults and to issue appropriate maps. Local agencies must regulate most development projects within the zones. Before a project can be permitted, cities and counties must require a geologic investigation to demonstrate that proposed buildings will not be constructed across active faults. If an active fault is found, a structure for human occupancy cannot be placed over the trace of the fault and must be set back from the fault (generally 50 feet), although local agencies can be more restrictive than state law requires (California Department of Conservation, 2007a). There are no state-delineated Alquist-Priolo fault zones in the City of Santa Cruz.

### SEISMIC HAZARDS MAPPING ACT

The Seismic Hazards Mapping Act (SHMA) addresses non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction, and seismically induced landslides. The goal is to mitigate seismic hazards to protect public health and safety. Pursuant to the SHMA, the state Department of Conservation is directed to provide local governments with seismic hazard zone maps that identify areas susceptible to amplified shaking, liquefaction, and earthquake-induced landslides or other ground failures. Site-specific geotechnical hazard investigations are required by SHMA when construction projects fall within these areas. Neither the City of Santa Cruz nor any part of Santa Cruz County is located within a currently designated state-Seismic Hazard Mapping Program zone (California Department of Conservation, 2007b).

### CALIFORNIA BUILDING CODE

Title 24 of the California Code of Regulations, formerly known as the California Building Code (CBC), sets forth minimum requirements for building design and construction in public buildings and a large percentage of private buildings. In the context of earthquake hazards, the CBC design standards have a primary objective of ensuring public safety and a secondary goal of minimizing property damage and maintaining function during and following a seismic event. The CBC prescribes seismic design criteria for different types of structures, and provides methods to obtain ground motion inputs. The CBC also requires analysis of liquefaction potential, slope-instability, differential settlement, and surface displacement due to faulting or lateral spreading for various categories of construction. Recognizing that the risk of severe seismic ground motion

varies from place to place, the California Building Standards Code seismic code provisions vary depending on location (Seismic Zones 0, 1, 2, 3, and 4—with 0 being the least stringent and 4 being the most stringent). The City of Santa Cruz is located in Seismic Zone 4.

#### CALTRANS SEISMIC SAFETY RETROFIT PROGRAM

The California Department of Transportation (Caltrans) Seismic Safety Retrofit Program was established by emergency legislation (SB 36X) after the October 17, 1989, Loma Prieta earthquake. The purpose of this program is to evaluate all publicly owned bridges in California and to take actions necessary to prevent their collapse due to earthquakes. The local component of the Seismic Safety Retrofit Program provides funding and other assistance to cities and counties for evaluating bridges and improving their resistance to seismic shaking. The City of Santa Cruz has completed seismic retrofits for all its bridges, except for the Murray Street Bridge, which is planned to commence construction in 2012-2013 .

## Local Regulations

The City's Municipal Code Chapter 24.14 (Environmental Resource Management) includes "Conservation Regulations." Section 24.14.030 provides "Slope Regulations" to minimize risks associated with development in areas characterized by combustible vegetation and steep and/or unstable slopes. Generally, areas with 30+ percent slopes cannot be included in the density determination for a project and prohibits development in areas of 30+ percent slopes. The regulations also include setback requirements for buildings near 30-50+ percent slopes. Section 24.14.070 requires a site-specific geotechnical investigation for all development, except projects with less than four units, in areas identified in the General Plan as having a high liquefaction potential. Section 24.16.060 requires an erosion control plan for projects located within high erosion hazard areas as designated in the General Plan or for development on slopes greater than ten percent.

The Grading Ordinance is a subset of Title 18, Buildings and Construction, of the City's Municipal Code and is included in Chapter 18.45 – Excavation and Grading Regulations." It provides technical regulations of grading and excavation, in conjunction with the Environmental Resource Management provisions in Chapter 24.14, in order to safeguard life, health, safety and the public welfare; protect fish and wildlife, riparian corridors and habitats, water supplies, and private and public property, and to protect the environment from the effects of flooding, accelerated erosion and/or deposition of silt. The ordinance accomplishes this by providing guidelines, regulations, and minimum standards for clearing, excavation, cuts, fills, earth moving, grading operations (including cumulative grading), water runoff and sediment control. In addition, the ordinance includes provisions regarding administrative procedures for issuance of permits and approval of plans and inspections during construction and subsequent maintenance. The City revised the Grading Ordinance in April 2004 in order to strengthen the ordinance regarding implementation of BMPs, including those for erosion and sediment control.

# GEOLOGIC SETTING

## Physiographic Setting

The City of Santa Cruz lies on a narrow coastal plain at the mouth of the San Lorenzo River Valley on the northern shore of the Monterey Bay. The coastal plain is bounded landward by the Santa Cruz Mountains, rising to elevations over 2,600 feet. The San Lorenzo River flows southward from the Santa Cruz Mountains and is the largest drainage in the region, with an area of about 106 square miles. The central district of the City of Santa Cruz is situated on floodplain of the lower San Lorenzo River.

Most of the City lies on a relatively flat topographic bench to the east and west of the San Lorenzo River valley. This bench was formed by marine wave erosion at a time when the land was lower relative to sea level than at present. The bench, referred to as a marine terrace, was preserved by gradual uplift of the region. This terrace is separated from successively higher (older) terraces by steep slopes that mark ancient sea cliffs. The older terraces ascend stair-step like up the mountain front bordering the City to the north.

The lowermost of these terraces forms a broad, gently seaward sloping surface that terminates in a sea cliff at the modern shoreline. This modern seacliff, or coastal bluff, is a result of wave erosion that is cutting a new marine terrace offshore. The upper west side of the City and the Delaveaga Golf Course are situated on an older, higher marine terrace. The marine terrace surfaces are cut by a series of south flowing seasonal streams that occupy smaller stream valleys.

## Regional Setting

### REGIONAL GEOLOGIC SETTING

The City of Santa Cruz is situated on the southwestern slope of the central Santa Cruz Mountains, part of the Coast Ranges physiographic province of California. The northwest-southeast structural grain of the Coast Ranges is controlled by a complex of active faults within the San Andreas fault system. Southwest of the San Andreas fault, the Coast Ranges, including the Santa Cruz Mountains, are underlain by a large, northwest-trending, fault-bounded, elongated prism of granitic and metamorphic basement rocks. The granitic and metamorphic basement is Cretaceous in age, or older, and is overlain by a sequence of dominantly marine sedimentary rocks of Paleocene to Pliocene age and non-marine sediments of Pleistocene and Holocene age. The older sedimentary rocks are moderately to strongly deformed, with steep-limbed folds and several generations of faults associated with uplift of the Santa Cruz Mountains.

The Santa Cruz Mountains are cut by several active faults, of which the San Andreas is the most important (see Figure 4.10-1[2], Regional Seismicity Map). Along the coast, the ongoing tectonic activity is most evident in the gradual uplift of the coastline, as indicated by the series of uplifted marine terraces that sculpt the coastline.

[2] All EIR figures are included in Chapter 7.0 at the end of the EIR (before appendices) for ease of reference as some figures are referenced in several sections.

### REGIONAL SEISMIC SETTING

California's broad system of strike-slip faulting has a long and complex history. Locally, the San Andreas, Zayante-Vergeles and San Gregorio faults and the Monterey Bay-Tularcitos fault zone present a significant seismic hazard to the City (see Figure 4.10-1). These faults are associated with Holocene activity (movement in the last 11,000 years) and are therefore considered to be active. The most severe historical earthquakes to affect the project site are the 1906 San Francisco earthquake and the 1989 Loma Prieta earthquake, with Richter magnitudes of about 8.3 and 7.1, respectively.

## City of Santa Cruz Geologic Setting

### GEOLOGIC UNITS & STRUCTURE

A geologic map of the City of Santa Cruz is depicted on Figure 4.10-2. The geology of the City and surrounding area displays over 100 million years of geologic history. Rock units in the City are separable into three major groups: granitic intrusive rocks of Late Cretaceous age, pre-Cretaceous metasedimentary rocks, and sedimentary rocks of Tertiary and Quaternary age. The granitic intrusive rocks form the core of Ben Lomond Mountain and underlie the City at depth. These rocks formed from molten rock (magma) that melted its way upward from deep in the earth's crust and then cooled underground, forming granitic rock. The metamorphic and granitic rocks are observed outcropping along the northwestern margins of the City.

The younger sedimentary rocks (Tertiary and Quaternary age) are draped over the older granitic and metamorphic bedrock. The Tertiary rock units include the Santa Margarita Sandstone, the Santa Cruz Mudstone, and sandstones of the Purisima Formation (see Figure 4.10-2). Surficial Quaternary deposits locally overly the Tertiary units. These units include marine terrace deposits, stream or river alluvium, and landslide deposits. The marine terrace deposits directly underlie much of the City, and generally range from a few feet thick to at most a few tens of feet thick. They consist of marine sands, including ancient beach sands, deposited while the marine terrace was being carved by the ocean, and colluvium deposited over the marine sands after the terrace was exposed by falling sea levels. Soil (residuum) derived from weathering of all the older geologic units is present in thicknesses up to a few feet throughout the area.

The older igneous and metamorphic rocks are highly deformed, with many cross-cutting faults and folds. The tectonic forces responsible for the deformation seen in these rocks, however, have long since dissipated and the faults are no longer considered active. The sedimentary rocks overlying the granitic and metamorphic basement, principally the Santa Margarita Sandstone, the Santa Cruz Mudstone, and the Purisima Formation, are younger Tertiary age rocks and, locally, have experienced only gentle uplift and very mild folding. In most exposures, the layering in these rocks is near horizontal.

The only fault mapped within the boundaries of the City is the Ben Lomond fault. This fault trends southward from its intersection with the Zayante fault down the San Lorenzo Valley towards Santa Cruz. The fault has only been confidently mapped as far south as Felton, several miles north of Santa Cruz, but Stanley and McCaffrey (1983) extended the fault

southward through the City into Monterey Bay, based largely on geophysical (indirect) evidence. Vertical movement on the fault, west side up, is thought to be responsible for uplift and tilting of the granitic rock mass that forms Ben Lomond Mountain. Most of the movement occurred on this fault prior to about six million years ago, and it is not presently considered to be active.

#### SURFACE PROCESSESS

Surficial geologic processes in the area include weathering, erosion, and mass wasting (landsliding). Weathering of surficial materials and erosion by wind and water are the principal processes active in developing natural landscapes. When erosion leads to the development of steep slopes, landsliding may occur. In turn, landsliding breaks up the rock formations on the slope, leading to additional weathering and erosion. Landslides from the County of Santa Cruz landslide map occurring within the City are depicted on Figure 4.10-3.

#### KARST TERRAIN

The northwest portion of the City is partially underlain by marble bedrock. Marble is distinct from other bedrock types in the area because it is soluble in water. Consequently, percolating ground water will gradually dissolve channels in the rock, resulting in underground conduits and caverns. Where these conduits or caverns intersect the ground surface, sinkholes result. Another aspect of areas underlain by marble is that the surface drainage system may be poorly developed or absent due to the capture of surface runoff by sinkholes. Where sinkholes intercept streams, they are known as swallow holes. A landscape that is dominated by features associated with soluble bedrock is known as karst terrain.

Karst terrain in the Santa Cruz area is of limited extent. Very large areas of the southeastern United States are underlain by karst terrain, and the sudden, spectacular collapse of large sinkholes is a potential hazard there. Most of the karst terrain in Santa Cruz lies on the University of California campus and in a few neighborhoods immediately south of the campus. Sinkholes associated with the karst terrain in the Santa Cruz area are not of great size, and they tend to develop gradually over time, rather than by sudden collapse. However, local sinkholes are often filled with fine grained sediment that has washed into the sinkhole from adjacent terrain. The sinkhole fill can prevent the sinkholes from being recognized. Soil settlement associated with filled sinkholes can damage buildings and other development.

Water flowing through the karst conduits in the marble emerges at the surface in form of springs where the downhill margins of marble outcrop are bounded by relatively impermeable rocks. The springs at Kalkar Quarry and the spring feeding Westlake are examples of such springs. Besides gradual settlement of sinkhole fill, there can also be problems associated with groundwater surfacing under buildings or roads in these areas, especially during the winter rains.

## SEISMIC HAZARDS

The City of Santa Cruz is located in a seismically active region of California. Historical earthquakes along the San Andreas fault and its branches have caused substantial seismic

shaking in Santa Cruz County in historical time. The two largest historical earthquakes to affect the area were the moment magnitude (Mw) 7.9 San Francisco earthquake of April 18, 1906 and the Mw 6.9 Loma Prieta earthquake of October 17, 1989 (corresponding to Richter magnitudes of 8.3 and 7.1) . The San Francisco earthquake caused severe seismic shaking and structural damage to many buildings in the Santa Cruz Mountains. The Loma Prieta earthquake may have caused more intense seismic shaking than the 1906 event in localized areas of the Santa Cruz Mountains, although its regional effects were not as extensive. There were also major earthquakes in northern California along or near the San Andreas fault in 1838, 1865, and possibly 1890. Further description of regional faults and seismic hazards is provided below.

## Faults

### SAN ANDREAS FAULT

The San Andreas fault is active and represents the major seismic hazard in northern California. The main trace of the San Andreas fault trends northwest-southeast and extends over 700 miles from the Gulf of California through the Coast Ranges to Point Arena, where the fault passes offshore and merges with the Cascadia fault zone. Surface rupture during historical earthquakes, fault creep, and historical seismicity confirm that the San Andreas fault and its branches, the Hayward, Calaveras, and San Gregorio faults, are all active today.

Geologists have recognized that the San Andreas fault system can be divided into segments with "characteristic" earthquakes of different magnitudes and recurrence intervals. Two overlapping segments of the San Andreas fault system represent the greatest potential hazard to the City of Santa Cruz. The first segment is defined by the rupture that occurred from Mendocino to San Juan Bautista along the San Andreas fault during the great Mw 7.9 San Francisco earthquake of 1906; it has been suggested that this "1906 rupture" segment experiences earthquakes with comparable magnitudes about every 200 years. The second segment is defined approximately by the rupture zone of the Mw 6.9 Loma Prieta earthquake; it has been posited that earthquakes of Mw 7.0 on this segment of the fault have a recurrence interval of 138 years.

### ZAYANTE-VERGELES FAULT

The Zayante fault lies southwest of the San Andreas fault and trends about 50 miles northwest from the Watsonville lowlands into the Santa Cruz Mountains (see Figure 4.10-1). The postulated southern extension of the Zayante fault, known as the Vergeles fault, merges with the San Andreas fault south of San Juan Bautista. Stratigraphic and geomorphic evidence indicates that the Zayante-Vergeles fault has undergone late Pleistocene and Holocene movement and is potentially active.

Some historical seismicity may be related to the Zayante-Vergeles fault. A magnitude 4.0 earthquake in 1998 in the Santa Cruz Mountains occurred on the Zayante fault. The Zayante-Vergeles fault should be considered active for design purposes, and is capable of generating an Mw 6.8 earthquake with a recurrence interval of almost 9,000 years.

### SAN GREGORIO FAULT

The San Gregorio fault cuts the ocean floor seaward of Monterey Bay and skirts the Santa Cruz County coastline before coming on land at Point Año Nuevo. North of Año Nuevo it passes offshore, intersecting the coast again at Half Moon Bay (see Figure 4.10-1). North of Half Moon Bay, the San Gregorio fault lies offshore until it connects with the San Andreas fault near Bolinas. Southward from Monterey Bay, the San Gregorio fault intersects the coast at Point Sur and eventually connects with the Hosgri fault in south-central California.

The onshore segments of the San Gregorio fault at Point Año Nuevo and at Half Moon Bay show evidence of late Pleistocene and Holocene displacement. In addition to stratigraphic evidence for Holocene activity, the historical seismicity in the region is partially attributed to the San Gregorio fault. Due to inaccuracies of epicenter locations, the magnitude 6+ earthquakes of 1926, tentatively assigned to the Monterey Bay fault zone, may have actually occurred on the San Gregorio fault. The San Gregorio fault in the Santa Cruz County area has a recurrence interval of 400 years with the potential to generate a Mw 7.2 earthquake.

### MONTEREY BAY-TULARCITOS FAULT ZONE

The Monterey Bay-Tularcitos fault zone is based on a postulated connection between the Tularcitos fault, located on land near the Monterey Peninsula, and the offshore Monterey Bay fault zone (see Figure 4.10-1). The Monterey Bay fault zone is 6 to 9 miles wide and about 25 miles long.

Both offshore and onshore fault traces in this zone have displaced Quaternary age rock layers and, therefore, are considered potentially active. One offshore trace, which aligns with the trend of the Navy fault, has displaced Holocene beds and is therefore considered active. Seismically, the Monterey Bay-Tularcitos fault zone may be historically active. The largest historical earthquakes tentatively located in the Monterey Bay-Tularcitos fault zone are two events, estimated at 6.2 on the Richter Scale, in October 1926. Because of possible inaccuracies in locating the epicenters of these earthquakes, it is possible that these earthquakes actually occurred on the nearby San Gregorio fault. Another earthquake in April 1890 might be attributed to the Monterey Bay-Tularcitos fault zone. An earthquake of Mw 7.1-7.3 may be expected on the Monterey Bay-Tularcitos fault zone, with an effective recurrence interval of 2,600-2,800 years, based on Holocene offsets noted on an offshore strand of the fault.

## Seismic Hazards

Potential seismic hazards include fault rupture, strong seismic shaking, soil liquefaction and related types of seismically induced ground failure, and tsunami. These hazards are discussed individually, below.

### GROUND SURFACE RUPTURE DUE TO FAULTING

Earthquakes are caused by slippage along faults, or cracks, in the earth's crust. Where the fault intersects the ground surface, this slippage causes offset of the ground surface that can damage or destroy structures placed over the fault. The only suspected fault trace crossing through the City is the southern extension of the Ben Lomond fault, but it is not considered to be

active and therefore any risk of ground surface rupture across the fault trace must be considered low. Ground surface rupture due to faulting is, therefore, not considered a significant risk in the City of Santa Cruz.

### SEISMIC SHAKING HAZARD

For the purpose of evaluating seismic shaking potential in the City, this discussion focuses on the San Andreas, Zayante-Vergeles, San Gregorio, and Monterey Bay-Tularcitos fault systems (see Figure 4.10-1). These faults are considered active seismic sources by the State of California. While other faults in this region may be active, their potential contribution to seismic hazards in the City is overshadowed by these four larger or closer faults. The distances between these faults and the City center are listed in Table 4.10-1, as is the maximum expected earthquake size and the approximate time interval between major earthquakes on each fault. All of these faults are considered capable of magnitude (M) 6.5 or larger earthquakes.

**Table 4.10-1**
**Distances and Directions to Local Faults**

| Fault | Distance from site (miles) | Maximum Expected Earthquake Magnitude (Moment Magnitude) | Approximate Time Between Major Earthquakes (years) |
|---|---|---|---|
| San Gregorio | 9.9 | 7.2 | 400 |
| Zayante-Vergeles | 7.9 | 7.9 | 8821 |
| Monterey Bay-Tularcitos | 6.5 | 6.5 | 2841 |
| San Andreas | 11.2 | 7.9 | 210 |

**Source:** Nolan Associates

A qualitative measure of earthquake shaking intensity is provided by the Modified Mercalli Intensity Scale (Table 4.10-2). The Mercalli Scale (and other, similar qualitative scales) provides a way to gauge earthquake shaking intensity based on verbal or published descriptions of earthquake damage. It was the principal means of measuring earthquake size before the advent of seismograph arrays in the early 20th Century. Modified Mercalli Intensities of VIII (8) to IX (9) were measured in the City of Santa Cruz for the 1989 Loma Prieta and 1906 San Francisco earthquakes, respectively. Similar shaking intensities are expected in future earthquakes.

The principal factors which affect the severity of seismic shaking in a given area are the magnitude of the earthquake and the distance from the earthquake source to the location of interest. All of the listed faults, because of the size and proximity to the City, are significant potential sources of strong seismic shaking. Another factor which affects the intensity of shaking is the type of geologic materials underlying the site. Certain types of earth materials can amplify or dampen shaking.

There are two methods for estimating the intensity of seismic ground motions that may be expected at a site: "deterministic" and "probabilistic". A deterministic approach estimates the magnitude of the most severe shaking that can reasonably be expected at a particular site, without regard for the likelihood that such shaking will occur. In this type of analysis, the largest earthquake thought credible on each fault is assumed to occur on the portion of the fault nearest the site.

**Table 4.10-2**
**Modified Mercalli Intensity Scale**

| The modified Mercalli scale measures the intensity of ground shaking as determined from observations of an earthquake's effect on people, structures, and the Earth's surface. This scale assigns to an earthquake event a Roman numeral from I to XII as follows: | |
|---|---|
| I | Not felt by people, except rarely under especially favorable circumstances. |
| II | Felt indoors only by persons at rest, especially on upper floors. Some hanging objects may swing. |
| III | Felt indoors by several. Hanging objects may swing slightly. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake. |
| IV | Felt indoors by many, outdoors by few. Hanging objects swing. Vibration like passing of heavy trucks; or sensation of a jolt like a heavy ball striking the walls. Standing automobiles rock. Windows, dishes, doors rattle. Wooden walls and frame may creak. |
| V | Felt indoors and outdoors by nearly everyone; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset; some dishes and glassware broken. Doors swing; shutters, pictures move. Pendulum clocks stop, start, change rate. Swaying of tall trees and poles sometimes noticed. |
| VI | Felt by all. Damage slight. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Knickknacks and books fall off shelves; pictures off walls. Furniture moved or overturned. Weak plaster and masonry cracked. |
| VII | Difficult to stand. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary buildings; considerable in badly designed or poorly built buildings. Noticed by drivers of automobiles. Hanging objects quiver. Furniture broken. Weak chimneys broken. Damage to masonry; fall of plaster, loose bricks, stones, tiles, and unbraced parapets. Small slides and caving in along sand or gravel banks. Large bells ring. |
| VIII | People frightened. Damage slight in specially designed structures; considerable in ordinary substantial buildings, partial collapse; great in poorly built structures. Steering of automobiles affected. Damage or partial collapse to some masonry and stucco. Failure of some chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed pilings broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes. |
| IX | General panic. Damage considerable in specially designed structures; great in substantial buildings, with some collapse. General damage to foundations; frame structures, if not bolted, shifted off foundations and thrown out of plumb. Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground; liquefaction. |
| X | Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Landslides on river banks and steep slopes considerable. Water splashed onto banks of canals, rivers, lakes. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly. |
| XI | Few, if any masonry structures remain standing. Bridges destroyed. Broad fissures in ground; earth slumps and landslides widespread. Underground pipelines completely out of service. Rails bent greatly. |
| XII | Damage nearly total. Waves seen on ground surfaces. Large rock masses displaced. Lines of sight and level distorted. Objects thrown upward into the air. |

A probabilistic analysis considers the likelihood that a certain earthquake will occur and includes other uncertainties, such as epicentral location, as part of the overall probability. The advantage of a probabilistic analysis over a deterministic analysis is that the probabilistic estimate specifies the intensity of ground motion that is likely to occur during the design life of a project, rather than the greatest intensity that is ever likely to occur. Using probabilistic ground motions, a building may be designed for the shaking intensity that has a reasonable likelihood of occurring during the building lifetime, rather than a maximum value that has very little likelihood of occurring. In most cases, the probabilistically predicted ground motion is lower than the deterministic ground motion. However, in Santa Cruz County, the San Andreas fault produces large earthquakes so often that the deterministic and probabilistic ground motion values tend to be very similar.

Ground motion probabilities are commonly expressed as the probability of exceedance in a given time period. In the past, ground motion with a probability of exceedance of 10% in 50 years has been considered appropriate for design for most residential and commercial development. This probability level means that there is only a 10% chance that the specified ground motion will be exceeded in a 50-year period. For more critical structures, such as hospitals, a much lower probability level (higher ground motion) is specified for design.

The U.S. Geological Survey and the California Division of Mines and Geology have prepared a probabilistic seismic hazard assessment for the state of California. Probabilistic ground motions with 10% in 50 years and 2% in 50 years probability of exceedance are summarized in Table 4.10-3. These numbers can be compared to ground accelerations measured during the Loma Prieta earthquake, Table 4.10-4.

**Table 4.10-3**
**Predicted Seismic Ground Motions in Soft Rock**

| Probability | Mean Peak Horizontal Ground Acceleration, City Center (g) |
|---|---|
| 10% probability of Exceedance in 50 years | 0.41 |
| 2% probability of Exceedance in 50 years | 0.63 |

**Table 4.10-4**
**Seismic Ground Motions Measured During the Loma Prieta Earthquake**

| Measurement Site | Peak Ground Acceleration | Earth Material at Measurement Site |
|---|---|---|
| Corralitos | 0.64 | Landslide deposits |
| Capitola | 0.54 | Alluvium |
| UCSC | 0.47 | Marble |

The expected ground motion values listed in Table 4.10-3 are based on average (soft rock) site conditions; actual ground motions during an earthquake may vary due to differences in the way portions of the earth's crust transmit seismic energy or because of unique site conditions, such as soil type, bedrock type, and topography. Sites underlain by very hard bedrock tend to produce the least damaging effects on buildings, other factors being equal; while relatively soft alluvial deposits can increase the amplitude of ground shaking that affects buildings.

The central district of Santa Cruz is situated on young alluvial deposits of the San Lorenzo River. This type of earth material will amplify the effects of seismic shaking on buildings. Other portions of Santa Cruz are primarily underlain by sandstone and shale that can be categorized as soft rock. The impact of seismic shaking in these areas will be less than on alluvial deposits. Seismic shaking is expected to have the least impact on portions of the City underlain by granitic or metamorphic rocks such as marble (see Figure 4.10-2).

### SEISMICALLY INDUCED GROUND FAILURE

This section describes several types of ground failure that may accompany seismic shaking, including liquefaction and its related hazards of lurch cracking and lateral spreading, differential settlement, off-fault ground cracking, and landsliding.

**Liquefaction, Lurch Cracking and Lateral Spreading**. Liquefaction occurs in loose, cohesionless, granular materials that are saturated with ground water. The effects of seismic shaking can cause this type of sediment to loose strength and flow like a liquid. Liquefaction related ground deformation includes lurch cracking, fissuring, and lateral spreading.

Lurch cracking and fissuring occurs where a liquefied layer at depth is overlain by a surficial layer of relatively brittle, non-liquefied soil. In this situation, the surface layer may crack into individual blocks that can tip or rotate relative to each other. The resulting surface deformation can damage or destroy overlying buildings.

Lateral spreading occurs most often on level terraces or flood plains bounded on one side by a steep stream or river bank. When the sediments adjacent to the river liquefy, they flow into the stream or river channel. Lurch cracking and lateral spreading are potential hazards in areas susceptible to liquefaction.

There are four factors that help geologists and engineers estimate that likelihood that liquefaction will occur in a given area: 1) age of the underlying geologic materials, 2) type of geologic deposit, 3) depth to ground water, and 4) potential intensity and duration of seismic shaking. (See Appendix F-4 for further details.) Once a susceptibility to liquefaction is identified in an area, the risk posed to buildings and other structures by liquefaction depends strongly on the thickness and depth of the liquefiable layer. If the liquefiable layer is only six inches thick and is buried by 40 feet of non-liquefiable sediment, the actual hazard posed to a building at the surface may be relatively small. On the other hand, a 20-foot thick liquefiable layer buried by five feet of dry soil would be very likely to cause damage.

There is evidence for liquefaction in Santa Cruz during both the 1906 San Francisco and 1989 Loma Prieta earthquakes. Potential liquefaction hazard zones within the City are depicted on Figure 4.10-4 based on a ranking of mapped geologic units by liquefaction susceptibility according to age and type of deposit. This ranking draws on historical occurrences of liquefaction and previous liquefaction hazard studies. Susceptibility areas are divided into areas "A" and "B". Both areas are underlain by soils considered to be liquefiable, but the "B" areas are anticipated to have greater depth to groundwater, and therefore, a lesser susceptibility to liquefaction. This map is intended as a planning tool to identify areas where more in-depth analysis of liquefaction potential may be required. Not all of the liquefaction hazard zones showed evidence of liquefaction during the 1906 or 1989 earthquakes. Nevertheless, ground water levels fluctuate over time and different earthquakes can produce different effects.

