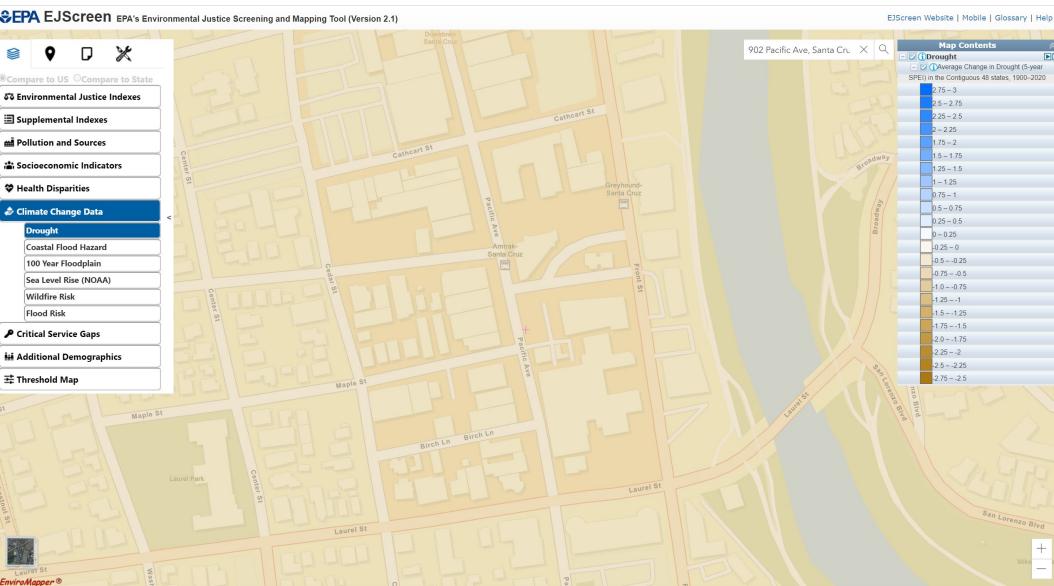
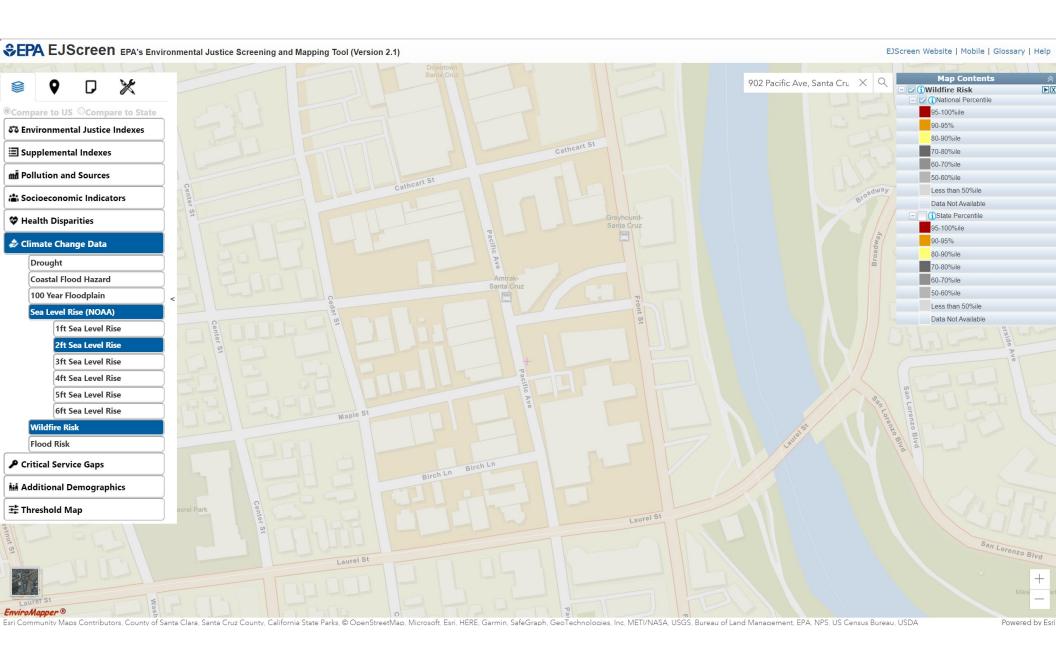




Esri Community Maps Contributors, County of Santa Clara, Santa Cruz County, California State Parks, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA

























ACKNOWLEDGEMENTS

Santa Cruz City Council

Don Lane, Mayor Hilary Bryant, Vice Mayor

Katherine Beiers Rvan Coonerty Tony Madrigal Lynn Robinson David Terrazas Cynthia Mathews Michael Rotkin Edward Porter

Emily Reilly

Prepared by the

City of Santa Cruz Planning and Community Development Department

Juliana Rebagliati, Director

Santa Cruz Planning Commission

William Shultz, Chair Rod Quartararo, Vice Chair David Foster

Peter Kennedy Mark Mesiti-Miller Tim Goncharoff Mari Tustin Scott Dalv Diane Louie Kaitilin Gaffney Deanna Purnell Iudv Warren Larry Kasparowitz

With the Assistance from the Following

General Plan Advisory Committee

Linda Bixby Wally Brondstatter Scott Daly David Foster Kaitilin Gaffney Yolanda Henry Charlie Keutmann Don Lane, Chair Diane Louie Deanna Purnell Rod Quartararo Kris Reves Lynn Robinson William Schultz David Subocz Larry Kasparowitz Judy Waren Mari Tustin

Michael Bethke

Frank Zwart (ex-officio)

Alternates John Barnes Michael Di Donato Marti Mariette Clarke Shultes Scott Wedge Chip

Contributing Commissions

Arts Commission

Water Commission

Historic Preservation Commission Parks and Recreation Commission Public Works Commission Transportation and Public Works Commission

General Plan Staff

Planning and Community Development Department

Juliana Rebagliati Greg Larson Ken Thomas Michelle King Iulianne Ward Lupita Alamos Cathlin Atchison Liz Camarie Maggie Schwarb Ariana Green