**Seismically Induced Differential Settlement.** Seismically induced differential settlement may occur anywhere that soils are in a loose state. In the planning area, soils subject to this hazard will probably be limited to areas of improperly compacted artificial fill or areas of the most recently deposited sediments on the banks of the San Lorenzo River. In general, areas of natural soils that are potentially susceptible to differential settlement will be included in areas that are potentially liquefiable, as these soils are usually the type of soils that would liquefy if they were saturated. Areas of loose soil that could be subject to seismically induced differential settlement are of limited extent in the study area. This hazard can generally be mitigated by appropriate site-specific geotechnical investigations and proper foundation design. Any site screened for liquefaction hazard should also be evaluated for differential settlement potential.

**Off-Fault Ground Cracking.** During the 1989 earthquake, numerous ground cracks opened up along the crests and flanks of ridges. The ground cracks ranged from fractions of an inch to many feet wide and up to one-quarter mile long. Where the ground cracks crossed under buildings, the buildings were often severely damaged.

These ground cracks are considered to be co-seismic ground surface rupture; that is, they occur in response to severe ground shaking, but are not caused directly by offset of a fault. Ground cracking can also occur due to liquefaction, but such cracks are generally grouped with lurch cracking and are not included in this category. The co-seismic ground cracks may occur for a variety of reasons, but they are generally associated with steep topography, particularly ridge crests. With the exception of the crest of coastal bluffs, the topography within the City is generally not conducive to formation of co-seismic ground cracks and this hazard is therefore considered to be low throughout the City. Ground cracking is expected to occur in zones up to 50 feet wide landward from the crest of coastal bluffs, or anywhere there is a high, vertical or near-vertical cliff face.

**Seismically Induced Landsliding.** Seismically induced landsliding results when earthquake shaking adds extra stress to an already marginally stable slope. Landsliding that occurred in the Santa Cruz region as a result of the 1989 Loma Prieta earthquake included: 1) reactivation of existing landslides, including several very large, ancient landslide complexes that had previously been thought to be stable; 2) shallow slumps, calving, and toppling of natural cliffs and stream banks; and 3) slumping of steep cut slopes and embankments associated with grading for roads and development

Movement of the large, ancient landslides that took place during the 1989 earthquake involved incremental movements on the order of a few inches to a few feet. These landslides tended to move while the strong shaking was occurring, and then came to rest as soon as the shaking diminished. Because of the size and limited displacement of these landslides, damage to homes sited on the landslides was often remarkably light, except where the homes spanned the cracks around the landslide margins.

The other types of landsliding that occurred during the Loma Prieta earthquake were generally localized, affecting single homes or blocking roadways with loose soil and rock debris. There were extensive, but very shallow failures of sea cliffs around Monterey Bay and on very steep to vertical banks along creeks and rivers. There were also a number of landslides, mostly from cut slopes, that closed roads in the Santa Cruz Mountains, including State Highway 17. In most cases, the landslides were cleared within a few days, although permanent repair of the roadways took longer.

In terms of hazards posed to public safety, landslide hazards associated with the seismic shaking are similar to those occurring under static (non-seismic) conditions. Additional discussion of landslide hazard is provided below.

**Tsunami Hazard**. Tsunamis are giant ocean waves generated when uplift or down-dropping movement occurs over a broad area of the ocean floor. Ocean floor displacement may occur due to movement on submarine faults during large earthquakes, submarine landslides, or violent volcanic eruptions.

California is at risk from both local and distant source tsunamis, and tsunamis are a potential hazard to the City of Santa Cruz. There has been minimal damage and loss of life in Santa Cruz during recorded history (City of Santa Cruz, September 2007). However, a tsunami generated by a 9.0 magnitude earthquake in Japan in March 2011 reached Santa Cruz and caused substantial damage to the Santa Cruz Small Craft Harbor. Figure 4.7-2 identifies the potential tsunami inundation area in Santa Cruz, which is also further discussed in the HYDROLOGY, STORM DRAINAGE & WATER QUALITY (Chapter 4.7) section of this EIR.

Tsunamis can be generated locally, by movement on an offshore fault or by landsliding along the banks of the Monterey submarine canyon. The San Gregorio fault and the Monterey Bay fault zone are both considered active and capable of large earthquakes. However, these faults are not likely to produce large vertical offsets of the sea floor and therefore are probably not likely to generate significant tsunamis. Submarine landslides in the Monterey submarine canyon, however, are a more likely local source of tsunamis. Many large landslides have been mapped along the flanks of the canyon. A model of a landslide generated tsunami in the Monterey Bay predicted about 23 feet of runup along the Monterey Bay coastline. A particular hazard with a locally generated tsunami is that there is little warning time before the wave impacts the shoreline; a landslide generated tsunami in the Monterey Bay could strike the coastline in as little as 10 minutes from the time it was generated.

## NON-SEISMIC GEOLOGIC HAZARDS

Geologic hazards that are not seismically induced include landslides, slope instability, and coastal cliff retreat.

### Landslides and Slope Instability

Landslides are the rapid downward or outward movement of rock, earth or artificial fill on a slope. Factors causing landsliding include rock strength, the orientation of rock structure such as layering or fractures in the slope, erosion, weathering, high rainfall, steepness of slopes, and human activities such as the removal of vegetation and inappropriate grading.

Although landsliding is mostly a natural process that accompanies erosional downcutting and oversteepening of slopes, road building or other types of earth-moving can result in steep cut slopes and loose fill soils, both of which can be prone to landsliding. Roads can also collect naturally dispersed runoff and concentrate it into a rapidly flowing stream that can trigger erosion or landsliding.

A portion of the Santa Cruz County landslide map that covers the City is shown on Figure 4.10-3. This map should not be considered a complete catalogue of all existing landslides, especially where smaller landslides are concerned, but it shows in a general way the distribution of landslides in the City. The City is not as susceptible to landslides as are steeper areas of Santa Cruz County.

Because landslide hazard is associated primarily with steep slopes, landslide hazards in the City are confined to a few particular locations: 1) along the sea cliffs bounding the City to the south, 2) along the steeper banks of the San Lorenzo River valley and along the banks of smaller stream drainages, and 3) along the steep risers separating successively older marine terraces. In general, landsliding can be considered a potentially significant hazard where slopes exceed a gradient of about 50 percent (about 26½°). Slope instability can sometimes occur on less than 50 percent slopes, but the risk is typically much lower. Figure 4.10-5 shows slopes of 30 percent to 50 percent and slopes over 50 percent.

### Coastal Bluff Retreat

The City of Santa Cruz is bounded to the south by the Pacific Ocean. Landward erosion by wind and wave action over time has created coastal bluffs along most of the City's coastline. The term bluff retreat is commonly used to describe the horizontal (landward) erosion of the shoreline along the coastline. Coastal erosion includes both cliff or bluff erosion and beach erosion, and is a result of both winter wave attack, as well as slowly rising sea level.

Coastal erosion includes both bluff erosion and beach erosion; wind, waves, and long-shore currents are the driving forces behind coastal erosion. Winter storm waves are larger, steeper and contain more energy, and typically move significant amounts of sand from the beaches to offshore bars, creating steep, narrow beaches. In the summer, lower, less energetic waves allow return of the sand, making for wider beaches. During the winter months when beaches are narrow, or absent altogether, the storm waves attack the cliffs and bluffs more frequently.

Bluff retreat is usually expressed in terms of a uniform rate, such as feet per year or cubic yards of eroded sediment per linear foot of shoreline per year. However, bluff retreat is mostly the result of specific events associated with major coastal storms, earthquakes, or landslides; many years' worth of retreat at a particular point may occur during the course of one particularly intense winter storm or may be due to a single landslide event. Therefore, while average retreat rates calculated over many decades may be accurate, actual retreat events may be much larger than average retreat rates would predict, although infrequent.

Bluff retreat rates are calculated by comparing older survey information along the coast that shows where the bluff was in the past with modern survey data as well as review of aerial photos. Human activities, such as construction of shore protection structures and dredging may also impact retreat rates. Another factor that is having an impact on the rate of bluff retreat is gradual sea level rise due to global warming. The precise impact of observed sea level rise on bluff retreat rates is not known, and uncertainty in the rate of future sea level rise compounds the difficulty in predicting the impacts of sea level rise.
Retreat rates are influenced by the orientation of the cliff relative to the prevailing storm wave direction, coastline geometry, rock type, and beach width and persistence. A number of studies have been done of coastal retreat rates in the Santa Cruz area including area-wide studies and site-specific studies for individual coastal development projects. Average retreat rates along the coastline within the City of Santa Cruz have been measured at 2.75 to 5.9 inches per year for the portion of the shoreline studied, although retreat rates were found that exceeded 23 inches per year for specific locations.

## SOILS & EROSION

### Soil Conditions and Constraints

Soils develop as a result of physical and chemical weathering of geologic materials at the earth's surface combined with biologic mixing due to plants and animals. Based on the Soil Conservation Service Soil Survey for Santa Cruz County (Soil Conservation Service, 1980), there are 57 soil types within the City. Table 4.10-5 lists the soil types found in the City, which are illustrated on Figure 4.10-6.

The many soil types within the City are broadly separable into three principal units: 1) soils developed on marine terraces and alluvial flats along streams, 2) soils on hills and mountains developed under forest canopy, and 3) soils on hills and mountains developed under brush vegetation. The soils developed on marine terraces and stream-side alluvial flats that underlie much of the City include the Watsonville, Watsonville-Tierra, Elkhorn, Pinto, Baywood, Cropley, Danville, and Soquel soil series. (Soil types found within the City are shown on Figure 4.10-6.) These soils cover the largest area out of the three principal units, amounting to 69% of the City. The Watsonville Series underlies broad areas of the City; it is generally poorly drained and causes ponding and shallow groundwater problems. The soils formed under forest canopy include the Ben Lomond, Lompico, and Nisene-Aptos series, which account for15.4% of the soil types within the City. Soils developed on brush covered slopes, primarily along the foot of Ben Lomond Mountain between the coastal plains and the forested uplands, include the Aptos, Los Osos, and Bonny Doon series. They occur mostly in small areas on the western portion of Santa Cruz, covering about 8.9%

of the City. Because of their occurrence on steeper slopes, the soils developed on hills and mountains will be more susceptible to erosion hazard.

Some soils may place constraints on development unless specific measures are implemented to mitigate poor soil conditions Typical constraints that may affect development include expansive soils, low density soils prone to settlement, low permeability soils that can cause ponding and poor drainage, and soils with high erosion potential.

Expansive soils shrink and swell depending on moisture level as the clay minerals in these soils expand and contract. Soils with moderate or high shrink-swell potential are a common cause of foundation deterioration, pavement damage, cracking of concrete slabs, and shifting of underground utilities as they expand and contract with seasonal variations in soil moisture. These soils are undesirable for use as engineered fill or subgrade directly underneath foundations or pavement, and must be replaced with non-expansive engineered fill or require treatment to mitigate their expansion. Although shrink-swell tendency presents a potentially serious hazard to development, it can be mitigated by a variety of standard engineering measures.

The impact of potentially weak or soft soils on development is generally manifested in two ways: as problems associated with low shear strength, affecting primary bearing capacity and slope stability; and as problems associated with loss of strength due to cyclic loading during seismic activity, affecting the potential for liquefaction, lateral spreading and seismically induced differential settlements. Soils with low strengths may fail on steep cut or fill slopes or natural slopes inclined at gradients of 30 percent or greater, and they may settle under the weight of new buildings. As with expansive soils, the hazards associated with weak soils can be mitigated with a series of standard engineering measures. Risks associated with low strength soils or expansive soils can be mitigated with appropriately scoped geotechnical investigations.

## Erosion

Soil erosion potential is the susceptibility of the soil to erosion by water or wind. The risk of erosion depends upon the type of soil, slope of the land, slope length, rainfall amount and intensity, and vegetation cover. Removal of vegetation and the disturbance of the ground by mechanical grading or cattle grazing can accelerate the erosion process. Impervious surfaces from urban development can also concentrate runoff, causing gullying and other problems. The result may include not only the loss of valuable soils but also sedimentation of stream beds, habitat degradation, landslides and increased downstream flooding potential (City of Santa Cruz, 1994).

In general, erosion potential increases with the steepness of slope, but it is also affected by soil texture. Finer grained soils with strong cohesion tend to resist erosion better than loose, sandy soils. The Soil Conservation Service soil mapping program (1980) provides a ranking of erosion potential by soil type. These erosion hazard rankings were developed principally to address soil loss due to agriculture, and do not necessarily provide a useful measure of erosion potential with regard to urban planning and development.

The principal risk associated with erosion in an urban or semi-urban setting is due to *accelerated erosion*, is caused directly or indirectly by human activities or land management. Accelerated erosion is caused principally by grading for roads and other development and by land

clearing. Both these processes remove vegetative cover that protects soils from erosion and they change natural drainage patterns in a way that can concentrate runoff, increasing its erosive potential. Consequently, erosion hazards can be best mitigated by proper planning and implementation of erosion control measures on a site-specific basis during construction, and by implementation of permanent, fail-safe drainage systems post-construction.

Erosion potential is rated high to very-high on the Aptos, Ben Lomond, Bonny Doon, Elkhorn, Lompico-Felton, Nisene-Aptos, Pfeiffer, Sur-Catelli, Tierra-Watsonville, Watsonville, and Zayante soil types as shown on Table 4.10-5. Because of the difficulties in preventing erosion, development of these areas must be limited in accordance with soil conservation practices, including minimal grading and retention of existing native vegetation (City of Santa Cruz, 1994).

## 4.10.2 RELEVANT PROJECT ELEMENTS

### PROPOSED GOALS, POLICIES & ACTIONS

The HAZARDS, SAFETY, AND NOISE chapter of the draft *General Plan 2030* includes two goals presented below that are related to geologic hazards, soils constraints, and/or emergency preparedness with several policies and accompanying actions.

GOAL HZ1 Emergency and disaster readiness.

GOAL HZ6 Protection from natural hazards.

Three policies support Goal HZ6 and address erosion hazards, unstable slopes, and seismic hazards.

### FUTURE DEVELOPMENT POTENTIAL

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan / Local Coastal Program, except for three new mixed use land designations have been developed and applied to the following major transportation corridors: Mission Street, Ocean Street, Soquel, Avenue, and Water Street. Land Use actions LU1.1.4 and LU1.1.5 address development and land use for specific sites: the Swenson property and the Golf Club Drive property, respectively. LU2.2.3 also includes addition of a 5.5-acre parcel adjacent to the Dimeo Lane landfill and Resource Recovery Center. Specific uses haven't been identified, although the site will not be used as part of expansion of the landfill disposal area. In addition, the proposed *General Plan 2030* supports development of a desalination plant (Policy CC3.1.3), but a specific site is not identified.

## Table 4.10-5
## Soil Classifications Within City of Santa Cruz

| Map Symbol (SCS No.) | Soil Name | Slope (%) |
|---|---|---|
| 100 | Aptos loam, warm | 15-30 |
| 101 | Aptos loam, warm | 30-50 |
| 103 | Aguents, flooded | |
| 104 | Baywood loamy sand | 0-2 |
| 105 | Baywood loamy sand | 15-30 |
| 106 | Baywood loamy sand | 15-30 |
| 109 | Beaches | |
| 110 | Ben Lomond sand loam | 5-15 |
| 113 | Ben Lomond-Catelli-Sur complex | 30-75 |
| 114 | Ben Lomond-Felton complex | 30-50 |
| 115 | Ben Lomond-Felton complex | 50-75 |
| 116 | Bonnydoon loam | 5-30 |
| 117 | Bonnydoon loam | 30-50 |
| 118 | Bonnydoon-Rock outcrop complex | 50-85 |
| 119 | Clear lake clay, moderately wet | |
| 123 | Cropley silty clay | 2-9 |
| 124 | Danville loam | 0-2 |
| 125 | Danville loam | 2-9 |
| 127 | Diablo clay | 15-30 |
| 128 | Dune land | |
| 129 | Elder sandy loam | 0-2 |
| 132 | Elkhorn sandy loam | 0-2 |
| 133 | Elkhorn sandy loam | 2-9 |
| 134 | Elkhorn sandy loam | 9-15 |
| 135 | Elkhorn sandy loam | 15-30 |
| 136 | Elkhorn-Pfeiffer complex | 30-50 |
| 139 | Fluvaquentic Haploxerolis-Aquic Xerofluvents complex | 0-15 |
| 142 | Lompico-Felton complex | 5-30 |
| 143 | Lompico-Felton complex | 30-50 |
| 144 | Lompico-Felton complex | 50-75 |
| 145 | Lompico Variant loam | 5-30 |
| 146 | Los Osos loam | 5-15 |
| 147 | Los Osos loam | 15-30 |
| 157 | Nisene-Aptos complex | 30-50 |
| 158 | Nisene-Aptos complex | 50-75 |
| 159 | Pfeiffer gravelly sand loam | 15-30 |
| 161 | Pinto loam | 0-2 |
| 162 | Pinto loam | 2-9 |
| 164 | Pits-Dumps complex | |
| 168 | Santa Lucia Shaly clay loam | 30-50 |
| 170 | Soquel loam | 0-2 |
| 171 | Soquel loam | 2-9 |
| 172 | Soquel loam | 9-15 |
| 173 | Sur-Catelli complex | 50-75 |
| 174 | Tierra Watsonville complex | 15-30 |
| 175 | Tierra-Watsonville complex | 30-50 |
| 176 | Watsonville loam | 0-2 |
| 177 | Watsonville loam | 2-15 |
| 178 | Watsonville loam - thick surface | 0-2 |
| 179 | Watsonville loam - thick surface | 2-15 |
| 180 | Watsonville loam - thick surface | 15-30 |
| 183 | Zayante course sand | 30-50 |
| 184 | Zayante-Rock outcrop complex | 30-50 |

Shaded Soils have a high to very high erosion hazard potential

**Source:** USDA Soil Conservation Service, Soil Survey of Santa Cruz County, 1980

# 4.10.3 IMPACTS AND MITIGATION MEASURES

## CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

10a Expose people or structures to potential substantial adverse effects including the risk of loss, injury, or death resulting from the rupture of a known earthquake fault, seismic ground shaking, landslides, or seismic-related ground-failure, including liquefaction, which cannot be mitigated through the use of standard engineering design techniques;

10b Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide or slope failure/ instability;

10c Result in substantial soil erosion or the loss of topsoil and subsequent sedimentation into local drainage facilities and water bodies; or

10d Be located on an expansive soil, as defined by the Uniform Building Code (1997) or subject to other soil constraints that might result in deformation of foundations or damage to structures, creating substantial risks to life or property.

## IMPACT ANALYSIS

There are no active faults within the City of Santa Cruz, and thus, fault rupture (10a) is not a hazard. The following impact analyses address exposure to seismic hazards (10a); exposure to geologic and slope hazards (10b); erosion (10c); and soils constraints (10d).

### Potential Future Development & Buildout

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased new development. However, the draft General Plan includes policies and a land use map that support additional development as summarized in subsection 4.82 above. Buildout projections indicate that potential new development accommodated by the draft general plan to the year 2030 could total 3,350 residential units, 3,140,000 square feet of non-residential uses, primarily on infill and underutilized lots, as described in the PROJECT DESCRIPTION (Chapter 3.0) and LAND USE (Chapter 4.1) sections of this EIR. Based on the estimated development occurring under the proposed plan,[3] approximately 55 percent of all new housing, 45 percent of new commercial development and 52 percent of new office development would located within new mixed use designations along the City's four major transportation corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street.

[3] See Table 3-3 in the PROJECT DESCRIPTION (Chapter 3.0) section of this EIR and Figure 2-3 for estimated distribution of new development per specific areas in the City.

**Impact 4.10-1: Seismic Hazards**
Adoption and implementation of the proposed *General Plan 2030* would accommodate future development that could result in exposure of people and property to seismic hazards, including ground shaking, liquefaction, and ground settlement. With adherence to City regulations, the project would not result in increased risk of exposure to seismic hazards. This is considered a *less-than-significant impact*.

The City is primarily developed, and future development accommodated by the proposed *General Plan 2030* would be considered predominantly infill development within developed areas on vacant infill sites, on underutilized properties, and in the new mixed-use districts along the City's four major street corridors. Based on the estimated development occurring under the proposed plan, approximately one-half of new development would be located along these transportation corridors. There are a few remaining vacant lots and underdeveloped properties located within developed areas (i.e., Swenson site and Golf Club Drive area).

Future development and associated population growth could expose structures and people to seismic hazards, particularly seismic shaking and liquefaction. However, adherence to existing regulations and standards, including the CBC and various policies and actions established in the proposed *General Plan 2030*, would minimize harm to people and structures from adverse geologic events and conditions. Buildings will be required to be designed in accordance with the latest edition of the California Building Code, which sets forth structural design parameters for buildings to withstand seismic shaking without substantial structural damage. Conformance to the CBC as required by state law and the City would ensure the maximum practicable protection available for structures and their associated trenches, excavations and foundations. Project designs are required to include the application of CBC Seismic Zone 4 standards. The continuation of design review and code enforcement to meet current seismic standards is the primary mitigation strategy to avoid or reduce damage from an earthquake, and seismic safety standards are a requirement for all building permits (City of Santa Cruz, September 2007). It is also noted that since the 1989 Loma Prieta Earthquake, all commercial and public buildings have been seismically retrofitted, and as infrastructure is repaired or replaced, updated seismic safety standards are incorporated (Ibid.).

Most of the City's downtown area and areas along watercourses are subject to liquefaction, including the Golf Club Drive area and portion of the Swenson property. Typically, standard geotechnical engineering procedures, soil testing, and proper design can identify and mitigate liquefiable soils. By using the most up-to-date standards, potential damage related to liquefaction, including subsidence and settlement, can be reduced to levels that are generally considered acceptable. Section 24.14.070 of the City's Municipal Code requires preparation of a site-specific geotechnical investigation for all development, except less than four units, in areas identified in the General Plan as having a high liquefaction potential to assess the degree of potential liquefaction and recommend appropriate design/mitigation measures.

The general Plan policies and actions outlined in Table 4.10-6 also serve to reduce exposure to seismic hazards. Policy HZ6.3 seeks to reduce the potential for loss of life, injury and property damage due to earthquakes and liquefaction. The City will adopt new state-approved building

codes (HZ6.3.1), and the plan supports seismic retrofits (HZ6.3.2, HZ6.3.3) and utility design to withstand seismic hazards (HZ6.3.4).

**TABLE 4.10-6**
**Proposed General Plan Policies & Actions that Avoid or Minimize Exposure to Seismic and Geologic Hazards**

| Type of Measure / Action | Policies / Actions |
|---|---|
| MINIMIZE RISK OF EXPOSURE TO SEISMIC HAZARDS | • Critical facilities to survive flood & seismic hazards: HZ1.1.8<br>• Strengthen bridges: HZ1.1.11<br>• Reduce seismic hazard risks: HZ6.3<br>• Adopt State building does: HZ6.3.1<br>• Support seismic retrofits: HZ6.3.2, HZ6.3.3<br>• Design utilities to withstand seismic shaking: HZ6.3.5 |
| MINIMIZE EXPOSURE TO OTHER GEOLOGIC HAZARDS | • Minimize coastal bluff erosion hazard & building setbacks: HZ6.1.1, HZ 6.1.2<br>• Require geotech reports within 100 feet of coastal bluffs: HZ6.1.3<br>• Discourage development on unstable slopes & require geo reports if may be slope instability potential: HZ6.2, HZ6.2.1 |

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would be subjected to seismic hazards, including seismic shaking and liquefaction. With implementation of the proposed *General Plan 2030* goals, policies and actions and adherence to local regulations, buildings would be designed to minimize damages and reduce exposure of people or structures to significant risks associated with seismic hazards. Thus, this is a less-than-significant impact.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified. However, revision of the following *General Plan 2030* action is recommended to reference a potential liquefaction areas map, to be consistent with Zoning Regulations that require geotechnical investigations in areas of liquefaction identified in the proposed General Plan.

**Recommended Revisions to the *Draft General Plan 2030***

Revise or add policies/actions as indicated below. Deleted text is shown in ~~strikeout~~ typeface, and new text is shown in underlined typeface.

HZ5.3.6.1 Require site specific geologic investigations by qualified professionals for proposed development in potential liquefaction areas shown on the Liquefaction Hazard Map[4] to assess potential liquefaction hazards, and

[4] The map is included in this EIR as Figure 4.10-4 as referenced on page 13 of this chapter.

require developments to incorporate the design and other mitigation measures recommended by the investigations.

**Impact 4.10-2: Other Geologic Hazards**
Adoption and implementation of the proposed *General Plan 2030* would accommodate future development that could result in exposure to people and property to potential hazards associated with landslides, slope stability, and/or coastal bluff retreat. With adherence to City regulations and proposed *General Plan 2030* goals, policies and actions, the future development would not be located on unstable area related to landslides, slope instability or coastal bluff retreat. This is considered a *less-than-significant impact*.

As indicated above, the City is primarily developed, and future development accommodated by the proposed *General Plan 2030* would be considered infill development. Areas of known steep slopes and/or landslides are primarily located within managed open space areas, as well as portions of the west side of Santa Cruz in the Western Drive area and in the northeastern portion of the City in the Prospect Heights and Carbonera areas (see Figures 4.10-3 and 4.10-5). In general, landsliding can be considered a potentially significant hazard where slopes exceed a gradient of about 50 percent (about 26½°). Slope instability can sometimes occur on less than 50 percent slopes, but the risk is typically much lower. Construction on steep slopes can result in creation of unstable slopes if not properly designed. The areas subject to these constraints are limited within the City.

Section 24.14.030 of the City's Municipal Code regulates development on steep slopes and generally prohibits development on slopes greater than 50 percent with setbacks from 30+ percent slopes. The general Plan polices and actions outlined in Table 4.10-6 also serve to reduce exposure to landslide/slope stability exposure. Policy HZ6.2 discourages development on unstable slopes with preparation of engineering geology reports where excavation and grading have the potential to create unstable slopes or be exposed to slope stability (HZ6.2.1).

There are no major vacant or underutilized lands along the coast that would be subject to coastal bluff erosion, except for existing uses. However, the proposed plan seeks to minimize hazards posed by coastal bluff retreat, including requiring setbacks for buildings adjacent to coastal cliffs (HZ6.1.1, HZ6.1.2). The draft General Plan does include an action to allow construction that alters natural shoreline processes, but only when required to serve coastal-dependent uses or to protect existing structures or public beaches from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply (HZ6.1.3). Since the City is in the process of updating its Local Coastal Plan as a separate document from the General Plan, the issue of coastal erosion and protective devices will be reviewed in that document.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but some new development accommodated by the plan could be subjected to hazards associated with landslides,

slope stability, and coastal bluff retreat. With implementation of the proposed *General Plan 2030* goals, policies and actions and adherence to local regulations, buildings would be designed with appropriate setbacks, where needed, to minimize damages and reduce exposure to significant risks associated with unstable slopes and/or coastal bluff retreat. Thus, this is a less-than-significant impact.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified. However, deletion of the following *General Plan 2030* action is recommended as is pertains to issues in the coastal zone that will be subject to review as part of the Local Coastal Plan update.

**Recommended Revisions to the *Draft General Plan 2030***

Revise or add policies/actions as indicated below. Deleted text is shown in ~~strikeout~~ typeface, and new text is shown in underlined typeface.

~~HZ6.1.3 Allow construction that alters natural shoreline processes only when required to serve coastal-dependent uses or to protect existing structures or public beaches from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.~~

**Impact 4.10-3: Soil Constraints**
Adoption and Implementation of the proposed *General Plan 2030* would accommodate future development that could result in exposure to soil constraints, such as expansive soils, that could lead to structural damages. With adherence to City regulations, the project would not result in increased risk of exposure to soils constraints. This is considered a *less-than-significant impact*.

Future development accommodated by the proposed *General Plan 2030* would be located on some soil types that may pose constraints to structural development. Expansive soils is one situation, in which soils with high clay content are prone to expansion and contraction, known as "shrink-swell," which can result in damage to building foundations, pavement, and underground utilities. These soils are undesirable for use as engineered fill or subgrade directly underneath foundations or pavement, and must be replaced with non-expansive engineered fill or require treatment to mitigate their expansion potential. Structural designs and construction implementation in accordance with standard geotechnical/soils investigations can mitigate impacts posed by expansive or other unstable soils, i.e. unconsolidated fill. The California Building Code (Chapter 18) requires preparation of a geotechnical report for most new structures, except geotechnical reports are not required for one-story, wood-frame and light-steel-frame buildings of Type II or Type V construction and 4,000 square feet or less in floor area, not located within Earthquake Fault Zones or Seismic Hazard Zones as shown in the most recently published maps from the California Geological Survey (CGS).

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but some new development accommodated by the plan could be subjected to soil constraints from expansive or other unstable soils. With adherence to local and state building codes, buildings would be designed in accordance with recommendations of required geotechnical reports to prevent foundation and other structural damages. Thus, this is a less-than-significant impact.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.10-4: Erosion**
Adoption and Implementation of the proposed *General Plan 2030* would accommodate future development that could result in erosion and inadvertent sedimentation into storm drains or watercourses, if not properly controlled. With adherence to City regulations, the project would not result in substantial soil erosion. This is considered a *less-than-significant impact*.

Future development accommodated by the proposed *General Plan 2030* would be located on some soil types that have a moderate to high potential for erosion when soils are disturbed. These soils are identified in Table 4.10-5 and shown on Figure 4.10-6.

Section 24.16.060, part of the City's Municipal Code's Conservation Regulations, requires an erosion control plan for projects located within high erosion hazard areas as designated in the General Plan or for development on slopes greater than ten percent. It also addresses site development features to minimize erosion. The ordinance requires an erosion control plan for residential development of four or more units, grading in excess of one thousand cubic yards, and nonresidential development with a floor area greater than 10,000 square feet or constructed on slopes in excess of 10 percent. Chapter 18.45, Excavation and Grading Regulations," provides technical regulations for grading and excavation, in conjunction with Chapter 24.14. It establishes guidelines, regulations, and minimum standards for clearing, excavation, cuts, fills, earth moving, grading operations (including cumulative grading), water runoff and sediment control. In addition, the ordinance includes provisions regarding administrative procedures for issuance of permits and approval of plans and inspections during construction and subsequent maintenance. The City revised the Grading Ordinance in April 2004 in order to strengthen the ordinance regarding implementation of BMPs, including those for erosion and sediment control. Implementation of erosion control measures and BMPs during construction of future development would minimize the potential for erosion.

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development could result in erosion without proper erosion control measures during construction. With adherence to

local regulations, erosion control plans will be required, and potential erosion during construction would be minimized. Thus, this is a less-than-significant impact.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

## REFERENCES

California Department of Conservation.

- 2007a. "California Geological Survey - Alquist-Priolo Earthquake Fault Zones." http://www.conservation.ca.gov/cgs/rghm/ap/Pages/Index.aspx
- 2007b. "California Geological Survey – Seismic Hazards Zonation Program Zones." http://www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx

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- Adopted September 11, 2007. *Final City of Santa Cruz Local Hazard Mitigation Plan, 2007-2012*.
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# 4.11 AIR QUALITY

## 4.11.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Regulatory Setting
- Regional Setting & Climate
- Existing Air Quality Conditions
- Air Basin Plans

This section of the EIR evaluates the potential impacts on air quality resulting from the implementation of the proposed *General Plan 2030*. Air quality modeling was conducted by Donald Ballanti, certified meteorologist, and results used in this section are provided in Appendix E.

### REGULATORY SETTING

Air quality within the Monterey Bay region is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy making, education, and a variety of programs. The agencies responsible for improving the air quality within the air basin are discussed below.

#### Federal Regulations

The federal Clean Air Act (CAA) and its amendments establish the National Ambient Air Quality Standards (NAAQS). These standards identify levels of air quality for "criteria" pollutants that are regarded as the maximum levels of ambient (background) air pollutants considered to have an adequate margin of safety needed to protect the public health and welfare. The "criteria pollutants" are ozone ($O_3$), carbon monoxide (CO), nitrogen dioxide ($NO_2$ is a form of $NO_x$), sulfur oxides ($SO_2$ is a form of $SO_x$), particulate matter less than 10 and 2.5 microns in diameter ($PM_{10}$ and $PM_{2.5}$, respectively) and lead. The U.S. Environmental Protection Agency (EPA) Region IX office oversees compliance with the FCAA.

#### State Regulations

##### CALIFORNIA CLEAN AIR ACT

The California Air Resources Control Board (CARB), a department of the California Environmental Protection Agency (CalEPA), oversees air quality planning and control throughout California. Its responsibility lies with ensuring compliance with the California Clean Air Act (CCAA) and its amendments, as well as responding to the FCAA requirements and regulating

emissions from motor vehicles sold in California. It also sets fuel specifications to further reduce vehicular emissions. The amendments to the CCAA establish California Ambient Air Quality Standards (CAAQS) and a legal mandate to achieve these standards by the earliest practicable date. These standards apply to the same criteria pollutants as the FCAA and also include sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride.

### TOXIC AIR CONTAMINANTS

In addition to the California's Ambient Air Quality Standards, toxic air contaminants (TACs) are other pollutants that include carcinogens and noncarcinogens. California regulates TACs through its air toxics program and Air Toxics "Hot Spots" Information and Assessment of the Health and Safety Code. The CARB identifies TACs in conjunction with the State Office of Environmental Health Hazard Assessment (OEHHA). Air quality control agencies, including the Monterey Bay Unified Air Pollution Control District (MBUAPCD), must incorporate air toxic control measures into their regulatory programs or adopt equally stringent control measures as rules within six months of adoption by CARB.

Diesel particulate matter was identified as a toxic air contaminant (TAC) by the state of California in 1998. The CARB developed a comprehensive strategy to control diesel PM emissions, including preparation of the "Diesel Risk Reduction Plan." Once the Diesel Risk Reduction Plan was adopted, the CARB started developing emission regulations for a number of categories of in-use diesel vehicles and equipment. An important part of the Diesel Risk Reduction Plan is a series of measures for various categories of in-use on- and off-road diesel engines, which are generally based on the following types of controls:

- Retrofitting engines with emission control systems, such as diesel particulate filters or oxidation catalysts,
- Replacement of existing engines with new technology diesel engines or natural gas engines, and
- Restrictions placed on the operation of existing equipment.

## Regional Regulations

Regulatory oversight for air quality in the North Central Coast Air Basin ("Basin"), in which the City of Santa Cruz is located, rests at the regional level with the Monterey Bay Unified Air Pollution Control District (MBUAPCD), the CARB at the State level, and the U.S. EPA Region IX office at the Federal level. The MBUAPCD is one of 35 air districts established to protect air quality in California. The North Coast Basin is comprised of Santa Cruz, Monterey and San Benito Counties.

The CCAA requires each nonattainment district in the state to adopt a plan showing how the State Ambient Air Quality Standard for ozone would be met. The CCAA required initial preparation of an Air Quality Management Plan (AQMP) in 1991, with subsequent updates every three years. The MBUAPCD adopted its first AQMP in 1991; the current plan was adopted by the Air District in August 2008.

The MBUAPCD has primary responsibility for local air quality by controlling air pollution from stationary sources of air pollution. The District has adopted a number of rules affecting both stationary and area-wide sources of emissions for the purpose of achieving the State and federal AAQS for ozone.

The MBUAPD also regulates TACs from new or modified sources under Rule 1000 and a Board approved protocol that applies to any source which requires a permit to construct or operate pursuant to District regulations and has the potential to emit carcinogenic or noncarcinogenic TACs. The District's Rule 1000 also requires sources of carcinogenic TACs to install best control technology and reduce cancer risk to less than one incident per 100,000 population. Sources of noncarcinogenic TACS must apply reasonable control technology. The District also implements Rule 1003, Air Toxic Emissions Inventory and Risk Assessments, which establishes and implements the Air Toxics Hot Spots Act. Rule 1003 also requires that any increased cancer risk resulting from an existing facility's emissions is less than one incident per 100,000 population (Monterey Bay Unified Air Pollution Control District, February 2008).

### Local Regulations

The City of Santa Cruz addresses odors and pollutants in its Municipal Code. Section 24.14.264 prohibits emission of odorous gases or matter in quantities readily detectable. Section 24.14.272 prohibits emissions from any source that exceed permissible amounts or limits established by the Monterey Bay Unified Air Pollution Control District.

## REGIONAL SETTING & CLIMATE

The North Central Coast Air Basin (NCCAB), which is just south of the San Francisco Bay Area Air Basin, covers an area of 5,159 square miles and consists of the counties of Santa Cruz, San Benito, and Monterey. Topography and meterology heavily influence air quality. In the project vicinity, the northwest sector of the basin is dominated by the Santa Cruz Mountains. In Santa Cruz County, coastal mountains exert a strong influence on atmospheric circulation, which results in generally good air quality. Small inland valleys such as Scotts Valley with low mountains on two sides have poorer circulation than at Santa Cruz on the coastal plain. In addition, Scotts Valley is downwind of major pollutant generating centers, and these pollutants have time to form oxidants during transit to Scotts Valley. Consequently, air pollutants tend to build up more at Scotts Valley than at Santa Cruz (Monterey Bay Air Pollution Control District February 2008).

The semi-permanent high pressure cell in the eastern Pacific is the basic controlling factor in the climate of the air basin. In the summer, the high pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. Air descends in the Pacific High forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. The warmer air aloft acts as a lid to inhibit vertical air movement (Monterey Bay Air Pollution Control District February, 2008).

The generally northwest-southeast orientation of mountainous ridges tends to restrict and channel the summer onshore air currents. Surface heating in the interior portion of the Salinas and San Benito Valleys creates a weak low pressure which intensifies the onshore air flow during the afternoon and evening. In the fall, the surface winds become weak, and the marine layer grows shallow, dissipating altogether on some days. The air flow is occasionally reversed in a weak offshore movement, and the relatively stationary air mass is held in place by the Pacific High pressure cell, which allows pollutants to build up over a period of a few days. It is most often during this season that the north or east winds develop to transport pollutants from either the San Francisco Bay area or the Central Valley into the NCCAB (Monterey Bay Air Pollution Control District February 2008).

During the winter, the Pacific High migrates southward and has less influence on the air basin. Air frequently flows in a southeasterly direction out of the Salinas and San Benito Valleys, especially during night and morning hours. Northwest winds are nevertheless still dominant in winter, but easterly flow is more frequent. The general absence of deep, persistent inversions and the occasional storm systems usually result in good air quality for the basin as a whole in winter and early spring. (Monterey Bay Air Pollution Control District February 2008).

## EXISTING AIR QUALITY CONDITIONS

### Ambient Air Quality Standards

Ambient air quality standards (AAQS) are set to establish levels of air quality that must be maintained to protect the public from the adverse effects of air pollution. State standards are established to protect public health, including the most sensitive members of the population. National standards include a primary standard to protect public health and a secondary standard to protect the public welfare including property, vegetation and visibility. However, the numerical values for both standards are the same (Monterey Bay Unified Air Pollution Control District, August 2008).

As indicated above, the federal and state governments have established AAQS for six "criteria" pollutants: ozone, carbon monoxide (CO), nitrogen dioxide ($NO_2$), sulfur dioxide ($SO_2$), particulate matter smaller than or equal to 10 microns in diameter ($PM_{10}$) and 25 microns in diameter ($PM_{25}$), and ($SO_2$), particulate matter smaller than or equal to 10 microns in diameter ($PM_{10}$) and 25 microns in diameter ($PM_{25}$), and lead. As indicated above, the state standards also include sulfates, visibility reducing particles, hydrogen sulfide, and vinyl chloride. Current state and national AAQS are shown in Table 4.11-1.

**TABLE 4.11.1**
**National and State Ambient Air Quality Standards**

| Pollutant | Averaging Time | California Standards[b] | | National Standards[c] | | | |
|---|---|---|---|---|---|---|---|
| | | | | Primary[d] | | Secondary[e] | |
| | | ppm | µg/m³ | ppm | µg/m³ | ppm | µg/m³ |
| Ozone | 1 hour | 0.09 | 180 | None[f] | | None | |
| | 8 hours | 0.070 | 137 | 0.08[g] | | 0.08 | |
| | | | | 0.075[h] | | 0.075 | |
| Carbon Monoxide | 8 hours | 9.0 | 10,000 | 9 | 10,000 | 9.0 | 10,000 |
| | 1 hour | 20 | 23,000 | 35 | 40,000 | 35.0 | 40,000 |
| Nitrogen Dioxide[i] | Annual | 0.030 | 56 | 0.053 | 100 | 0.053 | 100 |
| | 1 hour | 0.18 | 338 | | | | |
| Sulfur Dioxide | Annual | | | 0.03 | 80 | | |
| | 24 hours | 0.04 | 105 | 0.14 | | | |
| | 3 hours | | | | | 0.5 | 1,300 |
| | 1 hour | 0.25 | 655 | | | | |
| Respirable Particulate Matter ($PM_{10}$)[j] | Annual | | 20 | | 50 | | 50 |
| | 24 hours | | 50 | | 150 | | 150 |
| Fine Particulate Matter ($PM_{2.5}$)[l] | Annual | | 12 | | 15 | | 15 |
| | 24 hours | | | | 35 | | 35 |
| Lead | Calendar quarter | | | | 1.5 | | 1.5 |
| | 30-day avg | | 1.5 | | | | |
| Sulfate | 24 hours | | 25 | | | | |
| Hydrogen Sulfide | 1 hour | 0.03 | 42 | | | | |
| Vinyl Chloride | 24 hours | 0.010 | 26 | | | | |
| Visibility Reducing Particles | 8 hours (10 a.m.- 6 p.m.) | In sufficient amounts to reduce prevailing visibility to < 10 miles when relative humidity of < 70% with equivalent instrument method | | | | | |

[a] Standards first promulgated in ppm concentrations except where noted. Equivalent µg/m³ concentrations based on reference temperature of 25°C and reference pressure of 760 mm of mercury.
[b] California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide, nitrogen dioxide, $PM_{10}$, and visibility reducing particles are values not to be exceeded.
[c] National standards, other than ozone and those based on annual averages, are not to be exceeded more than once a year.
[d] Designed to protect human health with an adequate margin of safety
[e] Designed to protect public welfare (i.e., prevent damage to vegetation, property, visibility)
[f] On June 15, 2005, EPA revoked the 1-hour standard in the NCCAB.
[g] 1997 Standard – The standard and related implementation rules remain in place during transition to the 2008 8-hour ozone standard.
[h] 2008 Standard - Adopted March 12, 2008.
[i] On February 22, 2007, the Air Resources Board approved staff recommendations to amend the State nitrogen dioxide standard.
[j] $PM_{10}$ refers to respirable particulate matter less than 10 microns in size.
[l] $PM_{2.5}$ refers to respirable particulate matter less than 2.5 microns in size.

**Source:** Monterey Bay Unified Air Pollution Control District, August 2008

## Criteria Air Pollutants

### OZONE

Ozone, the primary constituent of smog, is not directly emitted but is formed in the atmosphere over several hours from combinations of various precursors in the presence of sunlight. Nitrogen oxides ($NO_x$) and volatile organic compounds (VOCs) are considered to be the primary compounds, or precursors, contributing to the formation of ozone. Ozone is viewed as both a secondary pollutant and a regional pollutant. The primary sources of VOC within the planning area are on- and off-road motor vehicles, cleaning and surface coatings, solvent evaporation, landfills, petroleum production and marketing, and prescribed burning. The primary sources of NOx are on- and off-road motor vehicles, stationary source fuel combustion, and industrial processes (Monterey Bay Unified Air Pollution Control District, August 2008). Short-term exposure to ozone results in injury and damage to the lung, decreases in pulmonary function, and impairment of immune mechanisms (Ibid.).

In 2008, daily emissions of VOC and $NO_x$ in the NCCAB were estimated at 76 and 79 tons, respectively, with on-road mobile sources constituting 23% of VOC and 49% of NOx emissions (Monterey Bay Unified Air Pollution Control District, February 2008).

### INHALABLE PARTICULATES

Inhalable Particulates refer to particulate matter less than 10 microns in diameter ($PM_{10}$ and $PM_{2.5}$). In 1997, EPA adopted a fine particulate matter standard of 2.5 microns or less in diameter ($PM_{2.5}$), and CARB adopted an annual $PM_{2.5}$ standard in 2002. $PM_{10}$ and $PM_{2.5}$ are respirable particulate matter that are classified as primary or secondary depending on their origin. Primary particles are unchanged after being directly emitted (e.g., road dust) and are the most commonly analyzed and modeled form of $PM_{10}$. Because it is emitted directly and has limited dispersion characteristics, this type of $PM_{10}$ is considered a localized pollutant. In addition, secondary $PM_{10}$ can be formed in the atmosphere through chemical reactions involving gases.

$PM_{10}$ and $PM_{2.5}$ are respirable particulate matter and because of their small size, they can be inhaled deep into the lungs and are therefore a health concern. Key health effects categories associated with PM include: premature mortality; aggravation of respiratory and cardiovascular disease; changes in lung function and increased respiratory symptoms; and altered respiratory defense mechanisms (Monterey Bay Unified Air Pollution Control District, February 2008).

Major sources of primary particles include fugitive dust from roads and agricultural operations. Secondary particulates are formed in the atmosphere largely by chemical reactions involving gases, e.g., sulfate from directly emitted sulfur oxides. Natural sources of particulates include sea spray, forest fires, volcanic debris, etc. Man-made sources include fuel combustion, industrial processes and transportation. In 2005 daily emissions of $PM_{10}$ were estimated at 102 tons per day. Of this, entrained road dust represented 35% of all $PM_{10}$ emission, windblown dust 20%, ag tilling operations 15%, waste burning 17%, construction 4%, and mobile sources, industrial processes, and other sources made up 9%. Dust is termed "fugitive" when dust escapes into the atmosphere via a non-stack source. This includes wind blown dust from disturbed soil surfaces,

construction sites, agricultural tilling activities, aggregate processing operations and dust raised by vehicles traveling on paved and unpaved roads ( Monterey Bay Unified Air Pollution Control District, February 2008).

### CARBON MONOXIDE (CO)

Carbon monoxide (CO) is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. Because it is directly emitted from combustion engines, carbon monoxide can have adverse localized impacts, primarily in areas of heavy traffic congestion. Because it is emitted directly and has limited dispersion characteristics, CO is considered a localized pollutant (Monterey Bay Unified Air Pollution Control District, February 2008).

When carbon monoxide combines with hemoglobin in the blood, the oxygen-carrying capacity of the blood is reduced and the release of oxygen is inhibited or slowed. This condition puts the following at risk: patients with angina, persons with other cardiovascular diseases, chronic obstructive lung disease, or asthma; persons with anemia, and fetuses. At higher levels, CO also affects the central nervous system. Symptoms of exposure may include headaches, dizziness, sleepiness, nausea, vomiting, confusion, and disorientation (Monterey Bay Unified Air Pollution Control District, February 2008). At high concentrations, CO can reduce the oxygen-carrying capacity of the blood and cause unconsciousness and death.

Carbon monoxide emissions in the NCCAB were estimated at 446 tons per day in 2005 with motor vehicles contributing approximately 47% of total emissions. Electric utilities, fires, and other mobile and miscellaneous sources contributed to the remainder (Monterey Bay Unified Air Pollution Control District, February 2008).

### OTHER POLLUTANTS

**Toxic Air Contaminants**. Toxic air contaminants (TACs) are other pollutants that include carcinogens and noncarcinogens which may be expected to result in an increase in mortality or serious illness or pose hazards to human health. There are hundreds of different types of TACs, with varying degrees of toxicity. Additionally, some of the TACs may cause other health effects over short- or long-term exposure. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle engine exhaust. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases of hazardous materials during upset spill conditions. Health effects of TACs include cancer, birth defects, neurological damage and death. TACs can cause various cancers, depending on the particular chemicals, their type and duration of exposure.

**Diesel Particular Matter**. Diesel particulate matter was identified as a toxic air contaminant (TAC) by the state of California in 1998. Mobile sources (including trucks, buses, automobiles, trains, ships and farm equipment) are by far the largest source of diesel emissions. Following the identification of diesel as a TAC, the California Air Resources Board developed a comprehensive strategy to control diesel PM emissions. The "Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles"—a document approved by ARB in September 2000—set goals to reduce diesel PM emissions in California by 75% by 2010 and 85% by 2020. This objective would be achieved by a combination of approaches

(including emission regulations for new diesel engines and low sulfur fuel program). An important part of the Diesel Risk Reduction Plan is a series of measures for various categories of in-use on- and off-road diesel engines, which are generally based on the following types of controls:

- Retrofitting engines with emission control systems, such as diesel particulate filters or oxidation catalysts,
- Replacement of existing engines with new technology diesel engines or natural gas engines, and
- Restrictions placed on the operation of existing equipment.

Once the Diesel Risk Reduction Plan was adopted, the ARB started developing emission regulations for a number of categories of in-use diesel vehicles and equipment. In July 2007, the ARB adopted regulations for in-use, off-road diesel vehicles that will significantly reduce particulate matter emissions by requiring fleet owners to accelerate turnover to cleaner engines and install exhaust retrofits.

**Odors**. Odors represent emissions of one or more pollutants that are a nuisance to healthy persons and may trigger asthma episodes in people with sensitive airways. Pollutants associated with objectionable odors include sulfur compounds and methane. Typical sources of odors include landfills, rendering plants, chemical plants, agricultural uses, wastewater treatment plants, and refineries. Odors are a complex problem that can be caused by minute quantities of substances (Monterey Bay Unified Air Pollution Control District, February 2008). Because people have mixed reactions to odors, the nuisance level of an odor varies.

## Local Ambient Air Quality & Attainment Status

Ambient air quality is monitored at nine stations within the NCCAB. The network includes seven stations operated by the MBUAPCD, one station operated by the National Park Service at the Pinnacles National Monument and one station operated by an industry group in King City. The monitoring stations operated by the MBUAPCD are part of the State and Local Air Monitoring Systems (SLAMS) network, and are located in Salinas, Hollister, Santa Cruz, Watsonville, Scotts Valley and Carmel Valley. The stations operated at Davenport, King City and Pinnacles are referred to as Special Purpose sites because they provide information on the impact of specific sources, or to gauge air quality impacts on national resources, such as national Parks (Monterey Unified Air Pollution Control District, August 2008). The nearest monitoring stations to the city of Santa Cruz are the Davenport and Santa Cruz monitoring stations; the Santa Cruz station is located in Soquel.

Designations in relation to state standards are made by the CARB while designations in relation to national standards are mad by the EPA. State designations are updated annually while the national designations are updated when either the standards change or when an area requests re-designation due to changes in air quality. Designations are made by air basin and in some cases, designations are made at the county level (Monterey Unified Air Pollution Control District, August 2008). Designations are made for each criteria pollutant according to the categories listed below. Nonattainment designations are of most concern because they indicate that

unhealthy levels of the pollutant exist in the area, which typically triggers a need to develop a plan to achieve the applicable standards (Ibid.).

- **Attainment** – Air quality in the area meets the standard.
- **Nonattainment Transitional** – Air quality is approaching the standard (State only).
- **Nonattainment** – Air quality in the area fails to meet the applicable standard.
- **Unclassified** – Insufficient data to designate area or designations have yet to be made.

Table 4.11-2 summarizes the attainment status for criteria pollutions in the NCCAB. The Basin is currently in attainment for the federal $PM_{10}$ standard and state and federal nitrogen dioxide, sulfur dioxide and carbon monoxide standards. The basin is considered attainment or unclassified for other national standards and non-attainment for the 1-hour state ozone standard and for the state $PM_{10}$ standard. The NCCAB does not meet the State $PM_{10}$ standard although it is in attainment for the state $PM_{2.5}$ standard.

**TABLE 4.11-2**
**Attainment Status for the North Central Coast Air Basin – January 2009**

| Pollutant | State | Federal |
|---|---|---|
| Ozone ($O_3$) | **Nonattainment** [1] | Attainment [2] |
| Inhalable Particulates ($PM_{10}$) | **Nonattainment** | Attainment |
| Fine Particulates ($PM_{2.5}$) | Attainment | Unclassified/Attainment [3] |
| Carbon Monoxide (CO) | Monterey Co. – Attainment<br>San Benito Co. – Unclassified<br>Santa Cruz Co. - Unclassified | Attainment |
| Nitrogen Dioxide ($NO_2$) | Attainment | Attainment |
| Sulfur Dioxide ($SO_2$) | Attainment | Attainment |
| Lead | Attainment | Unclassified/Attainment [4] |

[1] Effective July 26, 2007, the ARB designated the NCCAB a nonattainment area for the State ozone standard, which was revised in 2006 to include an 8-hour standard of 0.070 ppm.
[2] On March 12, 2008, EPA adopted a new 8-hour ozone standard of 0.075 ppm, while temporarily retaining the existing 8-hour standard of 0.08 ppm. EPA is expected to issue new designations by March 2010.
[3] In 2006, the Federal 24-hour standard for PM2.5 was revised from 65 to 35 ☐g/m3. Although final Designations have yet to be made, it is expected that the NCCAB will remain designated unclassified/attainment.
[4] On October 15, 2008 EPA substantially strengthened the national ambient air quality standard for lead by lowering the level of the primary standard from 1.5 ☐g/m3 to 0.15 ☐g/m3. Initial recommendations for designations are to be made by October 2009 with final designations by January 2012.

**SOURCE:** Monterey Bay Unified Air Pollution Control District website: http://www.mbuapcd.org/programs/planning

In 1997, a federal 8-hour ozone standard of 0.08 ppm was adopted by EPA. This standard replaced the prior federal 1-hour standard. In 2004, the NCCAB was designated as an attainment area for the federal 8-hour standard with an obligation to develop a maintenance plan. Maintenance of the federal standard is addressed in the District's 2007 Federal

Maintenance Plan for the Monterey Bay Region, which was adopted in March of 2007 (Monterey Bay Unified Air Pollution Control District, August 2008), and is summarized further below in the "Regional Plans" subsection.

In 2006, the CARB revised the State AAQS for ozone to include an eight-hour average of 0.070 ppm, while retaining the existing one-hour standard at 0.09 ppm. This standard is more stringent than the federal standard both in terms of concentration and the level of precision. Both the one and eight-hour components of the State standard must be met in order for the standard to be achieved. The NCCAB is a nonattainment area for the State standard (Monterey Bay Unified Air Pollution Control District, August 2008).

The state 8-hour standard is more protective of public health than both the prior 1-hour standard and the national 8-hour standard. With natural background representing about half the level of the stringent 8-hour ozone standard, the introduction of the 8-hour average significantly increases the number of exceedances recorded at the District's monitoring stations (Monterey Bay Unified Air Pollution Control District, August 2008). Overall, there has been a declining trend in exceedances, although there can be considerable year–to-year variation, particularly for 8-hour exceedances. The year-to-year variations tend to be driven by year-to-year variations in weather, while the overall decline tends to be driven by a reduction in emissions across the region. The majority of the exceedance days (<80% based on 2003 to 2005 data) occur at Pinnacles (Ibid.).

As previously indicated, ozone is formed by a photochemical reaction between volatile organic compounds and the oxides of nitrogen in the presence of sunlight. Consequently, ozone tends to be seasonal pollutant which develops primarily in the summertime when the sunlight is strongest. Statewide, the "ozone season" is considered the months May through October. Most NCCAB exceedances follow the typical May through October pattern (Monterey Bay Unified Air Pollution Control District, August 2008). However, with the introduction of the 8-hour state standard, exceedances become much more frequent and start as early as April. While the seasonal exceedance patterns for both the 1 and 8-hour criteria are similar, the 8-hour standard greatly increases the number of exceedances and causes the ozone season to start earlier (Ibid.).

### Sensitive Receptors

A sensitive receptor is generically defined as any residence including private homes, condominiums, apartments, and living quarters; education facilities such as preschools and kindergarten through grade twelve (k-12) schools; daycare centers; and health care facilities such as hospitals or retirement and nursing homes. Sensitive receptors include long-term care hospitals, hospices, prisons, and dormitories or similar live-in housing. The MBUAPCD's "CEQA Guidelines" include identification of sensitive receptors in the vicinity of a project site as part of the CEQA review with an analysis of whether a project would expose sensitive receptors to significant amounts of pollution as a part of the CEQA analysis for proposed projects. This includes sensitive receptors near roadways and intersections that could be significantly impacted by the project's traffic and carbon monoxide emissions.

As discussed in the LAND USE (Chapter 4.1) section of this EIR, nearly 40% of existing land uses within the city are residential, which would be considered sensitive receptors. Other sensitive

receptors include schools, daycare centers and health care facilities throughout the city. There are no hospitals located within city limits.

## AIR BASIN PLANS

### Air Quality Management Plan

The 1991 AQMP for the Monterey Bay Area was the first plan prepared in response to the California Clean Air Act of 1988 that established specific planning requirements to meet the ozone standard. The Act requires that the AQMP be updated every three years. The current AQMP, adopted in 2008, is the fifth update to the 1991 AQMP with the first four updates completed in 1994, 1997, 2000 and 2004, respectively.

The air basin is a nonattainment area for the State Ambient Air Quality Standards for both ozone and inhalable particulate matter ($PM_{10}$). The AQMP addresses only attainment of the State ozone standard. Attainment of the State $PM_{10}$ standard is addressed in the District's plan Particulate Plan, which was adopted in December 2005 and is summarized further below. Maintenance of the national eight-hour standard for ozone is addressed in the District's "Federal Maintenance Plan for the Monterey Bay Region", which was adopted in March 2007 and also is summarized below.

The 2008 AQMP is a transitional plan shifting focus of the MBUAPCD's efforts from achieving the 1-hour component of the State AAQS to achieving the new 8-hour requirement. The plan includes an updated air quality trends analysis, which now reflects both the 1- and 8-hour standards, as well as an updated emission inventory, which includes the latest information on stationary, area and mobile emission sources (Monterey Bay Unified Air Pollution Control District, August 2008).

The AQMP's emission inventory, a key component of the plan, is an estimate of the amount of ozone precursors emitted into the air each day by man-made (anthropogenic) activities. The inventory represents emissions of VOCs and NOx (tons per day) on a typical weekday during the May through October ozone season. The inventory includes stationary sources, area-wide sources and mobile sources. Stationary sources include typically large facilities such as power plants or cement plants, while area-wide sources include an aggregate of individually smaller sources, which when grouped together have significant emissions such as consumer products or residential fuel consumption. Mobile sources consist of the numerous cars and trucks that travel the streets and highways of the NCCAB, as well as other mobile sources such as off-road agricultural and construction equipment, trains and aircraft (Monterey Bay Unified Air Pollution Control District, August 2008).

The emissions forecasts consider growth factors, such as population, housing, employment, industrial output, vehicle miles traveled, etc., developed by state and local agencies, such as AMBAG. These growth factors are used to estimate forces which increase emissions, while "control factors" estimate the offsetting effect of emissions controls (Monterey Bay Unified Air Pollution Control District, August 2008). The AQMP indicates that despite a significant overall increase in population of over 360,000 persons within the NCCAB between 1990 and 2030 (59% increase), emissions are expected to decrease by over 130 tons/day (55% decrease).

This demonstrates a major success for regional control strategies in that despite a significant increase in population, emissions are expected to decline significantly. This is largely due to reductions in tail-pipe emissions from motor vehicles as well as the application of clean air technologies on power plants (Ibid.).

The 2008 AQMP includes five control measures from the 2004 AQMP, whose development was put on hold pending our progress toward achieving the 1-hour standard. Since the introduction of the 8-hour standard the area has reverted to nonattainment, the 2008 AQMP proposes to follow through on development of these previously adopted measures. The five measures include:

- A1 - Solvent Cleaning Operations
- A2 - Degreasing Operations
- A3 - Spray Booths - Miscellaneous Coatings and Cleanup Solvents
- A4 - Adhesives and Sealants
- A5 - Natural Gas-Fired Fan-Type Central Furnaces and Residential Water Heaters

The 2008 AQMP also updates the description of the area's Transportation Control Measures (TCMs) and mobile source emission reduction programs. The AQMP further proposes to evaluate any co-pollutant benefits in terms of reducing ozone precursors achieved under climate change bill AB 32.

## Federal Maintenance Plan

The "Federal Maintenance Plan" (May 2007) plan presents the strategy for maintaining the NAAQS for ozone in the NCCAB. It is an update to the 1994 Federal Maintenance Plan, which was prepared for maintaining the 1-hour NAAQS for ozone that since has been revoked and is superseded by the current 8-hour ozone standard. Effective June 15, 2004, the U.S. EPA designated the NCCAB as an attainment area for the 8-hour NAAQS for ozone. The plan includes an emission inventory for the years 1990 to 2030 for VOC and $NO_X$, the two primary ozone precursor gases as explained above. A contingency plan is included to ensure that any future violation of the standard is promptly corrected (Monterey Bay Unified Air Pollution Control District, May 2007).

## Particulate Matter Plan

The purpose of the "Particulate Matter Plan" (December 2005) is to fulfill the requirements of Senate Bill 655, which was approved by the California Legislature in 2003 with the objective of reducing public exposure to particulate matter. The legislation requires CARB, in conjunction wit local air pollution control districts, to adopt a list of the most readily available, feasible and cost-effective control measures that could be implemented by air pollution control districts to reduce ambient levels of particulate matter in their air basins (Monterey Bay Unified Air Pollution Control District, December 2005). The Plan's proposed activities include control measures for fugitive dust, public education, administrative functions, and continued enhancements to the Air District's Smoke Management and emission reduction incentive programs.

The Plan includes review of the basin's air monitoring emissions data with characterization of sources that likely cause or contribute to monitored violations of the standard in the NCAAB. The major cause of exceedances in the NCCAB is naturally occurring sea salt, without which, three quarters of all exceedances in the NCCAB would not have occurred (Monterey Bay Unified Air Pollution Control District, December 2005). There are no planning requirements associated with sea salt, and the remaining exceedances are relatively infrequent and not substantially above the standard (Ibid.).

For the smaller group of exceedances which remain where sea salt was not a major contributor, the causes were likely related to fugitive dust from a variety of sources, including entrained road dust, especially from unpaved roads, wind blow dust from disturbed soil and unpaved surfaces, construction activities and agricultural sources and exposed agricultural lands (Monterey Bay Unified Air Pollution Control District, December 2005). Fugitive dust from cement manufacturing and handling, as well as smoke form wildland fires, also contribute to exceedances of the standard at times (Ibid.).

## 4.11.2 RELEVANT PROJECT ELEMENTS

### PROPOSED GOALS, POLICIES & ACTIONS

The proposed *General Plan 2030* includes goals, policies and actions that address natural resources and several address air quality in particular. Policy LU1.2 seeks to prevent air pollution from new development, and Policy HZ2.1 strives to exceed air standards. Policy HZ2.2 and its associated actions address localized air quality issues, including indoor air quality, and sets forth directives to require air quality mitigations for new projects and major indirect sources of air pollution.

Goal NRC4 with its four polices and accompanying actions address climate change to attain greenhouse emissions reductions goals, which is reviewed in the GLOBAL CLIMATE CHANGE (Chapter 4.12) section of this EIR. Additionally, a number of policies are directed to reducing automobile trips and creating sustainable development and land use patterns, which would also result in reduction of automobile trips, and thus, emissions as reviewed in the TRAFFIC AND TRANSPORTATION (Chapter 4.4) section of this EIR.

### FUTURE DEVELOPMENT POTENTIAL

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan / Local Coastal Program, except for three new mixed use land designations have been developed and applied to the following major transportation corridors: Mission Street, Ocean Street, Soquel, Avenue, and Water Street. Additionally, land use designation changes are proposed for three specified sites: Swenson, Golf Club Drive area, and an addition to the Dimeo Lane landfill site. The Swenson and Golf Club Drive sites are designated for residential uses. A 5.5-acre parcel immediately south of and adjacent to the

City's Landfill and Resource Recovery Center on Dimeo Lane is proposed to be annexed to the City. It is expected that future uses would be ancillary to the landfill and Resource Recovery Center uses; specific uses have not yet been identified and will be determined in the future. However, the parcel is not planned for expansion of the landfill disposal operations (Arman, personal communication, April 2010).

The *General Plan 2030* continues to include an industrial land use designation in the same areas currently designated industrial (Westside and Harvey West). Some of the draft *General Plan 2030* policies and actions support certain types of land uses and/or development and/or intensified redevelopment. Light industrial and "creative" industrial uses are encouraged in the Harvey West area (LU3.2.3), and "incubator" uses are specified for the Westside industrial area (LU3.2.4). Policy ED6.1.1 supports the establishment of industries and "lifestyle businesses" that draw on Santa Cruz's natural assets and environment. Action ED4.2.2 seeks to "preserve existing and seek new industries and businesses at the cutting edge of science and technology."

The *General Plan 2030* supports some specified new or improved community facilities. The draft plant supports development of a desalination plant (LU3.1.3) as part of the actions outlined to implement the City's adopted *Integrated Water Plan* (see the WATER SUPPLY [Chapter 4.5] section of this EIR for further discussion of the planned desalination facility).

## 4.11.3 IMPACTS AND MITIGATION MEASURES

### CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

11a Conflict with or obstruct implementation of the air quality management plan;

11b Violate any air quality standards or contribute substantially to an existing or projected air quality violation;

11c Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;

11d Expose sensitive receptors (i.e. residents, schools, hospitals) to substantial pollutant concentrations, i.e. those that exceed the MBUAPCD standards identified above and/or toxic air contaminants that exceed health exposure rates; or

11e Create objectionable odors in substantial concentrations, affecting a substantial number of people, which could result in injury, nuisance or annoyance to a considerable number of persons or would endanger the comfort, health or safety of the public.

## IMPACT ANALYSIS

Based on the significance criteria identified above, the following impact analyses address potential conflicts with the air quality management plan (11a); pollutant emissions and potential violation of an air quality standard (11b, 11c); exposure of sensitive receptors to substantial pollutant concentrations (11d); and creation of objectionable odors (11e).

### Potential Future Development & Buildout

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased new development. However, the draft General Plan includes policies and a land use map that support additional development. The proposed General Plan would accommodate future development. As described in the PROJECT DESCRIPTION and LAND USE sections of this EIR (Chapters 3.0 and 4.1, respectively), buildout projections were estimated for the draft General Plan to provide an estimate of the amount of development that is expected to occur by the year 2030. The projected development includes 3,350 additional residential dwelling units with an associated population increase of 8,040 residents as discussed in the POPULATION AND HOUSING (Chapter 4.2) section of this EIR. The buildout projections estimate 3,140,000 additional square feet of commercial, office and industrial uses by the year 2030.

**Impact 4.11-1 Consistency with AQMP**
Adoption and implementation of the General Plan 2030 could indirectly result in increased population associated with potential development that would be accommodated by the Plan. The increased population would exceed population estimates in the Air Quality Management Plan in 2030, and thus the project would be inconsistent and conflict with the AQMP. This is considered a *potentially significant impact*.

Adoption and implementation of the proposed *General Plan 2030* would not obstruct implementation of the region's "Air Quality Management Plan" (AQMP) as the AQMP is independently developed and implemented by the MBUAPCD. However, the State CEQA Guidelines §15125(d) requires that an EIR discuss consistency between a proposed project and applicable regional plans, including the AQMP. The MBUAPCD's "CEQA Guidelines" consider inconsistency with the AQMP to be a significant cumulative adverse air quality impact.

The AQMP is prepared to address attainment of the State ozone AAQS and maintenance of the federal ozone AAQS. The plan accommodates growth by projecting growth in emissions based on different indicators. For example, population forecasts adopted by AMBAG are used to forecast population-related emissions. Through the planning process, emissions growth is offset by basinwide controls on stationary, area, and transportation sources of air pollution (Monterey Bay Unified Air Pollution Control District, February 2008). Thus, population-related emissions have been forecast in the AQMP using population forecasts adopted by AMBAG, and population-changing projects which are consistent with these forecasts are consistent with the AQMP. Projects which are not consistent with the AQMP's population projections have not been accommodated in the AQMP and would have a significant cumulative impact on regional air

quality unless emissions are totally offset (Monterey Bay Unified Air Pollution Control District, February 2008).

Consistency of indirect emissions associated with a commercial, industrial or institutional projects intended to meet the needs of the population as forecast in the AQMP is determined by comparing the estimated current population of the county in which the project is to be located with the applicable population forecast in the AQMP. If the estimated current population does not exceed the forecasts, indirect emissions associated with the project are deemed to be consistent with the AQMP (Monterey Bay Unified Air Pollution Control District, February 2008).

As indicated above, the proposed *General Plan 2030* would not directly result in increased population. However, the draft General Plan includes policies and a land use map that support additional development. Based on estimates provided by the City's land use consultant as described in the LAND USE (Chapter 4.1) section of this EIR and summarized above, potential residential development that could be accommodated in the draft *General Plan 2030* could result in a population increase of approximately 8,040 residents between 2009 and 2030.[1] This would result in a total city population of 67,022 in the year 2030 over 58,982 residents in 1990. This population is slightly higher (about 1,140 residents) than the AMBAG forecast of 65,884 residents in the year 2030, but is less than AMBAG's projection of 67,807 residents in the City in 2035.

Estimated population growth indirectly resulting from the proposed *General Plan 2030* represents an average annual growth rate of 0.65%, which is slightly lower than historical growth rates experienced in the City since 1990 (0.9%), but similar to the AMBAG forecast growth rate forecast between 2010 and 2030 (0.56%) as discussed further in the POPULATION & HOUSING (Chapter 4.2) section of this EIR. The increase over AMBAG projected levels (approximately 55 additional persons per year averaged over the 20-year General Plan horizon) is not considered substantial. Nonetheless, at some point after 2020 or 2025, the City's population may exceed population projections developed by AMBAG and included in the AQMP.

AMBAG population projections and the MBUAPCD's emissions forecasts and AQMP are updated regularly to account for changes in population and air quality trends. Since potential inconsistencies with the AQMP's population projections would not occur for at least 10 years, there is an opportunity for subsequent updates to reflect the City's anticipated population associated with potential buildout of the *General Plan 2030*. The City has requested that the regional forecasts be updated to reflect growth envisioned in the draft General Plan, and the MBUAPCD has concurred with this approach.

During the preparation of this Draft EIR, the MBUAPCD approved a new consistency procedure in June 2011. The new procedure, which is effective September 1, 2011. uses AMBAG's adopted housing unit forecast instead of the population forecast, and the MBUAPCD has developed a spreadsheet to assist jurisdictions with developing calculations (Monterey Bay Unified Air Pollution Control District, July 2011).The AMBAG forecasts show an increase of 2,413 dwelling units between 2009 and 2030 as discussed in Chapter 4.2 of this EIR, whereas

[1] Based on an average household size of 2.4 people, as discussed in the POPULATION & HOUSING (Chapter 4.2) section of this EIR.

the projected buildout from the proposed *General Plan 2030* would result in development of 3,350 housing units. Under the new procedure, the proposed project would also be inconsistent with the AQMP, although the increase in housing units under the proposed plan represents an average annual growth rate of approximately 0.7%, which is less than the historic average annual rate of about 1.1% experienced between 1990 and 2009.

The proposed *General Plan 2030* also includes a number of policies and actions that serve to reduce vehicle emissions (30% by 2020 per NRC4.1.3), support alternative transportation, and support sustainable land use patterns, all of which would help contribute to a reduction in vehicle emissions. Table 4.11-3 summarizes policies that directly or indirectly avoid or reduce air pollutant emissions and impacts.

**Conclusion.** The estimated General Plan buildout could result in indirect population and housing unit increases that exceed current AMBAG forecasts used in the Monterey Bay Unified Air Pollution Control District's *Air Quality Management Plan*. Therefore, according to MBUAPCD's CEQA Guidelines, this inconsistency between growth forecasts of the proposed *General Plan 2030* and the current AQMP would be considered a significant impact. However, the population growth and housing unit increase exceedance would not occur for at least 10+ years, if it occurs at all, and the potential population accommodated under the *General Plan 2030* represents a growth rate of approximately 0.6% (approximately 55 additional persons per year), which is slightly less than the historical rate experienced in the City since 1990, but similar to the rate in AMBAG's current population forecast (0.56%). Similarly, the potential housing units accommodated under the *General Plan 2030* represents a growth rate of approximately 0.7% (approximately 45 additional residential units per year), which is slightly less than the historical rate experienced in the City since 1990 (1.1%). MBUAPCD has future updates to regional forecasts, and updates of the AQMP can be made to incorporate updated City population and housing unit projections. Furthermore, the *General Plan 2030* includes several policies and actions that, when implemented, would reduce vehicle miles traveled and thus, air pollutant emissions from vehicle trips, which is consistent with the goals of the MBUAPCD's AQMP.

### Mitigation Measures

Implementation of the following mitigation measure will reduce the impact to a less-than-significant level.

**MITIGATION 4.11-1** The City shall work with the MBUAPCD and AMBAG and request that AMBAG's next population and housing forecast for the city of Santa Cruz and MBUAPCD's next *Air Quality Management Plan* be updated to reflect potential growth that could be accommodated by the General Plan 2030.

**TABLE 4.11-3**
**Proposed General Plan Policies & Actions that Reduce Air Emissions & Air Quality Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| MEET AIR QUALITY STANDARDS and DEVELOPMENT REVIEW & MITIGATION | • Strive to exceed air quality standards: HZ2.1<br>• Address air quality issues: HZ2.2<br>• Ensure development does not create air pollution through project-level environmental review process: LU 1.2, LU1.2.1<br>• Require project-development mitigation: HZ2.2.1, HZ2.2.2<br>• Encourage green, sustainable industries and businesses that don't pollute: ED6.2, ED6.2.1, ED6.2.2<br>• Recycle/eliminate Chlorofluorocarbons (HZ2.1.3) & strive to eliminate polystyrene foam (HZ2.1.4)<br>• Implement Smoking Pollution Control Ordinance: HZ2.2.5 |
| REDUCE AUTO / VEHICLE TRIPS & EMISSIONS | • Vehicle emissions reduced 30% by 2020: NRC4.1.3<br>• Reduce auto dependence, vehicle trips and peak hour trip & increase vehicle occupancy: M1.1, M3.1, M3.1.1, M3.1.2<br>• Encourage employment-related strategies (i.e., flex-time, telecommuting, parking management, ridesharing): M3.1.7, M3.1.8, M.2.1.9<br>• Encourage public education programs to reduce transportation-related emissions and pollutants: HZ2.2.4 |
| PROTECT SENSITIVE RECEPTORS | • Locate sensitive receptors from major air pollution sources or require mitigation: HZ2.2.3 |
| SUPPORT ALTERNATIVE TRANSPORTATION MODES TO REDUCE EMISSIONS | • Plan and support alternative transportation options, modes and strategies: NRC4.4.2.<br>• Encourage use of alternative transportation modes: M.2.1.2<br>• See TABLE 4.4-4 IN THE TRANSPORTATION & TRAFFIC section of this EIR (Chapter 4.4) for a complete list |
| SUPPORT LAND USE PATTERNS TO REDUCE VEHICLE TRIPS & EMISSIONS | • Reduce auto use with pedestrian/transit-oriented activity centers & development centers (M1.1), Expand neighborhood facilities (LU4.3, LU4.3.1), and Encourage land use changes that reduce auto use: LU4.2)<br>• Encourage home occupations & telecommuting: LU4.4, LU4.4.1 and Live-work units: LU4.1.4, HA4.4 (artists)<br>• Ensure optimum utilization of infill parcels (LU1.1, LU1.1.1) and Consolidation of Parcels (LU1.1.2)<br>• Encourage mixed uses: LU3.5 (Lower Pacific), LU3.6 (River) , LU3.10 & LU3.10.1 (commercial uses allowed in all districts), LU4.1.1, LU4.2.2 (new districts) & Encourage assembly of small parcels along transit: CD3.3, CD3.3.1, CD3.3.2<br>• See TABLE 4.4-4 IN THE TRANSPORTATION & TRAFFIC section of this EIR (Chapter 4.4) for a complete list |

**Impact 4.11-2 Increased Emissions of Criteria Pollutants**
Adoption and implementation of the proposed *General Plan 2030* could indirectly result in emissions of criteria pollutants due to new development that would be accommodated by the Plan within an air basin that currently exceeds state standards for ozone and $PM_{10}$. However, emissions of criteria pollutants are expected to decrease in the future, and new emissions would not contribute to potential air quality violations. Additionally, with implementation of proposed *General Plan 2030* policies and actions and adherence to regional guidelines for future project-level reviews, indirect emissions resulting from buildout under the Plan would not be expected to substantially increase ozone precursors and particulate matter or result in air quality violations. This is considered a *less-than-significant impact*.

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased population or new development. However, the draft General Plan includes policies and a land use map that support additional development. This potential development, as summarized in subsection 4.11.2 above, could result in mobile sources of emissions associated with vehicle trips, as well as project-level construction-related emissions, as discussed below. The proposed General Plan does not identify or support any major new potential stationary emission sources.

### Future Project-Level Stationary Emissions

Some of the draft *General Plan 2030* policies and actions support certain types of land uses and/or development, including new mixed-use use districts and/or intensified redevelopment. The *General Plan 2030* continues to include an industrial land use designation in the same areas currently designated industrial (Westside and Harvey West). Light industrial and "creative" industrial uses are encouraged in the Harvey West area (LU3.2.3), and "incubator" uses are specified for the Westside industrial area (LU3.2.3). Depending on the specific use, some industrial uses can result in a stationary source of emissions. However, Policy ED6.1.1 supports the establishment of industries and "lifestyle businesses" that draw on Santa Cruz's natural assets and environment. Additionally, Policy ED6.2 encourages and supports "green" and environmentally-oriented businesses to locate in Santa Cruz. Furthermore, the draft plan supports "green" and sustainable commercial and industrial operating practices (ED6.2.2) and encourages businesses that "don't pollute" (ED6.2.3). Overall, the types of industries and businesses supported in the draft *General Plan 2030* are not significant sources of stationary emissions.

The draft plan supports specific land uses, such as directing large regional retail uses to the Harvey West area (LU3.2.8), encouraging a performing arts center downtown (HA2.2.5), attracting a "top-end" hotel (ED1.5.2), and encouraging development of neighborhood facilities, such as parks, schools daycare centers and neighborhood commercial services. None of these types of uses would be expected to result in significant stationary sources of emissions.

The draft plan does support development of a desalination plant (LU3.1.3) as part of the actions outlined to implement the City's adopted *Integrated Water Plan* (IWP) (see the WATER

SUPPLY [Chapter 4.5] section of this EIR for further discussion of the planned desalination facility). A program EIR prepared for the IWP also reviewed potential impacts of a desalination facility, but did not identify stationary sources as a potentially significant air quality impact (EDAW, June 2005). This type of facility is not expected to be a source of stationary emissions, except for potential intermittent use of back-up generators in the event of a power outage. (See the WATER SUPPLY (Chapter 4.4) of this EIR for further discussion of potential impacts related to construction and operation of a desalination facility.)

The MBUAPCD regulates stationary emissions through its Rule 200. This rule applies to "any person who builds, erects, alters, or replaces any article, machine, equipment or other contrivance which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants."

## Future Project-Level Operational Emissions

The primary operational emissions associated with the proposed project are ozone precursors, particulate matter ($PM_{10}$ and $PM_{2.5}$), carbon monoxide (CO) and carbon dioxide (CO2), primarily emitted as vehicle exhaust for ozone precursors and CO. New development accommodated by the general plan could affect air quality by increasing ozone precursor and particulate matter emissions for an area that already exceeds ambient air quality standards.

As indicated above, the primary sources of the ozone precursor, VOC within the planning area, are on- and off-road motor vehicles, cleaning and surface coatings, solvent evaporation, landfills, petroleum production and marketing, and prescribed burning. Major sources of primary particles include fugitive dust from roads and agricultural operations. Secondary particulates are formed in the atmosphere largely by chemical reactions involving gases, e.g., sulfate from directly emitted sulfur oxides. Construction-related activities associated with future development projects would be the primary source of $PM_{10}$ emissions.

Mobile source emissions would be associated with new vehicle trips. The estimated *General Plan 2030* buildout could result in an increase of 78,236 new average daily trips (ADT). However, vehicular emission rates are anticipated to lessen in future years due to continuing improvements in automobile and fuel efficiency programs implemented by the state of California (Monterey Bay Unified Air Pollution Control District, August 2008). Additionally, as previously indicated, the MBUAPCD's existing AQMP forecasts a substantial reduction in emissions over the next 20-year period.

Emissions were modeled as part of the preparation of this EIR. The URBEMIS model was run for part of the calculation of greenhouse gas emissions (carbon dioxide), and the results also include criteria pollutant emissions. The model was run for the project for both the baseline year and buildout year. The results show a substantial decrease in emissions, which supports the Air District's conclusion of expected reductions in emissions in the future.

The EMFAC 2007 program was used to generate emissions factors for Santa Cruz for vehicular emissions. The methodology involved developing estimates of Vehicle Miles Travelled (VMT) within city limits and multiplying by an annual average emission factor derived from the EMFAC-2007 program. The results are shown in Table 4.11-4. Ozone precursors (ROG and $NO_x$) and CO show substantial reductions by 2030 despite anticipated increases in VMT due to

reductions in per-mile emission rates for the 2030 vehicle fleet. (See summary in Appendix E for further details.) This decrease would have the effect of offsetting indirect emissions generated as a result of development accommodated by the proposed *General Plan 2030*. Thus, the project would not result in emission levels that would potentially contribute to air quality violations for ozone precursors.

**TABLE 4.11-4**
**Criteria Pollutant Emissions**

| Year | Daily Average Emissions in Pounds/Day | | | |
|---|---|---|---|---|
| | ROG | CO | $NO_x$ | $PM_{10}$ |
| Citywide Emissions - 2008 | 328.6 | 6,854.1 | 1,194.6 | 40.0 |
| Citywide Emissions - 2030 | 82.8 | 1,997.6 | 332.93 | 45.8 |
| Change | -245.8 | -4,856.5 | -861.7 | +5.8 |

**Source:** Donald Ballanti, August 2011

Future emissions, however, would result in a net increase in $PM_{10}$ emissions with a potential to contribute to future air quality violations. However, the MBUAPCD's CEQA Guidelines include significance criteria for development projects so that daily thresholds are not exceeded. Future review and compliance with these standards (as discussed further below) would ensure that thresholds for $PM_{10}$ are not exceeded.

Increased traffic also would result in a reduction of intersection levels of service (LOS) to unacceptable levels (below D) at 11 intersections or a significant worsening at 10 intersections currently operating at unacceptable levels of service if no improvements are made (as discussed in the TRANSPORTATION & TRAFFIC [Chapter 4.4] section of this EIR). This would contribute to localized carbon monoxide emissions. However, intersection improvements identified in the City's Traffic Impact Fee Program or identified in this EIR (see Chapter 4.4) would improve LOS to acceptable levels at 10 of these intersections and improve LOS or delays at most of the remaining intersections. Furthermore, proposed General Plan policies seek to maintain an acceptable LOS D or better at signalized intersections with acceptance of a reduced LOS at major regional intersections (M3.1.3, M3.1.4) and promotion of transportation system management strategies (M2.5.2) and other alternative transportation modes as summarized in Table4.4-4 in the TRANSPORTATION & TRAFFIC (Chapter 4.4) section of this EIR. Discussions with MBUAPCD staff indicate that high concentrations of localized CO emissions ("hot spots") are generally not a problem in the region, and future developments would need to address the potential for exposure of sensitive receptors to CO hot spots at the project level during environmental review (Getchell and Nunes, personal communication, February 2011).

### Future Project-Level Construction-Related Emissions

Future development supported and/or accommodated by the proposed General Plan would result in construction-related emissions that could affect air quality by increasing ozone precursor and particulate matter emissions for an area that already exceeds California

ambient air quality standards for these pollutants. Construction activities include demolition, excavation, grading, vehicle trips (including workers, deliveries and hauling), and vehicle travel on paved and unpaved surfaces. Vehicle and equipment exhaust would generate pollutant emissions. Construction projects may also generate diesel particulate emissions from diesel-fueled equipment.

Particulate matter is the pollutant of greatest concern that is emitted from construction, particularly during site preparation and grading. Particulate matter emissions can vary daily, depending on various factors, such as the level of activity, type of construction activity taking place, type of equipment in operation, and weather conditions. Off-road construction equipment is also a large source of $NO_X$ and diesel particulate matter, a state-designated toxic air contaminant (TAC). The scale and timing of construction is unknown, and construction activities would be variable throughout the day and overall construction period.

## Proposed General Plan Policies & Future Project Reviews

The Draft *General Plan 2030* includes goals, policies and actions that set forth measures to avoid and minimize adverse impacts on air quality. These include: environmental review of future proposed development to address project-level emissions and air quality impacts resulting from development projects proposed in the future in accordance with the General Plan (LU1.2, LU1.2.1); requiring project-level mitigation measures (HZ2.2.1, HZ2.2.2); and actions to reduce vehicle trips and associated emissions (M1.1, M3.1, M3.1.1, M3.1.2, NRC4.1.3). Other goals, policies and actions promote sustainable land use patterns, such as encouraging mixed-use development along the City's four major transportation corridors that have easy access to pedestrian, bike and transit facilities, and encouraging use of alternative transportation modes. The proposed *General Plan 2030* also seeks to reduce vehicle emissions (30% by 2020 per NRC4.1.3), and includes a number of policies that seek to reduce single passenger vehicle trips, which would also reduce greenhouse gas emissions and other air pollutant emissions from vehicles (see Table 4.12-5 in the GLOBAL CLIMATE CHANGE [Chapter 4.12] section of this EIR). Table 4.11-3 summarizes policies that directly or indirectly address air quality issues or emissions.

As indicated in the MBUAPCD's response to the EIR "Notice of Preparation", future development projects constructed in accordance with the proposed *General Plan 2030* could have impacts on air quality, which would be evaluated when the projects are proposed. Projects with emissions below the District's significance threshold would not be considered to result in significant impacts. Under the District's current CEQA Guidelines, a project would result in a significant impact if the project would result in generation of emissions of or in excess of the following emissions levels:

- 137 pounds per day for VOC or $NO_x$, 550 pounds per day of carbon monoxide,
- 150 pounds per day of sulfur oxides ($SO_x$) for new operational sources, and/or
- 82 pounds per day of $PM_{10}$ due to construction with minimal earthmoving on 8.1 or more acres per day or grading/excavation site on 2.2 or more acres per day for $PM_{10}$.

As indicated above, the proposed General Plan does include a policy and action requiring evaluation of air quality impacts as part of specific development proposals and implementation of project-level mitigation measures if required. Future projects proposed in accordance with provisions of the Draft *General Plan 2030* would be required to utilize the project-level significance thresholds for operations included in the MBUAPCD's "CEQA Guidelines," which would be considered during the environmental review process for future projects. The MBUAPCD's "CEQA Guidelines" also specify types of mitigation measures for operational and construction-related emissions. Projects will be required to implement control measures to ensure that emissions and construction-related $PM_{10}$ emissions do not exceed MBUAPCD's daily thresholds. Additionally, land uses with stationary sources of emissions would be subject to review and approval by the MBUAPCD.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would result primarily in mobile and construction-related emissions, and limited potential stationary sources of emissions. Future emissions of ozone precursor pollutants are projected to decrease, and thus, project-level emissions would not contribute to existing or potential future violations of ozone precursors or CO air quality standards. While, $PM_{10}$ emissions would increase, compliance with MBUAPCD significance criteria at a project level would ensure that project emissions do not exceed daily standards. Vehicular emission rates are anticipated to lessen in future years due to continuing improvements in automobile and fuel efficiency and new regulations and programs adopted by the state of California that are scheduled to be phased in over the life of the proposed General Plan, and such reductions are factored into the air quality models used to estimate emissions. Furthermore, the proposed *General Plan 2030* includes goals, policies and actions that set forth measures to avoid and minimize adverse impacts on air quality, including environmental review to address project-level emissions, requiring project-level mitigation measures, and reduction of vehicle trips and emissions as summarized on Table 4.11-3. With implementation of these proposed policies and actions, as well as future project-level environmental review and compliance with MBUAPCD requirements and air quality control measures and adherence to permit requirements of the MBUAPCD, the proposed *General Plan 2030*'s indirect contribution to air emissions and air quality impacts would be considered less-than-significant.

## Mitigation Measures

No mitigation measures are required as a significant impact has not been identified. However, revision of the following *General Plan 2030* actions are recommended to strengthen support for MBUAPCD air pollution control strategies.

### Recommended Revisions to the *Draft General Plan 2030*

Revise or add policies/actions as indicated below. Deleted text is shown in ~~strikeout~~ typeface, and new text is shown in underlined typeface.

HZ2.2.1 ~~Incorporate~~ Require future development projects to implement applicable Monterey Bay Unified Air Pollution Control District control measures and/or air quality

mitigations in the design of new projects as set forth in the District's "CEQA Guidelines".

HZ2.2.2 Permit major indirect sources of air pollution only if they provide transportation measures to reduce their impacts to ~~an in~~ a less-than-significant level, consistent with applicable MBUAPCD recommended mitigation and control measures as set forth in the District's "CEQA Guidelines".

HZ2.2.6 Support MBUAPCD air pollution control strategies, air quality monitoring and enforcement activities.

**Impact 4.11-3 Exposure of Sensitive Receptors to Pollutants**
The increased population or development accommodated by the proposed *General Plan 2030* could indirectly result in exposure of existing or new sensitive receptors to pollutant concentrations which would not be considered substantial with implementation of the proposed *General Plan 2030* policies and actions and the regulation of stationary sources by the Monterey Bay Unified Air Pollution Control District. This is considered a *less-than-significant impact*.

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased population or new development. However, the draft General Plan includes policies and a land use map that support additional development that is consistent with the Plan. This potential development, as summarized in subsection 4.11.2 above, would primarily result in mobile sources of emissions associated with vehicle trips, as well as project-level construction-related emissions, as discussed under Impact 4.11-2 above. The proposed General Plan does not identify or support any major new potential stationary emission sources. The proposed plan does include continued industrial land use designations, but as discussed above under the Impact 4.11-2 discussion, the types of new businesses and industry supported in the draft *General Plan 2030* are not likely to be significant sources of stationary emissions.

Sensitive receptors within the proposed General Plan planning area include residential uses, schools, libraries and senior centers. Sensitive receptors could be potentially subject to stationary and/or vehicular emissions and pollutants such as toxic air contaminants from stationary sources, carbon monoxide (CO) emissions from vehicular traffic, and/or diesel emissions from construction-related emissions.

The proposed *General Plan 2030* requires that air pollution-sensitive land uses be located away from major sources of air pollution or require mitigation measures to protect residential and sensitive land uses from freeways, arterials, point source polluters, and hazardous material locations (HZ2.2.3). Additionally, any potential source of stationary emissions would be subject to MBUAPCD review and approval to ensure emissions do not create or substantially contribute to air quality violations. Stationary sources with potential toxic air contaminants would also be

subject to MBUAPCD review and approval to ensure that there are no significant impacts to adjacent residents, sensitive receptors and/or other land uses.

Vehicle emissions can result in concentrations of carbon monoxide at impacted intersections due to congestion and vehicle idling. The MBUAPCD thresholds for CO emissions require projects to perform localized CO modeling for intersections that operate with deficient levels of service. As discussed above under Impact 4.11-2, increased traffic would result in a reduction of intersection levels of service (LOS) to unacceptable levels (below D) at 11 intersections or a significant worsening at 10 intersections currently operating at unacceptable levels of service. This would contribute to localized carbon monoxide emissions. However, intersection improvements identified in the City's Traffic Impact Fee Program or identified in this EIR (see Chapter 4.4) would improve LOS to acceptable levels at 10 of these intersections and improve LOS or delays at most of the remaining intersections. Furthermore, proposed General Plan policies seek to maintain an acceptable LOS D or better at signalized intersections with acceptance of a lower LOS at major regional intersections (M3.1.3, M3.1.4) and promotion of transportation system management strategies (M2.5.2) and other alternative transportation modes as summarized in Table 4.4-4 in the TRANSPORTATION & TRAFFIC (Chapter 4.4) section of this EIR. Discussions with MBUAPCD staff indicate that high concentrations of localized CO emissions are generally not a problem in the region, and future developments would need to address CO emissions at the project level during environmental review (Getchell and Nunes, personal communication, February 2011).

Diesel particulate matter was identified as a toxic air contaminant (TAC) by the State of California in 1998. Following the identification of diesel as a TAC, the California Air Resources Board (CARB) developed a comprehensive strategy to control diesel PM emissions. The "Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles"—a document approved by ARB in September 2000—set goals to reduce diesel PM emissions in California by 75% by 2010 and 85% by 2020. This objective would be achieved by a combination of approaches (including emission regulations for new diesel engines and low sulfur fuel program). An important part of the Diesel Risk Reduction Plan is a series of measures for various categories of in-use on- and off-road diesel engines, which are generally based on the following types of controls:

- Retrofitting engines with emission control systems, such as diesel particulate filters or oxidation catalysts,
- Replacement of existing engines with new technology diesel engines or natural gas engines, and
- Restrictions placed on the operation of existing equipment.

Once the Diesel Risk Reduction Plan was adopted, the ARB started developing emission regulations for a number of categories of in-use diesel vehicles and equipment. In July 2007, the ARB adopted regulations for in-use, off-road diesel vehicles that will significantly reduce particulate matter emissions by requiring fleet owners to accelerate turnover to cleaner engines and install exhaust retrofits.

Demolition, excavation, grading and project construction could involve the use of diesel trucks and equipment that will emit diesel exhaust, including diesel particulate matter, which is

classified as a TAC. Adjacent residents and businesses would be exposed to construction-related diesel emissions, but activities that would use diesel equipment would be of temporary and of short-term duration. CARB has identified diesel exhaust particulate matter as a TAC, and assessment of TAC cancer risks is typically based upon a 70-year exposure period. Project excavation and construction activities that would utilize diesel-powered equipment would expose receptors to possible diesel exhaust for a very limited number of days out of a 70-year (365 day per year, 24-hour per day) period. Because exposure to diesel exhaust will be well below the 70-year exposure period, and given the limited and short-term duration of activities that would use diesel equipment, construction-related diesel emissions are not considered significant. Furthermore, the State is implementing emission standards for different classes of on- and off-road diesel vehicles and equipment that apply to off-road diesel fleets and includes measures such as retrofits. Additionally, Title 13 of the California Code of Regulations (section 2485(c)(1)) prohibit idling of a diesel engine for more than 5 minutes in any location.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan could result in stationary, operational and/or construction-related emissions near sensitive receptors. However, with implementation of proposed General Plan policies to locate sensitive receptors away from major sources of air pollution, to reduce traffic (and thus traffic-related emissions), and to conduct project-specific environmental review when new development is proposed in the future, would avoid exposure of sensitive receptors to substantial pollutant concentrations. With implementation of these proposed policies and actions, as well as future project-level environmental review and compliance with MBUAPCD requirements and air quality control measures and adherence to permit requirements of the MBUPCD, the proposed General Plan 2030's indirect contribution to air emissions and air quality impacts would be considered less-than-significant.

### Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.11-4 Odors**
Adoption and implementation of the *General Plan 2030* would not directly or indirectly result in new uses that would be result in introduction of substantial odors with implementation of proposed policies and actions and adherence to City regulations. Thus, *no impacts* are expected related to odors.

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased population or new development. However, the draft General Plan includes policies and a land use map that support additional development. According to the MBUAPCD, objectionable odors include sulfur compounds and methane, and typical sources of odors include landfills, rendering plants, chemical plants, agricultural uses, wastewater treatment plants, and refineries (Monterey Bay Unified Air Pollution Control District, February 2008).

The proposed *General Plan 2030* does not specifically identify, designate or support any new stationary sources that would be considered likely significant odor-generating facilities. The proposed 5.5-acre addition to the landfill is not proposed for expansion of the landfill disposal operations. As previously indicated, the City of Santa Cruz Municipal Code Section 24.14.264 prohibits emission of odorous gases or matter in quantities readily detectable. Additionally, future proposed development will be subject to project-level environmental review (LU1.2, LU1.2.1) and mitigation (HZ2.2.1), if required, which would result in avoidance of potentially significant impacts related to odor.

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development. New development accommodated by the plan would not be expected to result in generation of significant odors with implementation of proposed General Plan policies to ensure that new development does not result in unacceptable air pollution (including project-specific environmental review and mitigation) and with compliance with City regulations that prohibit odor emissions.

### Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

## REFERENCES

Donald Ballanti, Certified Consulting Meteorologist.

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- April 6, 2011. Memorandum regarding "Santa Cruz GHG Emissions."

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- October 2005. *Final Program Environmental Impact Report, Response to Comments Document.* State Clearinghouse #2003102140
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- August 2008. *Air Quality Management Plan.*
- February 2008. "CEQA Air Quality Guidelines."
- March 21, 2007. "2007 Federal Maintenance Plan for Maintaining the National Ozone Standard in the Monterey Bay Region. Approved by AMBAG on May 9, 2007.
- December 1, 2005. "2005 Report on Attainment of the California particulate Matter Standards in the Monterey Bay Region."

# 4.13 NOISE

## 4.13.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Regulatory Setting
- Noise Fundamentals
- Existing Noise Sources & Noise Levels
- Noise Compatibility Standards & Noise Attenuation

This section summarizes the noise background that was prepared or the City by Rosen, Goldberg, Der & Lewitz (November 2007) as part of the General Plan update process. The report provides background information on noise sources within the City, noise measurements that were made to document noise levels throughout the City, and development of noise contours for existing conditions. The firm also prepared a report identifying future noise conditions along key roadways (November 2010) based on the outcome of the traffic analysis, the results of which are also included in this chapter. The technical reports are included in Technical Appendix F-3, which is available for review at the City of Santa Cruz Planning Department[1] and is also included on the Draft EIR CD and on the online version of the Draft EIR on the City's website at www.cityofsantacruz.com, Planning Department.

### REGULATORY SETTING

There are no federal noise requirements or regulations applicable to local actions of the City of Santa Cruz. However, there are federal regulations that influence the audible landscape, where federal funding is involved. The Federal Highway Administration (FHWA) requires abatement of highway traffic noise for highway projects through rules in the Code of Federal Regulations (23 CFR Part 772), and the Federal Transit Administration (FTA) and Federal Railroad Administration (FRA) each recommend thorough noise and vibration assessments through comprehensive guidelines for any mass transit or high-speed railroad projects that would pass by residential areas. For housing constructed with assistance from U.S. Department of Housing and Urban Development, minimum noise insulation standards must be achieved (24 CFR Part 51, Subpart B).

California Government Code Section 65302(f) requires that each city and county general plan include a "noise element" that: "shall identify and appraise noise problems in the community"; "shall recognize the guidelines established by the Office of Noise Control"; and "shall analyze

[1] Located at 809 Center Street, Room 107, Santa Cruz, California during business hours: Monday through Thursday, 8 AM to 12 PM and 1-4 PM.

and quantify, to the extent practicable, as determined by the [city or county] legislative body, current and projected noise levels for all of the following sources:

- Highways and freeways,
- Primary arterials and major local streets,
- Passenger and freight on-line railroad operations and ground rapid transit systems,
- Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation,
- Local industrial plants, including, but not limited to, railroad classification yards, [and]
- Other ground stationary noise sources, including, but not limited to, military installations, identified by local agencies as contributing to the community noise environment."

"Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (Ldn). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified in paragraphs (1) to (6), inclusive." These "noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise."

Finally, "[t]he noise element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the state's noise insulation standards."

The State of California Office of Planning and Research Noise Element Guidelines (Governor's Office of Planning and Research, October 2003) include recommended exterior noise level standards for different land uses to assure compatibility with ambient noise levels. The City of Santa Cruz' existing General Plan includes the state's standards that were recommended at the time the existing General Plan was prepared in 1990.

The State of California establishes minimum noise insulation performance standards for hotels, motels, dormitories, apartment houses and dwellings other than detached single-family dwellings. Interior noise levels attributable to exterior sources shall not exceed 45 db in any habitable room, measured in either the day-night average sound level (Ldn) or the community noise equivalent level (CNEL), consistent with the General Plan, although Ldn is preferred as set forth in the California Building Code (Title 24, Chapter 12 Appendix Section 1207.11.2). The Day-Night Average Sound Level (DNL) is a descriptor established by the U.S. Environmental Protection Agency to represent a 24-hour average noise level with a penalty applied to noise occurring during the nighttime hours (10 p.m. - 7 a.m.) to account for the increased sensitivity of people during sleeping hours. Where exterior noise levels exceed 60 dBA Ldn, a report must be submitted with the building plans describing the noise control measures that have been incorporated into the design of the project to meet the noise limit.

Regulations within the City of Santa Cruz Municipal Code include performance standards regarding noise and vibration. Section 24.14 includes performance standards for the control of land uses to enable potential nuisance factors to be measured factually and objectively where possible and to protect the community as a whole from hazards and nuisances which can be prevented by methods of control and elimination. Sections 24.14.220 indicate that no land or

building in any district shall be used or occupied in any manner so as to create noise or vibration in such a manner or in an amount as to adversely affect the surrounding area or adjoining premises. Section 24.14.260 establishes the maximum sound level that shall not be exceeded as more than five dBA above the local ambient for residential uses and six dBA for commercial uses. Section 24.14.262 indicates that no vibration (other than from transportation facilities or temporary construction work) shall be permitted which is discernible without instruments at the points of measurement specified in the regulations. Chapter 9.36 regulates "offensive" and disturbing noise, which generally prohibits loud noise between the hours of 10 PM and 8 AM.

## NOISE FUNDAMENTALS

### Definitions of Noise and Effects of Noise

"Sound" is mechanical energy transmitted by pressure waves in a compressible medium such as air. "Noise" is generally defined as "unwanted or disturbing sound." Sound becomes unwanted when it either interferes with normal activities such as sleeping, conversation or disrupts or diminishes one's quality of life (U.S. EPA "Noise Pollution" website). For some people, the persistent and escalating sources of sound can often be considered an annoyance. Annoyance is the common issue regarding community noise. Studies have also shown that there are direct links between noise and health. Problems related to noise include stress-related illnesses, high blood pressure, speech interference, hearing loss, sleep disruption, and lost productivity (Ibid.).

Unlike many other environmental factors, noise is a subjective. Its effects often depend on the source, its loudness, and duration. Which sounds are considered noise varies from person to person and with the time of day and setting. Many factors influence people's response to noise, such as the character of the noise, sound level, and duration of the sound. When the noise level of an activity rises above 70 dBA, the chance of receiving a complaint is possible. The effects of noise are often only transitory, but adverse effects can be cumulative with prolonged or repeated exposure.

Loudness is measured in decibels (dB) and is typically expressed in dBA, which approximates human hearing. The human ear can generally perceive noise from 0 to 140 decibels. Sounds as faint as 0 decibels are barely audible, and then only when there are no other sounds. Ordinary conversation is about 60 dB. People can tolerate some noise, but brief exposure to intense sounds of 120 to 140 dB can threaten physical or psychological well-being.

### Measuring Noise

Noise levels are commonly measured with an instrument called a sound level meter. The sound level meter captures the sound with a microphone and converts it into a number called a sound level. Sound levels are expressed in units of decibels. To correlate the microphone signal to a level that corresponds to the way humans perceive noise, the A-weighting filter is used. A-weighting de-emphasizes low-frequency and very high-frequency sound in a manner similar to human hearing. The use of A-weighting is required by most local General Plans as well as federal and state noise regulations (e.g. Caltrans, EPA, OSHA and HUD). The abbreviation dBA

is sometimes used when the A-weighted sound level is reported (Rosen Goldberg Der & Lewitz, Inc., November 2007).

Because of the time-varying nature of environmental sound, there are many descriptors that are used to quantify the sound level. Although one individual descriptor alone does not fully describe a particular noise environment, taken together, they can more accurately represent the noise environment. The maximum instantaneous noise level (Lmax) is often used to identify the loudness of a single event such as a car passby or airplane flyover. To express the average noise level the Leq (equivalent noise level) is used. The Leq can be measured over any length of time but is typically reported for periods of 15 minutes to 1 hour. The background noise level (or residual noise level) is the sound level during the quietest moments. It is usually generated by steady sources such as distant highway traffic. It can be quantified with a descriptor called the L90 which is the sound level exceeded 90 percent of the time (Rosen Goldberg Der & Lewitz, Inc., November 2007).

To quantify the noise level over a 24-hour period, the Day/Night Average Sound Level (DNL or Ldn) or Community Noise Equivalent Level (CNEL) is used. These descriptors are averages like the Leq except they include a 10 dB penalty during nighttime hours (and a 5 dB penalty during evening hours in the CNEL) to account for peoples increased sensitivity during these hours (Rosen Goldberg Der & Lewitz, Inc., November 2007).

In environmental noise, a change in noise level of 3 dB is considered just a noticeable difference. A 5 dB change is clearly noticeable, but not dramatic. A 10 dB change is perceived as a halving or doubling in loudness (Rosen Goldberg Der & Lewitz, Inc., November 2007).

## EXISTING NOISE SOURCES & NOISE LEVELS

The most widespread and dominant noise source in Santa Cruz is traffic. Other noise sources such as railroads, industry and the Boardwalk tend to be localized and limited to certain locations and times of the day or year. The following is a discussion of the most common noise sources in Santa Cruz.

### Existing Sources of Noise

#### ROADWAY-TRAFFIC NOISE

The noisiest roadways are those with the greatest traffic volumes and highest travel speeds. For example, the highways (State Route 1 and State Route 17) generate noise which affects large areas. The noise from arterials affects the development that is directly adjacent but the affects are significantly reduced beyond the first row of buildings. Examples are Mission Street (State Route 1), Water Street, Soquel Avenue, Ocean Street, Broadway, River Street, Bay Street and Laurel Street.

Soundwalls along freeways and highways reduce noise levels at the land uses behind them. Typical noise reductions are in the 5 to 15 dBA range depending on the location of the noise receptor. Soundwalls have been installed along much of the length of the Highway 1 in Santa Cruz as part of the State Route 1/17 Widening of Merge Lanes project.

### RAILROAD NOISE

The railroad tracks that cross the southern portion of the City in an east/west direction are used for limited freight transport and generally during daytime hours. During the summer (and limited days during the winter holidays) recreational trains access the Boardwalk along the tracks that cross the City in a north/south direction along Chestnut Street. There are generally two round trip excursions per day. The trains travel at relatively low speeds through the City and the major noises are the rumble from the locomotive and the whistles that must be sounded before and during each at-grade roadway crossing.

Locomotives typically produce maximum noise levels (Lmax) of 88 dBA at a distance of 50 feet and whistles produce an Lmax of 105 dBA at 50 feet2. If there are two round trips a day, this corresponds to an Ldn of 49 dBA. The Ldn would increase to 65 dBA near grade crossings since the train would be required to sound its warning horn (whistle).

### AIRCRAFT NOISE

There are no airfields or airports in Santa Cruz and, therefore, airplane noise is limited to overflights. There is an emergency helipad at Dominican Hospital just outside of the northeast corner of the City Limits.

### INDUSTRIAL NOISE

Much of the industrial land use in the City is located north of Highway 1 and west of River Street (State Route 9). Concrete production and distribution is a common noise source in this area. Measurements along Coral Street indicate that the steady noise level from machinery at the Graniterock facility is 65 to 67 dBA at a distance of 185 feet (Rosen Goldberg Der & Lewitz, Inc., November 30, 2007).

### OTHER SOURCES – THE BOARDWALK

The Santa Cruz Beach Boardwalk is the predominant noise source in the beach area during the summer months. Major noise sources include roller coasters, people screaming and outdoor concerts. Noise measurements conducted for the Beach Area/South of Laurel Master Plan EIR3 indicated that roller coasters generate maximum noise levels (Lmax) of 69 to 78 dBA at the residences and businesses across Beach Street. The DNL along Leibrandt Street was 68 dBA. Along East Cliff Drive, homes on the bluff overlooking the boardwalk, were exposed to an Lmax of 60 to 65 dBA from music at the bandstand and 65 to 70 dBA from the screams of people on the wooden roller coaster (Giant Dipper) (Rosen Goldberg Der & Lewitz, Inc., November 30, 2007).

## Existing Noise Levels

As part of preparation of the General Plan, a noise measurement program was conducted to quantify noise levels throughout the City. The program included measurements along the busiest roads in the city in November 2006. One continuous "long term" 24-hour noise measurement and one "short-term" 15-minute measurement were conducted at each of ten locations. The short-term noise measurement was conducted at the typical setback of the nearby land uses (typically residences) while the long-term noise monitor was mounted to an existing utility pole

or tree. The short-term measurement results were correlated with simultaneous measurements at the long-term monitoring location to determine the DNL at the typical setback of land uses in the vicinity of the long-term noise monitor. Table 4.13-1 shows the results of the short-term noise measurements and the correlated DNL.

**TABLE 4.13-1**
**Short-Term Noise Measurement Results**

| LOCATION | | Short-Term Noise Measurement Results | | | | |
|---|---|---|---|---|---|---|
| | | $L_{eq}$ | $L_{10}$ | $L_{50}$ | $L_{90}$ | DNL* |
| 1 | Swift Street at Jeter St. | 65 | 69 | 62 | 51 | 66 |
| 2 | West Cliff Drive at Woodrow Avenue | 56 | 48 | 47 | 46 | 56 |
| 3 | Barson Street at Canfield Avenue | 60 | 65 | 54 | 48 | 62 |
| 4 | Ocean Street south of Hubbard Street | 71 | 74 | 69 | 62 | 73 |
| 5 | Mission Street at Van Ness Avenue | 70 | 69 | 67 | 84 | 75 |
| 6 | Seabright Avenue at Windsor Street | 63 | 67 | 60 | 48 | 66 |
| 7 | Water Street at Benito Avenue | 67 | 69 | 64 | 58 | 69 |
| 8 | Morrissey Blvd. at Hammond Avenue | 66 | 69 | 65 | 56 | 67 |
| 9 | Highway 1 at High Street | 70 | 73 | 69 | 59 | 73 |
| 10 | Center Street at New Street | 63 | 64 | 56 | 48 | 63 |

* DNL calculated by correlating with simultaneous measurement at 24-hbour noise monitor.
**SOURCE:** Rosen, Goldberg, Der & Levitz, Inc., November 2007

An existing noise contour map was developed and the contours are shown on Figure 4.13-1.[2] The contours are shown for DNL values of 60 and 65 dBA. Although some segments experienced noise levels above 70 dBA as shown on Table 4.13-1, these areas are quite limited and were not mapped due to the limited visibility with the scale of mapping. The traffic noise contours are based on calculations using the Federal Highway Administration's Traffic Noise Model (TNM 2.5), which includes inputs such as traffic volume, truck percentage and travel speeds. Traffic volume data developed by the City of Santa Cruz for the General Plan Update was supplemented by observations made in the field. The traffic data for the highways is based on counts published by Caltrans. The traffic noise contours do not take into account the acoustical shielding provided by buildings or fences along the roadways. However, along

[2] All EIR figures are included in Chapter 7.0 at the end of the EIR (before appendices) for ease of reference as some figures are referenced in several sections.

portions of Highway 1, the effects of recently constructed soundwalls are included. The soundwall locations are based on the environmental document for the highway widening project. The soundwalls are assumed to reduce the noise levels by 5 dBA (Rosen Goldberg Der & Lewitz, Inc., November 30, 2007).

## NOISE COMPATIBILITY STANDARDS & NOISE ATTENUATION

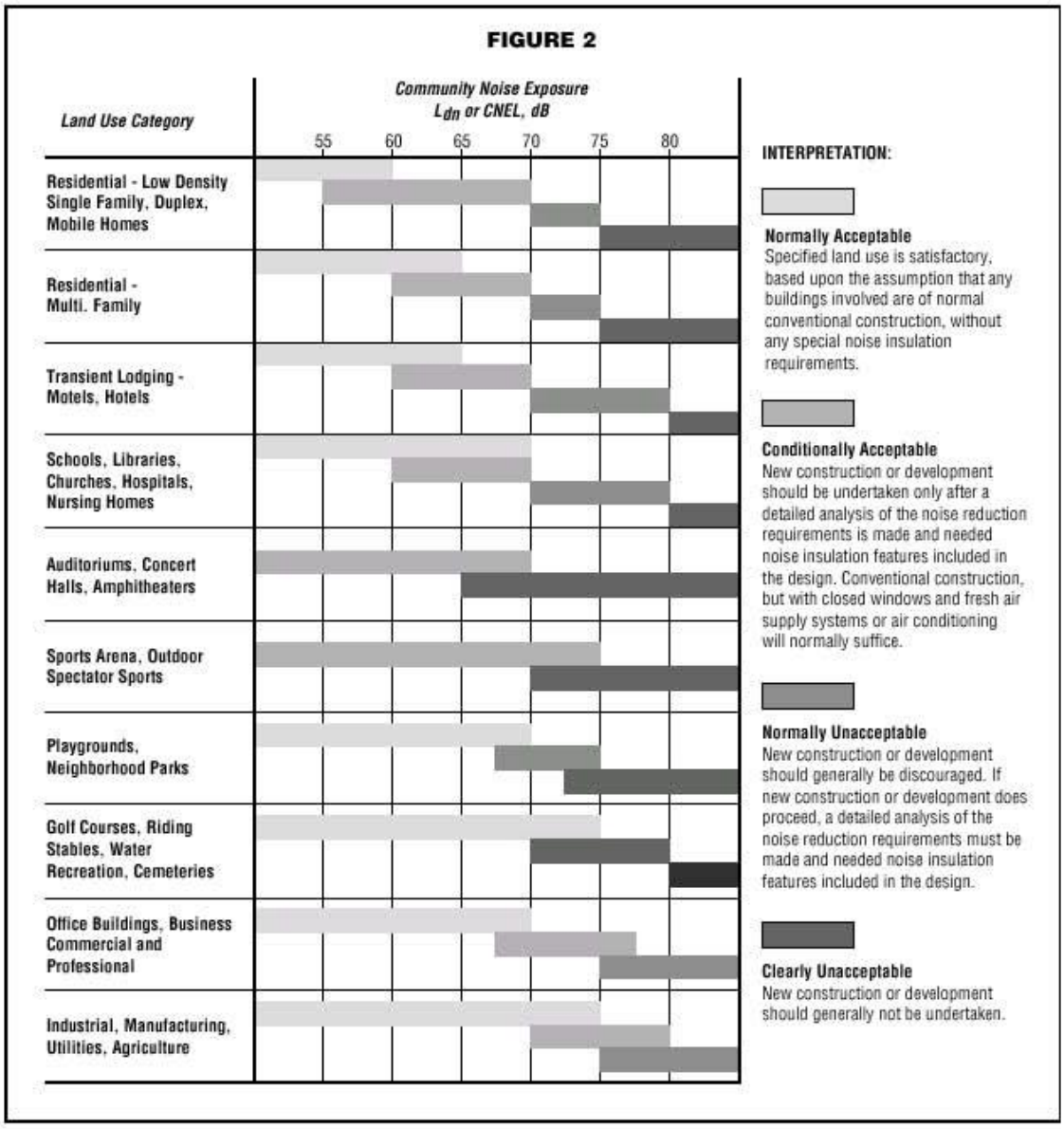
As previously indicated, the State of California Office of Planning and Research Noise Element Guidelines (Governor's Office of Planning and Research, October 2003) include recommended exterior noise level standards for different land uses to assure compatibility with ambient noise levels. These Guidelines describe the compatibility of various land uses with a range of environmental noise levels in terms of dBA CNEL. According to the State, a noise environment of 60 dBA or less CNEL is considered to be "normally acceptable" for residential uses. Additionally, more restrictive standards for quiet suburban and rural communities may be reduced by 5 to 10 dBA to reflect their lower existing outdoor noise levels in comparison with urban environments. Table 4.13-2 illustrates the State guidelines, which were originally established by the State Department of Health Services, for acceptable noise levels for each jurisdiction.

An interior CNEL of 45 dBA is mandated by the State of California Noise Insulation Standards (California Code of Regulations, Title 24, Part 6, Section T25 28) for multiple-family dwellings and hotel and motel rooms. Since normal noise attenuation within residential structures with closed windows is about 20 dBA, an exterior noise exposure of 65 dBA Ldn allows the interior standard to be met without any specialized structural attenuation (e.g., dual paned windows). A noise level of 65 dBA is also the level at which ambient noise begins to interfere with one's ability to carry on a normal conversation at reasonable separation without raising one's voice.

For typical residential construction (i.e., light frame construction with ordinary sash windows), the minimum amount of exterior to interior noise reduction is at least 20 dBA with exterior doors and windows closed and approximately 15 dBA with windows partially open for ventilation. Buildings constructed of stucco or masonry with dual-glazed windows and solid core exterior doors can be expected to achieve an exterior to interior noise reduction of approximately 25-30 dBA.

A solid barrier, such as a concrete masonry wall, located between a noise source and a receiver will typically provide about 5 dBA of noise reduction; additional reduction may be achieved by increasing the length and/or height of the barrier. A row of buildings located between a source and a receiver may provide 3 dBA of noise reduction with up to a 1.5-dBA reduction for each additional row up to a maximum reduction of approximately 10 dBA (California Department of Transportation, November 2009). The exact degree of noise attenuation depends on the nature and orientation of the structure and intervening barriers. Sound levels from a localized point source typically are reduced by 6 dBA for each doubling in distance, and sound levels from roadway traffic noise may be reduced by 3 dBA for each doubling in distance (Ibid). Ordinary landscaping along a highway accounts for less than 1 dBA of noise reduction, while dense landscaping (i.e., 100 feet wide) could attenuate traffic noise by 5 dBA (Ibid.).

## TABLE 4.13-2
## Land Use – Noise Compatibility Standards




**SOURCE:** California Governor's Office of Planning and Research

## 4.13.2 RELEVANT PROJECT ELEMENTS

### PROPOSED GOALS, POLICIES & ACTIONS

The draft *General Plan 2030* includes a HAZARDS, SAFETY & NOISE chapter that sets forth one goal with two policies and 14 accompanying actions that address noise issues. The following goal HZ3 and its two policies seek to maintain or reduce existing noise levels and control excessive noise and ensure that noise standards are met in the siting of noise-sensitive uses.

GOAL HZ3 *Noise levels compatible with occupancy and use.*

### FUTURE DEVELOPMENT POTENTIAL

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan / Local Coastal Program, except for three new mixed use land designations have been developed and applied to the following major transportation corridors: Mission Street, Ocean Street, Soquel, Avenue, and Water Street. Land Use policies LU1.1.4 and LU1.1.5 address development for specific sites: the Swenson property and the Golf Club Drive property, respectively.

Some of the draft *General Plan 2030* policies and actions support certain types of land uses and/or development, including new mixed-use use districts and/or intensified redevelopment. The *General Plan 2030* continues to include an industrial land use designation in the same areas currently designated industrial (Westside and Harvey West). Light industrial and "creative" industrial uses are encouraged in the Harvey West area (LU3.2.3), and "incubator" uses are specified for the Westside industrial area (LU3.2.3). Policy ED6.1.1 supports the establishment of industries and "lifestyle businesses" that draw on Santa Cruz's natural assets and environment. In addition, the proposed *General Plan 2030* supports development of a desalination plant (Policy CC3.1.3), but a specific site is not identified.

## 4.13.3 IMPACTS AND MITIGATION MEASURES

### CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

13a Expose persons to noise levels in excess of "normally acceptable" standards established in the State of California *General Plan Guidelines*' (2003) "Noise Element Guidelines" for compatible community noise levels;

13b Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project if it will expose outdoor activity areas of noise-sensitive land uses to:

- A 5 dB increase in noise where existing noise levels are below 60 dBA $L_{dn}$, or
- a 3 dB increase in noise where existing noise levels are above 60 dBA $L_{dn}$.

13c Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project; or

13d Expose persons to or generate excessive groundborne vibration.

## IMPACT ANALYSIS

The following impact analyses address potential impacts related to exposure to noise levels that exceed standards (13a), permanent increases in ambient noise levels (13b), and temporary increases in noise due to construction (13c). There are no planned land uses that would be expected to result in generation of groundborne vibration. The potential for vibration (13d) is mostly associated with construction-related impacts, and is addressed in that impact discussion below (13c). There are no airports or airfields within the City or in the immediate vicinity that would cause noise-related impacts related to aviation.

### Potential Future Development & Buildout

The proposed General Plan would accommodate future development. As described in the PROJECT DESCRIPTION and LAND USE sections of this EIR (Chapters 3.0 and 4.1, respectively), buildout projections were estimated for the draft General Plan to provide an estimate of the amount of development that is expected to occur by the year 2030. The projected development includes 3,350 additional residential dwelling units with an associated population increase of 8,040 residents (based on 2.4 persons per household). The buildout projections estimate 3,140,000 additional square feet of commercial, office and industrial uses by the year 2030. According to the traffic analysis, this potential development would generate an estimated 78,260 new daily trips with approximately 7,180 trips occurring during the PM peak hour.

**Impact 4.13-1: Exposure to Noise**
Implementation of the proposed *General Plan 2030* would accommodate future development that could be exposed to noise levels that exceed state standards for compatible noise levels for residential uses. With implementation of the proposed General Plan policies and actions for noise, this is considered a *less-than-significant impact*.

Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development. However, the draft General Plan includes policies and a land use map that support additional development. This potential development, as summarized in subsection 4.13.2 above, could result in increased vehicular noise as discussed below, as well as project-level construction-related noise, which is discussed below under Impact 4.13-3.

The proposed *General Plan 2030* would accommodate future development pursuant to planned land use designations contained in the Plan. Development under the proposed General Plan would primarily occur on vacant infill sites, on underutilized properties that could redeveloped at higher densities and/or land use intensities, and in the new mixed-use districts along the City's four major street corridors: Mission Street, Ocean Street, Soquel Avenue, and Water Street. Based on the estimated development occurring under the proposed plan, approximately 55 percent of all new housing, 45 percent of new commercial development and 52 percent of new office development would located along these corridors.[3] Although the City of Santa Cruz is primarily developed, except for a few remaining vacant lots located within developed areas, the following three areas within the planning area are primarily undeveloped or underdeveloped that would be subject to potential future development: the Swenson site adjacent to Antonelli Pond; the Golf Club Drive area adjacent to Pogonip Creek, and the area along Seventh Avenue that is within the City's Sphere of Influence, but outside city limits.

Future noise levels adjacent to roadways were modeled by Rosen, Goldberg, Der & Lewitz, Inc. for this EIR, based on traffic data developed for the EIR, which was used as input to the Federal Highway Administration's TNM 2.5 model. This model calculates the traffic noise level based on input such as traffic volume, truck percentage and travel speeds. (See Appendix F-3 for further details). The resulting noise levels are shown on Table 4.13-3.

Based on the projected future noise levels, a future noise contour map was developed, which is shown on Figure 4.13-2. The noise contours are shown for DNL values of 60 and 65 dBA. Although some segments experienced noise levels above 70 dBA as shown on Table 4.13-3, these areas are quite limited and were not mapped due to the limited visibility with the scale of mapping. The traffic noise contours do not take into account the acoustical shielding provided by buildings or fences along the roadways. However, along the portions of Highway 1, the effects of recently constructed soundwalls are included; the soundwalls are assumed to reduce the noise levels by 5 dBA.

As shown on Table 4.13-3, land uses along a number of City streets would experience future noise levels in excess of 65 dBA at distances of 50 or more feet. As previously indicated, 65 dBA is the typical exterior noise level at which the state-mandated interior sound level of 45 dBA could be achieved without specialized structural noise attenuation. The streets include segments along:

- Bay Street
- Front Street
- King Street / Union
- Laurel Street / Broadway
- High Street
- Mission Street / Water Street
- Morrissey Blvd.
- Ocean Street
- River Street
- Riverside Avenue
- San Lorenzo/East Cliff/Murray
- Soquel Avenue
- Swift Street
- Seventh Avenue
- Highway1

[3] See Table 3-3 in the PROJECT DESCRIPTION (Chapter 3.0) section of this EIR and Figure 2-3 for estimated distribution of new development per specific areas in the City.

Some future development accommodated by the proposed *General Plan 2030* would be located along some of these roadways, especially along the proposed intensified mixed-use corridors along, Mission Street, Soquel Avenue, Water Street, and Ocean Street. The two major vacant properties – the Swenson site adjacent to Antonelli Pond and the Golf Club Drive area – would not be located in areas where future noise levels may exceed standards for noise-land use compatibility standards. However, some of the area along Seventh Avenue that is within the City's existing Sphere of Influence, but outside city limits, may experience unacceptable noise levels.

Certain land uses are particularly sensitive to noise, such as schools, hospitals, and rest homes. Residential areas are also considered noise sensitive, especially during the nighttime hours. There are no major hospitals within city limits. The City is predominantly residential with 12 public and private schools distributed throughout the City. Residential uses within new mixed-use developments along the major transportation corridors would be potentially exposed to noise levels that exceed noise-land use compatibility standards as future noise levels along Mission Street, Ocean Street, Soquel Avenue and Water Street would be at or near 70 decibels. The unincorporated area along Seventh Avenue that is within the City's existing Sphere of Influence is projected to experience a noise level of 65 decibels $L_{dn}$ as a result of General Plan-related traffic. New residential development along segments of Bay Street, High Street, and Morrissey Blvd., as well as adjacent to Highways 1 and 17, could also be exposed to exterior noise levels above 65 dBA $L_{dn}$.

The Draft *General Plan 2030* includes goals, policies and actions that set forth measures to avoid and minimize adverse impacts on noise. In particular, noise-land use compatibility standards will be applied to all new residential, commercial and mixed-use projects (HZ3.2.1), and the proposed General Plan seeks to ensure that noise standards are met in the siting of noise-sensitive uses (HZ3.2). The policies also establish an interior noise level of 45 dBA for all residential uses, consistent with state law, and a target outdoor level of 65 dBA for activity areas associated with new multi-family development. However, the draft plan does not contain a table or graphic depicting what noise compatibility standards are for different land uses as exists in the City's current General Plan. Table 4.13-2 presents such standards as recommended by the state of California and currently included in the City's existing General Plan. Denotation of a land use as "normally acceptable" implies that the highest noise level in that band is the maximum desirable for existing or conventional construction that does not incorporate any special acoustic treatment. In general, evaluation of land use that falls into the "normally acceptable" or "normally unacceptable" noise environments should include consideration of the type of noise source, the sensitivity of the noise receptor, the noise reduction likely to be provided by structures, and the degree to which the noise source may interfere with speech, sleep, or other activities characteristic of the land use. The objective of the noise compatibility guidelines is to provide the community with a means of judging the noise environment it deems to be generally acceptable (California Governor's Office of Planning and Research, October 2003). In instances where new development may be exposed to unacceptable noise levels, acoustical studies would necessary to ensure that the building construction can meet state-required noise levels, as well as acceptable outdoor noise levels.

## TABLE 4.13-3
## Existing and Future Noise Levels Adjacent to Roadways

| Roadway Segment | Existing Condition | Future Condition | | | | |
|---|---|---|---|---|---|---|
| | $L_{dn}$ at 50 ft from Center of Roadway (dBA) | $L_{dn}$ at 50 ft from Center of Roadway (dBA) | Increase in $L_{dn}$ (dBA) | $L_{dn}$ Contour Distances (feet) | | |
| | | | | 60 dBA | 65 dBA | 70 dBA |
| **Noise Levels Adjacent to City Streets** | | | | | | |
| **Bay Street (Bay Dr.)** | | | | | | |
| -High to Nobel-Iowa | 67 | 67 | 0.1 | 240 | 85 | -- |
| -Nobel-Iowa to Escalona | 67 | 67 | 0.4 | 260 | 95 | -- |
| -Escalona to King | 67 | 67 | 0.4 | 260 | 90 | -- |
| -King to Mission | 65 | 67 | 1.5 | 240 | 85 | -- |
| -Mission to California St | 65 | 65 | 0.2 | 160 | 50 | -- |
| -California St to California Ave | 66 | 67 | 0.9 | 240 | 85 | -- |
| -California Ave to West Cliff | 65 | 66 | 0.9 | 200 | 70 | -- |
| **Branciforte Avenue** | | | | | | |
| -Goss to Water | 64 | 65 | 1.0 | 160 | 50 | -- |
| -Water to Soquel | 64 | 65 | 0.8 | 160 | 50 | -- |
| -Soquel to Broadway | 61 | 62 | 0.8 | 90 | -- | -- |
| **California Street** | | | | | | |
| -Laurel to Bay | 63 | 63 | 0.4 | 110 | -- | -- |
| **Front Street** | | | | | | |
| -Mission/Water to Cooper of | 63 | 65 | 1.5 | 160 | 50 | -- |
| -Soquel to Cathcart | 66 | 67 | 1.3 | 260 | 90 | -- |
| -Cathcart to Metro Center | 65 | 66 | 1.2 | 220 | 70 | -- |
| -Metro Center to Laurel | 65 | 66 | 1.2 | 200 | 70 | -- |
| **Center Street** | | | | | | |
| -Mission to Laurel | 63 | 64 | 0.7 | 140 | -- | -- |
| -Laurel to Pacific | 60 | 60 | 0.7 | 55 | -- | -- |
| **Seabright Avenue** | | | | | | |
| -Water to Soquel | 60 | 60 | -0.4 | 50 | -- | -- |
| -Soquel to Broadway | 63 | 64 | 0.7 | 140 | -- | -- |
| -Broadway to Murray | 63 | 64 | 0.8 | 130 | -- | -- |
| **Ocean Street** | | | | | | |
| -Ocean/Plymouth to Kennan/Washburn | 68 | 70 | 1.4 | 320 | 160 | 50 |
| -Kennan/Washburn to Water | 69 | 71 | 1.3 | 360 | 190 | 60 |
| -Water to Soquel | 68 | 69 | 1.3 | 320 | 150 | -- |
| -Soquel to Broadway | 66 | 68 | 1.8 | 280 | 120 | -- |
| -Broadway to San Lorenzo/East Cliff | 65 | 66 | 1.4 | 220 | 70 | -- |
| **Riverside Avenue** | | | | | | |
| -San Lorenzo to Third | 66 | 67 | 1.1 | 240 | 85 | -- |
| -Third to Second | 62 | 63 | 0.7 | 100 | -- | -- |

## TABLE 4.13-3
## Existing and Future Noise Levels Adjacent to Roadways

| Roadway Segment | Existing Condition | Future Condition | | | | |
|---|---|---|---|---|---|---|
| | $L_{dn}$ at 50 ft from Center of Roadway (dBA) | $L_{dn}$ at 50 ft from Center of Roadway (dBA) | Increase in $L_{dn}$ (dBA) | $L_{dn}$ Contour Distances (feet) | | |
| | | | | 60 dBA | 65 dBA | 70 dBA |
| **Chestnut Street** | | | | | | |
| -Laurel to Mission | 62 | 63 | 0.9 | 110 | -- | -- |
| **River Street** | | | | | | |
| -Encinal to Fern | 66 | 69 | 2.6 | 300 | 140 | -- |
| -Fern to Rte 1 | 67 | 70 | 2.6 | 340 | 170 | 50 |
| -Rte 1 to Potrero | 66 | 68 | 2.1 | 280 | 120 | -- |
| -Potrero to N Pacific River | 65 | 68 | 2.6 | 260 | 110 | -- |
| -N Pacific River to Water | 64 | 67 | 2.3 | 240 | 75 | -- |
| -Water to Soquel | 64 | 65 | 1.1 | 180 | 55 | -- |
| **Pacific Avenue** | | | | | | |
| Mission to Laurel | 60 | 62 | 1.5 | 80 | -- | -- |
| -Laurel to Center | 59 | 60 | 0.8 | 50 | -- | -- |
| -Center to Beach | 64 | 65 | 1.0 | 160 | 50 | -- |
| **Market Street** | | | | | | |
| -Isbel-Goss to Water | 62 | 64 | 1.5 | 140 | -- | -- |
| **High Street** | | | | | | |
| -Western to Bay | 65 | 66 | 0.2 | 190 | 60 | -- |
| -Bay to Moore | 66 | 66 | 0.3 | 200 | 70 | -- |
| -Moore to Laurent | 66 | 66 | 0.3 | 200 | 70 | -- |
| **Mission Street / Water Street** | | | | | | |
| -Shaffer to Western | 65 | 65 | 0.4 | 180 | 55 | -- |
| -Western to Swift | 65 | 66 | 0.9 | 200 | 70 | -- |
| -Swift to Miramar | 67 | 69 | 2.0 | 320 | 150 | -- |
| -Miramar to Younglove | 67 | 70 | 2.4 | 340 | 170 | 50 |
| -Younglove to Bay | 68 | 70 | 2.2 | 340 | 180 | 60 |
| -Bay to Laurel | 69 | 71 | 2.8 | 400 | 240 | 75 |
| -Laurel to Walnut | 68 | 71 | 2.9 | 360 | 190 | 60 |
| -Walnut to King-Union | 68 | 71 | 2.3 | 360 | 190 | 60 |
| -King-Union to Chestnut-Hwy 1 | 70 | 72 | 1.8 | 400 | 240 | 80 |
| -Chestnut-Hwy 1 to Center | 65 | 67 | 2.2 | 260 | 90 | -- |
| -Center to N. Pacific | 67 | 69 | 1.9 | 300 | 130 | -- |
| -N.Pacific to River | 66 | 68 | 2.1 | 280 | 120 | -- |
| -River to Ocean | 68 | 70 | 2.1 | 340 | 170 | 50 |
| -Ocean to Market | 68 | 70 | 1.7 | 340 | 180 | 55 |
| -Market to N.Branciforte | 69 | 70 | 1.4 | 340 | 180 | 55 |
| -N.Branciforte to Seabright | 68 | 69 | 1.1 | 300 | 130 | -- |
| -Seabright to Morrissey | 69 | 70 | 0.7 | 320 | 160 | 50 |

## TABLE 4.13-3
## Existing and Future Noise Levels Adjacent to Roadways

| Roadway Segment | Existing Condition | Future Condition | | | | |
|---|---|---|---|---|---|---|
| | $L_{dn}$ at 50 ft from Center of Roadway (dBA) | $L_{dn}$ at 50 ft from Center of Roadway (dBA) | Increase in $L_{dn}$ (dBA) | $L_{dn}$ Contour Distances (feet) | | |
| | | | | 60 dBA | 65 dBA | 70 dBA |
| **Walnut / Soquel Avenue** | | | | | | |
| -Mission to Front | 63 | 63 | -0.1 | 120 | -- | -- |
| -Front to River | 65 | 66 | 1.3 | 220 | 70 | -- |
| -River to Riverside-Dakota | 66 | 67 | 1.4 | 260 | 95 | -- |
| **Walnut / Soquel Avenue (con't)** | | | | | | |
| -Riverside-Dakota to Ocean | 66 | 67 | 1.3 | 260 | 95 | -- |
| -Ocean to Branciforte | 66 | 68 | 1.6 | 260 | 100 | -- |
| -Branciforte to Seabright | 67 | 68 | 1.0 | 260 | 100 | -- |
| -Seabright to Morrissey | 69 | 69 | 0.7 | 320 | 150 | -- |
| -Morrissey to Frederick | 69 | 70 | 1.0 | 340 | 180 | 55 |
| Frederick to Trevthan-Hagemann | 70 | 71 | 1.0 | 360 | 190 | 60 |
| Trevthan-Hagemann to Park | 70 | 70 | 0.8 | 340 | 180 | 60 |
| -Park to Capitola | 69 | 70 | 0.8 | 340 | 180 | 55 |
| -Capitola to La Fonda | 66 | 67 | 0.5 | 240 | 85 | -- |
| **Laurel Street / Broadway** | | | | | | |
| -King to Mission | 60 | 62 | 1.8 | 90 | -- | -- |
| -Mission to California | 67 | 67 | 0.0 | 240 | 75 | -- |
| -California to Chestnut | 66 | 68 | 1.5 | 260 | 110 | -- |
| -Chestnut to Center | 66 | 68 | 1.5 | 260 | 100 | -- |
| -Center to Cedar | 66 | 68 | 1.6 | 260 | 110 | -- |
| -Cedar to Pacific | 66 | 68 | 1.3 | 260 | 110 | -- |
| -Pacific to Front | 67 | 68 | 1.3 | 260 | 110 | -- |
| -Front to San Lorenzo | 67 | 69 | 1.3 | 300 | 130 | -- |
| -San Lorenzo to Ocean | 65 | 67 | 1.6 | 240 | 75 | -- |
| -Ocean to S.Branciforte | 65 | 66 | 1.3 | 220 | 70 | -- |
| -S.Branciforte to Seabright | 65 | 66 | 1.0 | 200 | 70 | -- |
| **San Lorenzo/East Cliff/Murray** | | | | | | |
| -Laurel-Broadway to Riverside | 64 | 65 | 0.9 | 160 | 50 | -- |
| -Riverside to Ocean | 66 | 68 | 1.1 | 260 | 100 | -- |
| -Ocean to Seabright | 67 | 68 | 0.6 | 260 | 100 | -- |
| **West Cliff Dr. / Beach Street** | | | | | | |
| Swanton to Bay | 62 | 63 | 0.3 | 100 | -- | -- |
| -Bay to Pacific | 64 | 65 | 0.8 | 160 | 50 | -- |
| -Pacific to Cliff | 60 | 61 | 1.2 | 70 | -- | -- |
| -Cliff to Riverside | 59 | 61 | 1.9 | 70 | -- | -- |
| **King Street / Union** | | | | | | |
| -Bay to Laurel | 63 | 63 | 0.6 | 120 | -- | -- |
| -Laurel to Storey | 62 | 63 | 0.8 | 120 | -- | -- |
| -Storey to Mission | 64 | 65 | 1.1 | 180 | 55 | -- |

**TABLE 4.13-3**
**Existing and Future Noise Levels Adjacent to Roadways**

| Roadway Segment | Existing Condition | Future Condition | | | | |
|---|---|---|---|---|---|---|
| | $L_{dn}$ at 50 ft from Center of Roadway (dBA) | $L_{dn}$ at 50 ft from Center of Roadway (dBA) | Increase in $L_{dn}$ (dBA) | $L_{dn}$ Contour Distances (feet) | | |
| | | | | 60 dBA | 65 dBA | 70 dBA |
| **Western Drive** | | | | | | |
| -High to Hwy1 | 60 | 62 | 1.3 | 80 | -- | -- |
| **Swift Street** | | | | | | |
| -Mission to Delaware | 62 | 65 | 3.0 | 180 | 55 | -- |
| **Morrissey Blvd.** | | | | | | |
| -Fairmount to Soquel | 66 | 67 | 0.5 | 240 | 85 | -- |
| **Third Street** | | | | | | |
| Front to Riverside | 64 | 64 | 0.3 | 140 | -- | -- |
| Riverside to Beach | 63 | 64 | 1.2 | 150 | -- | -- |
| **Seventh Avenue** | | | | | | |
| - Soquel to Capitola | | 64 | NA | 130 | -- | -- |
| - Capitola to Brommer | | 65 | NA | 160 | 50 | -- |
| - Brommer to Eaton | | 65 | NA | 160 | 50 | -- |
| - Eaton to Cliff | | 65 | NA | 180 | 55 | -- |

**Noise Levels Adjacent to Highways**

| Roadway Segment | Existing Condition | Future Condition | | | | |
|---|---|---|---|---|---|---|
| | $L_{dn}$ at 100 ft from Center of Roadway (dBA) | $L_{dn}$ at 100 ft from Center of Roadway (dBA) | Increase in $L_{dn}$ (dBA) | $L_{dn}$ Contour Distances (feet) | | |
| | | | | 60 dBA | 65 dBA | 70 dBA |
| **Highway 1** | | | | | | |
| -Soquel to Morrissey | 79 | 80 | 0.4 | 1050 | 650 | 400 |
| -Morrissey to Emeline | 74 | 75 | 0.4 | 650 | 400 | 240 |
| -Emeline to Hwy 17 | 74 | 75 | 0.4 | 650 | 400 | 240 |
| -Hwy 17 to Hwy 9 | 77 | 77 | 0.4 | 850 | 550 | 320 |
| -Hwy 9 to Mission | 76 | 76 | 0.4 | 750 | 480 | 300 |
| **Highway 17** | | | | | | |
| -Begin Freeway to Pasatiempo | 78 | 78 | 0.4 | 900 | 550 | 340 |

**SOURCE:** Rosen, Goldberg, Der & Levitz, Inc., November 2007

As previously indicated, typical residential construction (i.e., light frame construction with sash windows) with closed windows and doors can result in an exterior-to-interior noise reduction of at least 20 dBA and approximately 15 dBA with windows partially open for ventilation. Buildings constructed of stucco or masonry with dual-glazed windows and solid core exterior doors can be expected to achieve an exterior to interior noise reduction of approximately 25-30 dBA. Further noise reduction could be achieved with mechanical air systems and/or other window designs for areas where the ambient noise level exceeds 65 dBA.

The draft General Plan also includes support of measures to attenuate noise exposure, such as soundwalls, berms and setbacks (HZ3.1.11) and includes policies to minimize and mitigate new sources of vehicular and stationary noise (HZ3.1, HZ3.1.1, HZ3.1.6, HZ3.1.8, HZ 3.1.9). In addition to these policies, numerous proposed policies address specific alternative transportation modes, and serve to encourage a reduction in vehicle traffic as discussed in the TRANSPORTATION & TRAFFIC (Chapter 4.4) section of this EIR. A summary of the proposed *General Plan 2030* policies that serve to reduce/mitigate impacts related to exposure to unacceptable noise levels are summarized in Table 4.13-4.

The *General Plan 2030* also encourages passenger rail transit or other alternative transportation options (M2.2) and continued transport of goods by rail (M2.2.2). At such time that passenger rail may be proposed, project-level environmental review would be required, including an assessment of noise as the existing rail right-of-way travels through residential neighborhoods.

**TABLE 4.13-4**
**Proposed General Plan Policies & Actions that Avoid or Reduce Noise Impacts**

| Type of Measure / Action | Policies |
|---|---|
| AVOID OR MITIGATE EXPOSURE TO NOISE LEVELS THAT EXCEED STANDARDS | ▪ Protect residents from excessive road noise: HZ3.1.7<br>▪ Mitigate noise impacts from roadways through setbacks, landscaping and other measures: M3.3.4<br>▪ Apply noise compatibility standards: HZ3.2, HZ3.2.1<br>▪ Require residential interior noise levels of 45 dBA: HZ3.2.3<br>▪ Establish outdoor noise targets of 65 dBA for activity areas in new mutli-family developments: HZ3.2.2<br>▪ Require soundwalls, berms, setbacks or other noise reduction techniques when necessary: HZ3.1.11<br>▪ Reduce auto dependence, vehicle trips and peak hour trip & increase vehicle occupancy: M1.1, M3.1, M3.1.1, M3.1.2 – See also Table 4.4-4in the TRANSPORTATION & TRAFFIC (Chapter 4.4) section of this EIR<br>▪ Minimize impacts of intermittent urban noise: HZ3.1.4<br>▪ Limit truck traffic in residential and commercial areas to designated truck routes: HZ3.1.9 |
| RESULT IN SUBSTANTIAL PERMANENT NOISE INCREASE | ▪ Maintain or reduce existing noise levels and control excessive noise: HZ3.1<br>▪ Require land uses at noise levels that do not significantly increase ambient noise and minimize noise from new uses: HZ3.1.1, HZ3.1.2<br>▪ Require mitigation for substantial noise increases: HZ3.1.6<br>▪ Require environmental review & mitigation for roadway projects with significant noise increases: HZ3.1.8<br>▪ Install "quiet" pavement surfaces where beneficial: HZ3.1.10 |
| RESULT IN SUBSTANTIAL TEMPORARY NOISE INCREASE | ▪ Minimize & monitor construction noise: HZ3.1.3, HZ3.1.5 |

In addition, compliance with state regulations regarding maintaining interior noise levels of 45 dBA, in conjunction with implementation of the proposed General Plan policies and actions outlined above, will mitigate potential impacts of future development to a less-than-significant level. New development located within areas in which noise levels may exceed acceptable levels would be required to have a project-level acoustical/noise assessment conducted to

specify building and structural designs to attenuate noise levels and achieve the required interior noise level.

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would result increased traffic and exposure to vehicular noise. However, the proposed *General Plan 2030* includes goals, policies and actions that set forth measures to avoid and minimize exposure to noise levels that exceed land use compatibility standards for noise exposure. With implementation of these proposed policies and actions, as well as future project-level environmental review, exposure to noise would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required, but revisions to the following *General Plan 2030* actions are recommended to specifically reference land-use noise compatibility standards.

**Recommended Revisions to the *Draft General Plan 2030***

Revise or add policies/actions as indicated below. Deleted text is shown in ~~strikeout~~ typeface, and new text is shown in underlined typeface.

HZ3.2.1 Apply noise and land use compatibility table and standards to all new residential, commercial, and mixed-use proposals, including condominium conversions in accordance with the standards set forth in the "Land Use – Noise Compatibility Standards" table.

**Impact 4.13-2: Increase in Permanent Ambient Noise Levels**
Implementation of the proposed *General Plan 2030* would accommodate future development that would generate traffic and contribute to increased noise levels along City streets and highways, but would not exceed criteria of significance or substantially increase ambient noise levels. Thus, permanent increases in ambient noise levels due to increased vehicular traffic are considered a *less-than-significant impact*.

As discussed under the Impact 4.13-1 discussion above, future noise levels and noise contours were developed along City streets and highways based on the traffic data developed for this EIR. Table 4.13-3 shows existing and future noise levels along roadways. Most of the noise increases are less than 2 dBA as a result of traffic associated with future development accommodated by the General Plan. In some cases, noise increases are between 2 and 3 dBA, such as along some segments of River Street, Mission Street, and Swift Street.

As previously indicated, a change in noise level of 3 dB is considered just a noticeable difference. A 5 dB change is clearly noticeable, but not dramatic, and a 10 dB change is perceived as a halving or doubling in loudness (Rosen Goldberg Der & Lewitz, Inc., November 30, 2007). In areas where the ambient noise level without a project is below 60 dBA, an increase in the ambient noise level of 5 dBA or more would be considered significant. In areas were ambient noise levels are above 60 dBA, an increase in the ambient noise level of greater than 3 dBA would be considered significant.

All City streets and highway segments included within the future noise contours would experience noise increases of less than 3 dBA due to future estimated traffic volumes, except for one segment along Swift Street, which would reach a 3 dBA increase. Therefore, the increase in traffic would not result in significant ambient noise level increases (i.e., above 3 dBA) for existing or future residents. Noise levels along the segments of the following roads would exceed 65 dBA in the future (as well as under both existing conditions in some cases): Bay Street, Front Street, Ocean Street, River Street, Mission Street, High Street, Soquel Avenue, Morrissey Blvd., San Lorenzo-East Cliff-Murray, and Highways 1 and 17. However, the increase due to development accommodated by the proposed General Plan would be less than 3 dBA (and often less than 2 dBA), and thus, the increase would not be considered substantial.

The segment of Swift Street between Mission and Delaware Avenue would increase by 3 dBA to reach a projected ambient noise level of 65 decibels $L_{dn}$. New development would be subject to noise attenuation requirements as discussed in Impact 4.13-1. The existing development along this segment of Swift Street is primarily commercial and light industrial for which normally acceptable noise levels would be 70 decibels. For the few homes located along this segment, exterior noise levels would not exceed 65 decibels. Since normal noise attenuation within residential structures with closed windows is about 20 dBA, an exterior noise exposure of 65 dB ACNEL allows the interior standard to be met without any specialized structural attenuation (e.g., dual paned windows).

The *General Plan 2030* continues to include an industrial land use designation in the same areas currently designated industrial (Westside and Harvey West). Light industrial and "creative" industrial uses are encouraged in the Harvey West area (LU3.2.3), and "incubator" uses are specified for the Westside industrial area (LU3.2.3). Depending on the specific use, some industrial uses can result in a stationary source of emissions. However, Policy ED6.1.1 supports the establishment of industries and "lifestyle businesses" that draw on Santa Cruz's natural assets and environment. Additionally, Policy ED6.2 encourages and supports "green" and environmentally-oriented businesses to locate in Santa Cruz. Furthermore, the draft plan supports "green" and sustainable commercial and industrial operating practices (ED6.2.2) and encourages businesses that "don't pollute" (ED6.2.3). Overall, the type of industry and business supported in the draft *General Plan 2030* typically would not be heavy industrial or the type of business that would be significant source of noise.

The draft plan does support development of a desalination plant (LU3.1.3) as part of the actions outlined to implement the City's adopted *Integrated Water Plan* (IWP) (see the WATER SUPPLY [Chapter 4.5] section of this EIR for further discussion of the planned desalination facility). A program EIR prepared for the IWP also reviewed potential impacts of a desalination facility, but did not identify permanent generation of noise as a potentially significant impact (EDAW,

June 2005). (See the WATER SUPPLY (Chapter 4.4) of this EIR for further discussion of potential impacts related to construction and operation of a desalination facility.)

The Draft *General Plan 2030* includes goals, policies and actions that set forth measures to avoid and minimize adverse impacts on noise that include applying noise compatibility standards to new residential, commercial and mixed-used development (HZ3.2.1) and establishing indoor and outdoor noise level targets of 45 dBA and 65 dBA, respectively, for new multifamily residential developments (HZ3.2.2) as discussed above for Impact 4.13-1. The draft general plan also includes support of measures to attenuate noise exposure, such as soundwalls, berms and setbacks (HZ3.1.11) and includes policies to minimize and mitigate new sources of vehicular and stationary noise (HZ3.1, HZ3.1.1, HZ3.1.6, HZ3.1.8, HZ 3.1.9). Additionally, the proposed *General Plan 2030* also includes numerous policies that seek to maintain or reduce existing noise levels (HZ3.1), and require mitigation for uses that would substantially increase noise levels (HZ3.1.6). A summary of the proposed *General Plan 2030* policies that serve to further reduce potential impacts related to increases in ambient noise levels are summarized in Table 4.13-4.

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would result in increased traffic that would increase ambient noise levels. The increases would not exceed three decibels and mostly would be below two decibels. Thus, permanent increases in ambient noise levels would not be significant, and permanent increases in ambient noise levels is considered a less-than-significant impact. Implementation of proposed *General Plan 2030* includes goals, policies and actions that set forth measures to minimize increases in ambient noise levels, as well as future project-level environmental review, would further reduce potential permanent ambient noise increases.

**Mitigation Measures**

None mitigation measures are required as a significant impact has not been identified.

**Impact 4.13-3: Increase in Temporary Noise Levels Due to Construction**
Implementation of the proposed *General Plan 2030* would accommodate future development that would generate temporary increases in ambient noise levels due to construction activities, although substantial generation of vibration would not be expected. Due to the temporary and short-term duration of construction with intermittent noise levels, this is considered a *less-than-significant impact*.

Future development accommodated under the proposed General Plan would result in temporary increases in ambient noise levels due to construction activities. Construction-related noise levels would vary throughout the day, depending on the type of equipment in use at any one time and the distance to the receptors, and noise impacts from construction may vary greatly depending on the duration and complexity of the project. However, construction-related noise impacts are temporary and often of a short-term duration. Noise generated during construction

could be considered a nuisance to some residents and/or employees in the proximity to such construction, and may seem intolerable during constructions phases with the loudest equipment/activities in operations.

Anticipated equipment includes, but is not limited to, equipment that would be used for excavation, site grading, and construction of structures. Construction equipment can operate in two modes – stationary and mobile. Stationary equipment operates in one location for one or more days at a time, with either a fixed power operation (pumps, generators, compressors) or a variable noise operation (pile drivers, pavement breakers). Mobile equipment moves around the construction site with power applied in cyclic fashion (bulldozers, loaders), or to and from the site (trucks). As a result of the equipment mix for any given project, each phase has its own noise characteristics; some have higher continuous noise levels than others, some have high impact noise levels. Table 4.13-5 shows typical noise levels associated with different types of construction equipment. These noise levels would decrease with distance from the construction site at a rate of approximately 6 dBA per doubling of distance (California Department of Transportation, November 2009).

Groundborne noise and other types of construction-related noise impacts would typically occur during the initial site preparation, which can create the highest levels of noise. Generally, site preparation has the shortest duration of all construction phases. Activities that occur during this phase include earthmoving and soils compaction. High groundborne noise levels and other miscellaneous noise levels can occur during this phase by the operation of heavy-duty trucks, backhoes and other heavy-duty construction equipment. Sources of man-made vibration often result from the use of heavy-duty construction equipment. The effects of vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Ground-borne vibrations from construction activities rarely reach levels that damage structures.

The draft general plan addresses construction noise in that it seeks to minimize and monitor construction noise (HZ3.1.3, HZ3.1.5). In particular, the plan seeks to ensure that construction activities are managed to minimize overall noise impacts on surrounding land uses (HZ3.1.3). Development projects are reviewed on a case-by-case basis, and typical conditions of approval include limiting the day and times of day during which construction and/or heavy construction can be conducted, provision of notification to neighbors regarding construction schedules, and implementation of a process to receive and respond to noise complaints. These are some of the types of measures that would be implemented by the City to manage and minimize construction noise impacts per proposed General Plan Actions HZ3.1.3 and HZ3.1.5.

> **Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan would result in construction of varying sound level and duration, which could be an annoyance to adjacent residents. With implementation of the proposed *General Plan 2030* includes goals, policies and actions that set forth measures to minimize exposure construction noise levels, the increase in temporary noise levels from construction-related activities would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**TABLE 4.13-5**
**Noise Levels of Construction Equipment Noise (in dBA)**

| Equipment | Typical Noise Level (dBA) 50 ft from Source |
|---|---|
| Air Compressor | 81 |
| Backhoe | 80 |
| Compactor | 82 |
| Concrete Mixer | 85 |
| Concrete Pump | 82 |
| Concrete Vibrator | 76 |
| Crane, Derrick | 88 |
| Crane, Mobile | 83 |
| Dozer | 85 |
| Generator | 81 |
| Grader | 85 |
| Impact Wrench | 85 |
| Jack Hammer | 88 |
| Loader | 85 |
| Paver | 89 |
| Pile-driver (Impact) | 101 |
| Pile-driver (Sonic) | 96 |
| Pneumatic Tool | 85 |
| Pump | 76 |
| Rock Drill | 98 |
| Roller | 74 |
| Saw | 76 |
| Scraper | 89 |
| Truck | 88 |

**SOURCE:** Transit Noise And Vibration Impact Assessment, May 2006, Federal Transit Administration, FTA-VA-90-1003-06

## REFERENCES

California Governor's Office of Planning and Research. October 2003. *State of California General Plan Guidelines*. Appendix C – Noise Element Guidelines".

California Department of Transportation. November 2009. "Technical Noise Supplement." Prepared by ICF Jones & Stokes.

Rosen, Goldberg, Der & Lewitz, Inc..

- November 29, 2010. "Future Noise Contours for: City of Santa Cruz General Plan Noise Element Update, Santa Cruz, CA:"
- November 30, 2007. "Background Report for the City of Santa Cruz General Plan Noise Element Update."

United States Department of Transportation, Federal Highway Administration. August 2006. "Construction Noise Handbook."

United States Environmental Protection Agency website, "Noise Pollution;" online at: http://www. Epa.gov/air/noise.html.

# 4.14 HAZARDOUS MATERIALS

## 4.14.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Overview
- Regulatory Setting
- City Setting

This section addresses hazardous materials use in the City of Santa Cruz. The State CEQA Guidelines Appendix G also identifies proximity to airports and wildland fire areas as potential hazards. The City is not located within two miles of an airport or private airstrip, and thus, is not subject to potential hazards related to proximity to an airport. The nearest airport is approximately 15 miles to the south in the city of Watsonville. Potential wildland fire hazards are addressed in the "Fire Protection Services" subsections of the PUBLIC SERVICES (Chapter 4.6) section of this EIR. Emergency response also is addressed in the PUBLIC SERVICES section of this EIR.

### OVERVIEW

According to the draft *General Plan 2030*, hazardous materials include toxic metals, chemicals and gases; flammable and/or explosive liquids and solids; corrosive materials; infectious substances; and radioactive materials. Hazardous materials pose a variety of potential dangers to public health and welfare related to transport, storage, handling, and disposal of these materials. Hazardous materials and hazardous waste can result in public health hazards if released into the soil, groundwater or air.

The California Health & Safety Code (Section 15501) defines hazardous material as "any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment." The California Code of Regulations (Title 22, Section 66260.10) defines "extremely hazardous material" as "a substance or combination of substances which, if human exposure should occur, may likely result in death, disabling personal injury or serious illness caused by the substance or combination of substances because of its quantity, concentration or chemical characteristics."

Hazardous waste is any hazardous material that is discarded or slated for disposal. The California Health & Safety Code (Sections 25517 and 25141) defines hazardous waste as a

waste that because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment, due to factors including, but not limited to, carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties, or persistence in the environment, when improperly treated, stored, transported, or disposed of, or otherwise managed.

## REGULATORY SETTING

The management of hazardous materials and hazardous wastes is regulated at federal, state, and local levels through programs administered by the U.S. Environmental Protection Agency (U.S. EPA), agencies within the California Environmental Protection Agency (Cal/EPA), such as the Department of Toxic Substances Control (DTSC), federal and state occupational safety agencies, Monterey Bay Unified Air Pollution Control District (MBUAPCD), and Santa Cruz County Environmental Health Services.

### Federal Regulations

The U.S. EPA is responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. The federal regulations are codified primarily in Title 40 of the Federal Code of Regulations. The primary legislation includes the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) and the Emergency Planning and Community Right-to-Know (SARA Title III). These laws and associated regulations include specific requirements for facilities that generate, use, store, treat, transport, and/or dispose of hazardous materials.

The Hazardous Materials Transportation Act of 1975 (HMTA) is the major transportation-related statute regulating the transportation of hazardous cargo. The HMTA empowers the U.S. Department of Transportation (DOT) with regulatory and enforcement authority to provide adequate protection against the risks to life and property inherent in the transportation of hazardous material in commerce. For materials that are designated as hazardous, specific requirements pertaining to the packaging, labeling, and transportation apply to any person or business transporting a hazardous material.

The U.S. Department of Labor Occupational Safety and Health Administration (OSHA) is responsible for enforcement and implementation of federal laws and regulations pertaining to worker health and safety. OSHA requires training for hazardous materials operators, which includes personal safety, hazardous materials storage and handling procedures, and emergency response procedures.

Other relevant federal laws include the Hazardous and Solid Waste Amendments Act (HSWA) regarding hazardous waste management, the Toxic Substances Control Act (TSCA), pertaining to the tracking and screening of industrial chemicals, and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), which controls pesticide distribution, sale and use.

Applicable federal regulations and guidelines are contained primarily in Titles 10, 29, 40, and 49 of the Code of Federal Regulations.

## State Regulations

In California, the DTSC is authorized by the U.S. EPA and Cal/EPA to enforce and implement federal hazardous waste laws and regulations. Requirements place "cradle-to-grave" responsibility for hazardous waste disposal on the shoulders of hazardous waste generators. Generators must ensure that their wastes are disposed of properly, and legal requirements dictate the disposal requirements for many waste streams (e.g., banning many types of hazardous wastes from landfills).

California regulations pertaining to hazardous materials equal or exceed federal regulations. In January 1996, Cal/EPA adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program governing (1) hazardous waste generators and hazardous waste onsite treatment, (2) underground storage, (3) above-ground storage tanks, (4) hazardous materials release response plans and inventories, (5) risk management and prevention programs, and (6) Unified Fire Code hazardous materials management plans and inventories. The program is implemented at the local level by a designated local agency—the Certified Unified Program Agency (CUPA). The CUPA is responsible for consolidating the administration of the six program elements within its jurisdiction. The Santa Cruz County Environmental Health Services is the designated CUPA for the City of Santa Cruz.

State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment. California's Hazardous Materials Release Response Plans and Inventory Law, sometimes called the "Business Plan Act," aims to minimize the potential for accidents involving hazardous materials and to facilitate an appropriate response to possible hazardous materials emergencies. The law requires businesses that use hazardous materials to provide inventories of those materials to designated emergency response agencies, to illustrate on a diagram where the materials are stored on site, to prepare an emergency response plan, and to train employees to use the materials safely.

Along with DTSC, the Regional Water Quality Control Board (RWQCB), which operates under the jurisdiction of Cal/EPA, is responsible for implementing regulations pertaining to management of soil and groundwater investigation and cleanup. RWQCB regulations applicable to hazardous materials are contained in Title 27 of the California Code of Regulations (CCR). Additional state regulations applicable to hazardous materials are contained in Title 22 of the CCR. Title 26 of the CCR is a compilation of those sections or titles of the CCR that are applicable to hazardous materials.

Transportation of hazardous materials and wastes is regulated by Title 26 of the CCR. The California Department of Transportation (Caltrans) is the primary regulatory authority for the interstate transport of hazardous materials and establishes safe handling procedures for packaging, marking, labeling, routing, etc. The California Highway Patrol and Caltrans enforce federal and State regulations and respond to hazardous materials transportation emergencies.

A "Uniform Hazardous Waste Manifest" is required by DTSC and must accompany most hazardous waste before transporting any waste off site. The manifest travels with the hazardous waste from the point of generation, through transportation, to the final treatment, storage and disposal facility. If a discharge or spill of hazardous waste occurs during transportation, the transporter is required to take appropriate immediate action to protect human health and the environment (i.e., notify local authorities, dike the discharge area), and shall be responsible for the discharge/cleanup, pursuant to Title 22 of the California Code of Regulations, Sections 66263.30 and 66263.31.

With respect to worker safety regulations at the state level, the California Department of Industrial Relations, Division of Occupational Safety and Health, formerly known as Cal/OSHA, is charged with enforcement of state regulations and supervision of workplaces in California that are not under direct federal jurisdiction. State worker health and safety regulations applicable to construction workers include training requirements for hazardous waste operations and emergency response, all of which equal or exceed their federal counterparts.

Although there are numerous state policies dealing with hazardous waste materials, the most comprehensive is the Tanner Act (Assembly Bill [AB] 2948) adopted in 1986. The Tanner Act governs the preparation of hazardous waste management plans and the siting of hazardous waste facilities in the state. The act also mandates the adoption of a Hazardous Waste Management Plan by every county in the state that must include provisions defining: (1) the planning process for waste management; (2) the permit process for new and expanded facilities; and (3) the appeal process to the state available for certain local decisions.

## Local Regulations

### MONTEREY BAY UNIFIED AIR POLLUTION CONTROL DISTRICT

Regarding hazardous air emissions, the MBUAPCD implements the federal National Emission Standards for Hazardous Air Pollutants (NESHAP) and Maximum Achievable Control Technology (MACT) requirements through the federal operating permit program, pursuant to MBUAPCD Rule 218. In addition, MBUAPCD's permitting program includes a "Best Control Technology" (BCT) review under MBUAPCD Rule 1000, *Permit Guidelines and Requirements for Sources Emitting Toxic Air Contaminants*. This rule covers proposed new or reconstructed major sources of federal hazardous air pollutants, toxic air contaminants, and carcinogenic toxic air contaminants.

In compliance with state law, the MBUAPCD also administers the AB 2588 Air Toxics "Hot Spots" Program. Facilities must report their toxic air contaminant emissions and if the MBUAPCD determines the facility poses a potential public health risk, the facility must perform a health risk assessment (HRA). An HRA includes an analysis of toxic air contaminant emissions and characterizes human health risks as a result of the estimated exposures. If the estimated health risks exceed threshold levels, the public in the affected area must be notified and steps taken to reduce emissions.

### CITY AND COUNTY REGULATIONS

The City's Hazardous Materials Ordinance regulates and enforces the proper storage and handling of hazardous materials. Santa Cruz City Municipal Code Chapter 6.50, Hazardous Materials, outlines procedures for any person or business that uses hazardous materials within the City. Each user is required to obtain and keep current a hazardous materials permit and is required to handle, control, and store hazardous materials in accordance with an approved Hazardous Materials Management Plan (HMMP). Depending on the quantity of solid, liquid and gaseous hazardous materials, a user would submit either a short or standard form HMMP. A standard form HMMP requires more detailed information be provided, including monitoring and inspections. In addition to the HMMP, the health officer may request additional information deemed necessary to protect the public health.

Santa Cruz County Environmental Health Services is designated by Cal/EPA as the Certified Unified Program Agency (CUPA) within the geographic boundaries of the County and is responsible for enforcing the local ordinance and state laws pertaining to use and storage of hazardous materials, including the issuance and administration of HMMPs. The City's Fire Department works in conjunction with County Environmental Health in responding to reports of hazardous materials spills and accidents, enforcing hazardous materials regulations and enforcing the City's fire code as it relates to the use and storage of hazardous materials.

## CITY SETTING

### Hazardous Material Use and Hazardous Sites

There are no current large-scale businesses that use significant quantities of hazardous materials or generate substantial amounts of hazardous waste within the City. Most hazardous materials relate to fuels, and chemicals/materials associated with small businesses, such as dry cleaners, gas stations, automotive businesses and similar businesses, as well as institutions, such as schools and universities.

Improper handling and/or storage of hazardous materials can lead to soil or groundwater contamination that requires removal or remediation (cleanup) prior to conversion to other uses. This is often encountered with uses such as underground fuel storage or historic uses that have used chemicals in manufacturing processes.

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the state of California, local agencies and developers to comply with CEQA requirements regarding provision of information about the location of hazardous materials release sites. Government Code Section 65962.5 requires the Cal/EPA to develop at least annually an updated Cortese List with input from DTSC and other state and local government agencies. There are no sites within the City of Santa Cruz that are listed on the Cortese List; only one site within Santa Cruz County is listed, which is located in Scotts Valley.

The EnviroStor database is an online search and Geographic Information System (GIS) tool for identifying sites with known or potential contamination, and sites where DTSC's environmental oversight or review has been requested or required. A search conducted in May 2011

revealed that there are seven sites where cleanup activities are underway within the City. These include former industrial or transportation uses in the Harvey West and downtown area.

- The California Water Resources Board also maintains a database system known as "Geotracker", which is used by the State Board, regional boards, and local agencies to track and archive compliance data from authorized or unauthorized discharges of waste to land, or unauthorized releases of hazardous substances from underground storage tanks. This system consists of a relational database, on-line compliance reporting features, a geographical information system (GIS) interface and other features that are utilized by the State Board, Cleanup sites [formerly known as DoD non UST]);
- Land Disposal sites (Landfills); and
- Permitted UST facilities.

A search conducted in May 2011 revealed that there are about 50 leaking underground storage tank (LUST) cleanup sites and 13 other cleanup sites identified within the Geotracker database for the City of Santa Cruz. These sites are generally concentrated along Mission, Water and Ocean Streets, within the Harvey West industrial area, and in the downtown area.

## Landfill Disposal

The City's landfill is classified as a Class III landfill, which can accept limited types of hazardous materials. T regional boards, local agencies, regulated industry and the public to input, manage, or access compliance and regulatory tracking data. GeoTracker was developed pursuant to a mandate by the California State Legislature (AB 592, SB 1189) to investigate the feasibility of establishing a statewide GIS for LUST sites (leaking underground fuel tank sites). In its pilot phase, Geotracker assembled public drinking water well and LUST data from two study areas, Santa Clara and Santa Monica. Now, Geotracker includes data for non-UST (underground storage tank) cleanup cases in addition to LUST cases. The database provides access to statewide environmental data and tracks regulatory data for the following types of sites:

- LUST cleanup sites;
- Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites);

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military he types of materials that can be disposed at Class, I, II and III landfills are specified in state regulations. Many common household products contain chemicals that can be harmful to humans, animals and the environment, and become "Household Hazardous Waste" when the products are no longer needed. Examples include paint, solvents, pesticides, house batteries, many cleaners, and auto care products. It is dangerous and illegal to dispose of household hazardous waste in the garbage, down the drain or on the ground. The City maintains a Household Hazardous Waste drop-off site at the Santa Cruz Resource Recovery Center.

Other hazardous wastes must be taken to other facilities outside the City that are permitted to accept certain types of hazardous wastes. The following is a partial list of hazardous items not accepted at the City's landfill:

- Chemicals or chemical sludges which are toxic, corrosive, irritants or a strong sensitizer
- Infectious wastes
- Radioactive wastes
- Asbestos wastes
- Tank cleaning sludges or sediments
- Contaminated soils or sand
- Wastes containing free liquid exceeding State regulatory limits

## 4.14.2 RELEVANT PROJECT ELEMENTS

### PROPOSED GOALS, POLICIES & ACTIONS

The HAZARDS, SAFETY & NOISE chapter of the draft *General Plan 2030* includes one goal that addresses hazardous materials:

GOAL HZ4 *Reduced danger and impacts from hazardous materials.*

This goal includes four accompanying polices and 13 specific actions related to reducing impacts related to hazardous materials and regulating hazardous wastes

### FUTURE DEVELOPMENT POTENTIAL

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan / Local Coastal Program, except for three new mixed use land designations that have been developed and applied to the following major transportation corridors: Mission Street, Ocean Street, Soquel, Avenue, and Water Street. Additionally, land use designation changes are proposed for three specified sites: Swenson, Golf Club Drive area, and an addition to the Dimeo Lane landfill site. The Swenson and Golf Club Drive sites are designated for residential uses. Action LU2.2.3 also includes addition of a 5.5-acre parcel adjacent to the Dimeo Lane landfill and Resource Recovery Center on the south, but specific uses have not yet been identified. However, the site will not be used as part of expansion of the landfill disposal area.

The *General Plan 2030* continues to include an industrial land use designation in the same areas currently designated industrial (Westside and Harvey West). Some of the draft *General Plan 2030* policies and actions support certain types of land uses and/or development and/or intensified redevelopment. Light industrial and "creative" industrial uses are encouraged in the Harvey West area (LU3.2.3), and "incubator" uses are specified for the Westside industrial area (LU3.2.4).

## 4.14.3 IMPACTS AND MITIGATION MEASURES

### CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

14a Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

14b Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

14c Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment; or

14d Emit hazardous emissions or handle hazardous materials, substances or waste within one-quarter mile of an existing or proposed school.

### IMPACT ANALYSIS

Based on the significance criteria identified above, the following impact analyses address potential creation of hazards to the public through transport, use or disposal of hazardous materials (14a); potential release of hazardous materials (14b); and emissions near schools (14d). There are no sites within the City that are listed the Government Code section 65962.5 (Cortese) list of hazardous materials sites (14c).

#### Potential Future Development & Buildout

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased new development. However, the draft General Plan includes policies and a land use map that support additional development. As described in the PROJECT DESCRIPTION and LAND USE sections of this EIR (Chapters 3.0 and 4.1, respectively), an estimate of the amount of development that is expected to occur by the year 2030 was developed, which includes 3,350 additional residential dwelling units and approximately 3,140,000 additional square feet of commercial, office and industrial uses.

Some of the draft *General Plan 2030* policies and actions support certain types of land uses and/or development, including new mixed-use use districts and/or intensified redevelopment. The *General Plan 2030* continues to include an industrial land use designation in the same areas currently designated industrial (Westside and Harvey West). Light industrial and "creative" industrial uses are encouraged in the Harvey West area (LU3.2.3), and "incubator" uses are specified for the Westside industrial area (LU3.2.3). Additionally, Policy ED6.2 encourages and supports "green" and environmentally-oriented businesses to locate in Santa Cruz. Overall, the type of industry and business supported in the draft *General Plan 2030* are not the type of

industry that would be significant sources of hazardous material use or generators of substantial amounts of hazardous waste.

Hazardous materials pose a variety of dangers to public health and welfare and include toxic metals, chemicals and gases, flammable and/or explosive liquids and solids, corrosive materials, infectious substances, and radioactive materials. The transport, distribution and storage of these materials is a concern of Santa Cruz residents.

**Impact 4.14-1 Creation of Hazard with Transport, Use or Disposal of Hazardous Materials**
Adoption and implementation of the proposed *General Plan 2030* could indirectly result in creation of a hazard to the public or environment through the routine transport, use or disposal of hazardous materials. With implementation of proposed *General Plan 2030* policies and actions and adherence to federal, state and local regulations, a significant hazard would not be expected to result. This is considered a *less-than-significant impact*.

Potential future development accommodated by the proposed *General Plan 2030*, as summarized above, could result in land uses that use and/or dispose of hazardous materials. New development, particularly non-residential development, would be expected to use some hazardous materials and generate hazardous waste. Residential uses also would be expected to use and dispose of hazardous household products. As indicated above, the type of industry and business that currently exist within the City and which are supported in the draft *General Plan 2030* are not the type that would be significant sources of hazardous material use or generators of substantial amounts of hazardous waste. However, hazardous materials would be continued to be used by some businesses, including fuels, chlorine, dry-cleaning solutions, and substances used in some commercial and industrial businesses. The routine use of chemicals and materials used in small businesses could create a hazard to the public or environment if not properly transported, stored, used and/or disposed.

The transportation of hazardous materials and wastes is subject to strict federal and state regulations. Certain types of uses are regulated by the state. Chemicals stored in aboveground or underground storage tanks are regulated by the state as well, and storage and containment parameters are established to provide containment in the event of accidental release. City regulations require permits for businesses that use hazardous materials, and establish requirements for storage and containment of hazardous materials. The City Fire Department works in conjunction with County Environmental Health in responding to reports of hazardous materials spills and accidents and enforcing hazardous materials regulations.

The draft *General Plan 2030* also includes policies and actions that would serve to reduce impacts related to the transport, use or disposal of hazardous materials as summarized on Table 4.14-1. Policy HZ4.4 and its supporting actions call for reduction of the risk of exposure to hazardous materials, including regulating the siting and permitting of businesses that handle hazardous materials. Policies HZ4.1 and HZ4.2 call for regulation of hazardous wastes, and HZ4.3 calls for quick and proper response to emergencies. Furthermore, Policy NRC3.2 discourages the use of environmentally harmful pesticides and herbicides.

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the Plan that utilizes hazardous materials or generates hazardous waste, would be regulated pursuant to federal, state and local laws to ensure proper transportation, handling and disposal. Furthermore, the proposed *General Plan 2030* includes goals, policies and actions that set forth measures to avoid impacts related to hazardous material use or disposal as summarized on Table 4.14-1. With adherence to local and state regulations, as well as implementation of these proposed policies and actions, the proposed General Plan 2030's indirect impact related to creation of hazards due to hazardous material transport, use or disposal would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**TABLE 4.14-1**
**Proposed General Plan Policies & Actions that Avoid or Minimize Hazardous Materials Impacts**

| Type of Measure / Action | Policies / Actions |
|---|---|
| MINIMIZE EXPOSURE TO OR CREATION HAZARDOUS MATERIAL | • Reduce risk of exposure to hazardous materials: HZ4.4<br>• Regulate businesses that handle and use hazardous materials: HZ4.4.1<br>• Periodically review and update procedures for land uses that handle, store or transport specific hazardous materials: HZ4.4.2<br>• Reduce use of toxic materials in community: HZ4.1.4<br>• Safe use and disposal of hazardous/toxic materials: HZ4.1.7<br>• Require City staff to use nontoxic materials: HZ4.1.5<br>• Discourage use of harmful pesticides, chemical fertilizers: NRC3.2<br>• Locate sensitive land use away from hazardous materials locations: HZ2.2.3 |
| REGULATE HAZARDOUS WASTE | • Regulate hazardous wastes: HZ4.1, HZ4.1.2 (hours, routes)<br>• Ensure proper handling & disposal of hazardous materials: HZ4.2<br>• Maintain Hazardous Household Wastes facility: HZ4.2.1, HZ4.2.2<br>• Prevent illegal dumping of hazardous waste at the Resource Recovery facility: HZ4.2.3<br>• Work with pharmacies to provide drop-off for medications: HZ4.2.4<br>• Work with County to prepare & implement County Hazardous Materials Plan: HZ4.1.1 |
| PROVIDE ADEQUATE EMERGENCY RESPONSE | • Ensure resources for quick response to hazardous waste emergencies: HZ4.3, HZ4.3.1 |

**Impact 4.14-2 Exposure to Hazardous Materials**
Adoption and implementation of the proposed *General Plan 2030* could indirectly result in exposure to contaminated sites accidental release of hazardous materials. With adherence to federal, state and local regulations, a significant hazard would not be expected to be created. This is considered a *less-than-significant impact*.

Future development could expose the public to hazardous materials due to siting near contaminated soils or groundwater; airborne releases; or accidental releases. New development located within industrial areas or known areas of historic use of chemicals or hazardous materials would be required to prepare a Phase I Environmental Assessment to determine potential presence of soil or groundwater contamination and to conduct further monitoring with implementation of remedial actions if necessary, if sources of contamination are identified. This is typically completed as part of real estate transactions and the CEQA environmental review process.

Businesses that generate airborne toxic emissions would be subject to MBUAPCD Rule 1000, requirements for regulating sources of toxic air contaminants (TACs). This includes preparation of a health risk assessment in situations where TACs may exceed regulatory thresholds.

The redevelopment of existing development sites would result in demolition of buildings, some of which may contain asbestos and lead-based paint that could expose workers to a hazardous material release. All demolition activities would be required to be undertaken according to OSHA standards to protect workers from asbestos and lead based paint. Any demolition of buildings containing asbestos also would be required to comply with the MBUAPCD's Rule 306 that requires reporting and investigation of certain buildings with asbestos as established under federal law. The National Emissions Standards for Hazardous Air Pollutants (NESHAPS) as set forth in the Code of Federal Regulations—40 CFR Part 61--is designed to prevent "visible emissions" of asbestos when buildings are renovated or demolished. Under federal law, a building must be inspected for asbestos prior to demolition or renovation, and federal and state agencies must be notified prior to demolition. According to the State Air Resources Control board, removal and disposal of asbestos procedures and controls must be specified in the notification form.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the Plan could result in exposure to hazardous materials due to proximity to contaminated sites or accidental release of hazardous materials. With adherence to federal, state and local regulations, the proposed *General Plan 2030*'s indirect impact related to exposure to hazardous materials would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**Impact 4.14-3 Hazardous Materials Use or Emissions Near Schools**
Adoption and implementation of the proposed *General Plan 2030* could indirectly result in of school students to hazardous materials or emissions. With adherence to federal, state and local regulations, a significant hazard would not be expected to be created. This is considered a *less-than-significant impact*.

Future new development may be located within one-quarter mile of existing school facilities. As discussed in the "Schools" subsection of the PUBLIC SERVICES (Chapter 4.6) section of this EIR, there are 10 public schools and a number of private schools located within the City, as well as, the University of California campus. New development that use hazardous materials or emit TACs could result in exposure of students to these materials. However, as discussed above in Impacts 4.14-1 and 4.14-2, hazardous material use is regulated by a number of state and local agencies, and TACs are regulated by the MBUAPCD. With adherence to these regulations, exposure would be minimized as materials would be properly stored, used, and disposed pursuant to these regulations, and air emissions would be controlled to prevent exceedences of regulatory thresholds.

**Conclusion**. Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the Plan that is within one-quarter mile of a school facility could result in exposure of students to hazardous materials. With adherence to federal, state and local regulations, exposure to hazardous materials and emissions would be considered less-than-significant.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

## REFERENCES

California Department of Toxic Substance Control.

- 2007. "DTSC's Hazardous Waste and Substances Site List – Site Cleanup (Cortese List)." online at: http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm
- 2007. "Site Cleanup." Online at: http://www.dtsc.ca.gov/SiteCleanup/index.cfm#Cleanup_Sites

# 4.15 AGRICULTURE, FOREST & MINERAL RESOURCES

## 4.15.1 ENVIRONMENTAL SETTING

**IN THIS SECTION:**

- Regulatory Setting
- Agricultural Resources
- Forest Resources
- Mineral Resources

## REGULATORY SETTING

### State Regulations

#### AGRICULTURAL RESOURCES

The Farmland Mapping and Monitoring Program (FMMP) was established in 1982 by the state of California in response to a critical need for assessing the location, quality, and quantity of agricultural lands and conversion of these lands over time. The goal of the FMMP is to provide consistent and impartial data to decision makers for use in assessing present status, reviewing trends, and planning for the future of California's agricultural land resources (California Department of Conservation, 2007). The program produces "*Important Farmland Maps*", which are a hybrid of resource quality (soils) and land use information. The maps identify five farmland categories, as well as two non-agricultural categories that are described further below.

The California Land Conservation Act, also known as the Williamson Act, was adopted in 1965. This voluntary program provides a tax incentive to owners of agricultural properties who agree to maintain their land in agricultural preserves for agricultural use. The purpose of the Williamson Act is to encourage participating property owners to continue to farm their land, and to prevent the premature conversion of farmland to urban uses. The Williamson Act applies to both prime and non-prime agricultural lands.

#### FOREST RESOURCES

In 2010, the state CEQA Guidelines were amended in response to the Legislature's directive requiring the Resources Agency to adopt amendments prepared and developed by the Office of Planning and Research related to impacts and mitigation of greenhouse gas emissions (California Natural Resources Agency, December 2009). The amendments added an environmental checklist question regarding forestry primarily due to the direct link with greenhouse gas (GHG) emissions, as conversion of forest land may result in direct GHG

emissions and removal of potential further carbon sequestration (carbon is stored in vegetation), which is recognized as a key mitigation strategy in the Air Resources Board's Scoping Plan (Ibid.). The Resources Agency staff report on the amendments also found that forest conversions may result in aesthetic, biological resource and water quality impacts (Ibid.). It indicated that the Legislature has declared that "forest resources and timberlands of the state are among the most valuable of the natural resources of the state and that such resources furnish high-quality timber, recreational opportunities, and aesthetic enjoyment while providing watershed protection and maintaining fisheries and wildlife" (Public Resources Code, § 4512(a)-(b)) (Ibid.). Based on the State's reasoning for including of forest resources in the CEQA checklist, the consideration of forest resources (and resulting impact significance) should account for impacts related to greenhouse gas emissions, loss of commercial timberland, value for biological habitat and watershed protection, and aesthetics.

Commercial timber lands are afforded protection through the state's Forest Taxation Reform Act of 1976, which mandates the creation of timberland preserve zones (TPZ) to restrict and protect commercial timber resources. A TPZ is a 10-year restriction on the use of land, and will replace the use of agricultural preserves (Williamson Act contracts) on timberland. Land use under a TPZ will be restricted to growing and harvesting timber, and to compatible uses approved by a county (or city). In return, taxation of timberland under a TPZ will be based only on such restrictions in use.

### MINERAL RESOURCES

The Mineral Resources and Mineral Hazards Mapping Program (MRMHMP) provides data about California's varied non-fuel mineral resources (such as metals and industrial minerals), naturally occurring mineral hazards (such as asbestos, radon, and mercury), and information about active and historic mining activities throughout the state (California Department of Conservation, 2007).

The California Surface Mining and Reclamation Act (SMARA) of 1975 requires the classification of land into Mineral Resources Zones (MRZs) according to known or inferred mineral potential of that area. The classification process is based on the underlying geology. The primary goal of the mineral land classification is to ensure that the mineral potential of the land is recognized by local government decision makers and is considered before making land use decisions that could preclude mining.

## Local Regulations

Section 16.50.095 of the Santa Cruz County Code requires agricultural buffers of 200 feet for non-agricultural uses adjacent to specified agricultural lands within the County. The purpose is to prevent or minimize potential conflicts between either existing or future commercial agricultural and habitable land uses (i.e., residential, recreational, institutional, commercial or industrial). The buffer would be designed to provide a physical barrier to noise, dust, odor, and other effects which may be a result of normal commercial agricultural operations such as: plowing, discing, harvesting, spraying or the application of agricultural chemicals and animal rearing. All habitable uses are required to comply with this provision.

## AGRICULTURAL RESOURCES

The Important Farmland Maps produced by the state of California under the FMMP identify five farmland categories: Prime Farmland, Unique Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Grazing Land, as well as two non-agricultural categories: Urban and Built-Up Land and Other Land. The City of Santa Cruz is largely developed and all lands within City limits and the City's existing Sphere of Influence are designated as Urban and Built-Up Land and Other Land. Some adjacent lands outside City limits, but within the *General Plan 2030* planning area are designated Prime Farmland, Farmland of Statewide Importance, and Grazing Land. These agricultural lands are identified primarily west of the City, as well as limited small areas along Ocean Street Extension and in the Carbonera area. State-mapped agricultural lands are shown on Figure 4.15-1.[1]

## FOREST RESOURCES

The City of Santa Cruz is primarily developed with open spaces within parks and City-owned greenbelt lands as shown on Figure 1-2. There are no designated TPZ lands within the City. Areas of mixed evergreen, redwood forest and oak woodlands occur within the City, primarily within the city-owned open space greenbelt lands. (See the BIOLOGICAL RESOURCES [Chapter 4.8] section of this EIR for further discussion.)

In addition to native woodlands, some areas within the City contain non-native tree groves with a dense canopy. The most widespread non-native tree in these stands is blue gum eucalyptus, primarily within DeLaveaga Park. Other dominant, non-native trees include Monterey pine (native to small areas on the coast, including northwestern Santa Cruz County, but naturalized in the vicinity of Santa Cruz), Monterey cypress (native to the Monterey area, but naturalized in the vicinity of Santa Cruz), and acacias. In some canyons in DeLaveaga Park, English elm is the dominant non-native tree species.

## MINERAL RESOURCES

The City of Santa Cruz is primarily developed. There are no mines or areas of known mineral resources within the City, although there is a designated aggregate location west of the City within the General Plan planning area (California Department of Conservation, 2006). An approximate 360±-acre sand quarry adjacent to and surrounded by Wilder Ranch State Park. The site is located within the unincorporated area of Santa Cruz County and subject to County regulations. According to the County's online GIS mapping, the quarry is designated Mountain Residential (RM) in the County's General Plan and zoned "Special Use". Mining operations are regulated by the County via use permit approval and conditions. The quarry has an approved reclamation plan, and mining operations are expected to be completed within 10± years.

[1] All EIR figures are included in Chapter 7.0 at the end of the EIR (before appendices) for ease of reference as some figures are referenced in several sections.

Construction aggregate, which includes alluvial sand and gravel or crushed stone, is the largest non-fuel mineral commodity produced in California, as well as in the nation, and production plays a major role in the economy of California (California Department of Conservation, 2006). Demand for aggregate is expected to increase as the state's population continues to grow and infrastructure is maintained and improved. For the last 28 years, the California Geologic Survey has conducted on-going studies that identify and evaluate aggregate resources throughout the state (Ibid.).

## 4.15.2 RELEVANT PROJECT ELEMENTS

### PROPOSED GOALS, POLICIES & ACTIONS

The LAND USE chapter of the draft *General Plan 2030* includes several policies and actions to prevent loss of prime agricultural lands (LU1.2, LU1.2.1), preserve agricultural land at the City's edge (LU2.3), and support County efforts to protect agricultural lands along the coast north of Santa Cruz (LU3.5). Action HZ4.1.6 seeks to emphasize the City's role as an organic agricultural center and work with appropriate agencies to develop demonstration projects on non-chemical pest control.

The NATURAL RESOURCES AND CONSERVATION chapter also addresses resource conservation and protection. Policy NRC3.4 seeks to conserve agricultural and known mineral resources in the planning area. Two goals address resource conservation and urban forests as set forth below. Goal NRC5 and its accompanying policies and actions seek protection and management of tree resources in the urban environment (NRC5.1) with maintaining and adding to the City's urban tree canopy and diversity (NRC5.2.1).

- GOAL NRC3 Conservation and stewardship of resources.
- GOAL NRC5 An enhanced and sustainable urban forest.

### FUTURE DEVELOPMENT POTENTIAL

The *General Plan 2030* Land Use Map and land use designations are largely unchanged from the 1990-2005 General Plan / Local Coastal Program, except for three new mixed use land designations that have been developed and applied to the City's major transportation corridors. Land Use actions LU1.1.4 and LU1.1.5 address development and land use for specific sites: the Swenson property and the Golf Club Drive property, respectively. LU2.2.3 also includes addition of a 5.5-acre parcel adjacent to the Dimeo Lane landfill and Resource Recovery Center. Specific uses haven't been identified for the Dimeo Lane site, although it will not be used as part of any expansion of the landfill disposal area. In addition, the proposed *General Plan 2030* supports development of a desalination plant (Policy CC3.1.3), but a specific site is not identified.

# 4.15.3 IMPACTS AND MITIGATION MEASURES

## CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines (including Appendix G), City of Santa Cruz plans, policies and/or guidelines, and agency and professional standards, a project impact would be considered significant if the project would:

15a Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance Farmland as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;

15b Conflict with existing zoning for agricultural use, or a Williamson Act contract;

15c Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use;

15d Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526);

15e Result in the loss of forest land or conversion of forest land to non-forest use;

15f Involve other changes in the existing environment which, due to their location or nature, could result in conversion of forest land to nonforest use; or

15g Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state or loss of availability of a locally-important mineral resource recovery site delineated on a local general plan.

In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and the forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board.

## IMPACT ANALYSIS

The City is primarily developed, and future development accommodated by the proposed *General Plan 2030* would be considered infill development.

### Forest Resources

There are no areas of protected timberland land within the City or its existing Sphere of Influence, and there are no protected timberlands within the *General Plan 2030* planning area. Thus, there would be no conflicts with zoning of forest lands (15d) or the conversion of timberland (15e-f). Furthermore, the proposed plan includes goals, policies and actions that seek maintenance and expansion of the City's urban forest as summarized in Table 4.15-1.

## Mineral Resources

There are no designated mineral resources within the City, its existing Sphere of Influence or the *General Plan 2030* planning area, and therefore, the proposed General Plan would have no impact to mineral resources (15g). An existing quarry is located west of the City within the General Plan planning area. The site is located within the unincorporated area of Santa Cruz County and subject to County regulations. According to the County's online GIS mapping, the quarry is designated Mountain Residential (RM) in the County's General Plan and zoned "Special Use". Mining operations are regulated by the County via use permit approval and conditions, and the proposed *General Plan 2030* would not result in the loss of availability of this resource. Furthermore, the proposed plan includes policies that seek protection of any known mineral resources in the planning area as summarized in Table 4.15-1. The site is designated "Parks" in the proposed General Plan, but the completion of mining and reclamation of the site as well as future uses would be governed by the County.

## Agricultural Resources

There are no designated agricultural lands within City limits or the City's existing Sphere of Influence. Thus, future development accommodated by the plan would not result in conversion of agricultural lands (15a) or conflict with existing agricultural zoning or Williamson Act contracts (15b). The lands adjacent to City boundaries on the west are identified agricultural lands in the State Farmland Mapping Program, and are also designated "Agriculture/Grazing" in the City's existing General Plan and in the proposed *General Plan 2030*. The only other identified agricultural property is outside city limits and Sphere of Influence on the west side of Ocean Street Extension. This property is identified as Prime Farmland in the state mapping program, but is designated as Very Low Density Residential in both the City's existing General Plan and in the proposed *General Plan 2030* based on County General Plan land use designations for this area. The property is not within city limits or the City's adopted Sphere of Influence, and any future proposed development would be subject to County land use plans and designations. Thus, the proposed *General Plan 2030* would not result conversion of farmland.

The following impact analyses address potential conflicts that may occur between future development under the proposed General Plan and adjacent agricultural lands (15c).

**Impact 4.15-1: Conflicts with Agricultural Uses**
Adoption and Implementation of the proposed *General Plan 2030* would accommodate future development which would not result in conflicts with agricultural uses of that could lead to conversion of farmlands to non-agricultural uses with implementation of proposed policies and actions. Therefore, there is a *less-than-significant impact*.

Adoption and implementation of the proposed *General Plan 2030* would not directly result in increased new development. However, the draft General Plan includes policies and a land use map that support additional development as summarized in subsection 4.15.2 above. The proposed plan includes lands to the west of the City within the General Plan planning area. These lands, located within the unincorporated area of Santa Cruz County, are designated

"Farmland of Statewide Importance" in the State Farmland Mapping Program, and lands designated "Prime Farmland" are found just east and south of this area. They are also designated as Agriculture/Grazing in the proposed General Plan.

Land use conflicts between agricultural and non-agricultural uses typically include noise, dust, odors and potential "drift" of pesticide application associated with agricultural operations. As development occurs near agricultural areas, farmers also are confronted with issues of theft, vandalism, and urban pest control in landscaped areas associated with urban development.

Establishment of buffers can help minimize conflicts between agricultural and urban land uses. The buffer setback is intended to minimize potential conflicts through the provision of distance as a physical barrier to noise, dust, odor and other effects of normal commercial agricultural operations such as plowing, discing, harvesting, application of agricultural chemicals or rearing of animals. The Santa Cruz County Code (section 16.50.095) requires a 200-foot buffer between commercial agricultural lands and habitable spaces within the unincorporated area of the County. For industrial uses, County regulations specify the setback be measured from structures and outdoor areas designed for public parking and intensive human use (i.e., outdoor patios). The County regulations require incorporation of vegetative or other physical barriers within the setback as necessary to minimize potential land use conflicts. A setback with a fence and densely planted row of evergreen trees at the edge of the setback provides further physical separation between agricultural and non-agricultural uses.

The potential for future development adjacent to agricultural lands is very limited. For agricultural lands to the west of the City, most lands bordering this area are either within the City's protected greenbelt (Moore Creek Preserve) in which no development would be permitted or within lands owned by the University of California, which are not subject to City land use regulations. A couple of private properties along the short segment of Shaffer Road south of Highway 1 are already developed or have approved permits. Agricultural buffers in this area range from approximately 10-20 feet to 200-300 feet for two existing and one approved industrial buildings in this area. Similarly, residential uses are located across the street from lands in agricultural production along Ocean Street Extension within unincorporated County areas. Lands within City limits do not directly abut these agricultural lands. Nonetheless, even if expanded development were proposed in the future, the proposed General Plan policies and actions outlined in Table 4.15-1 would serve to reduce potential conflicts with adjacent agricultural uses with support of County agricultural policies on the North Coast (LU2.3.5) and requiring or maintaining buffers for development adjacent to agricultural lands (CD1.4.3).

It is noted that landscaped buffers do not totally eliminate odors and noise. To minimize potential complaints from non-agricultural uses adjacent to agricultural uses, the County of Santa Cruz and other agencies require that buyers of properties adjacent to agricultural operations be advised of existing adjacent agricultural uses and operations during the real estate transaction process. Recordation of an acknowledgement of adjacent agricultural uses as part of the parcel deed is required at the time of property purchase or issuance of building permit. This "Buyer Beware" program, which has been in effect since 1979 within the county, requires landowners adjacent to designated agricultural lands to acknowledge through deed recordation that they are aware of adjacent agricultural uses, and are prepared to accept

potential occasional inconveniences and discomfort associated with adjacency to normal agricultural operations.

**Conclusion.** Adoption and implementation of the proposed *General Plan 2030* would not directly result in new development, but new development accommodated by the plan could be sited adjacent to agricultural lands. However, the land potentially affected by adjacent agricultural lands includes only a very limited area along Shaffer Road at the western end of the City, as other lands adjacent to agricultural lands are in open space or state-owned. Furthermore, with implementation of the proposed *General Plan 2030* goals, policies and actions aimed at preventing conversion of agricultural lands and the maintenance and establishment of adequate buffers between adjacent land uses, there would be no conflicts between future development and agricultural uses.

**Mitigation Measures**

No mitigation measures are required as a significant impact has not been identified.

**TABLE 4.15-1**
**Proposed General Plan Policies & Actions that Avoid or Minimize Impacts to Agricultural Lands**

| Type of Measure / Action | Policies / Actions |
|---|---|
| PREVENT CONVERSION OF AGRICULTURAL LANDS | • Prevent loss of prime ag land through environmental review: LU1.2, LU1.2.1<br>• Preserve and conserve ag lands at City's edge: LU2.3, NRC3.4<br>• Support County ag policies on North Coast: LU2.3.5<br>• Conserve agricultural resources in planning area: NRC3.4 |
| PREVENT OTHER CHANGES THAT COULD RESULT IN CONVERSION OF AG LANDS | • Require or maintain agricultural buffers: CD1.4.3 |
| TREE PROTECTION | • Protect tree resources & heritage trees: NRC5.1<br>• Maintain & increase urban tree canopy & tree diversity: NRC5.1.2, NRC5.2<br>• Promote street tree planting: NRC5.2.1<br>• Educational programs to promote urban forest: NRC5.1.1 |
| MINERAL RESOURCE PROTECTION | • Conserve known mineral resources in planning area: NRC3.4 |

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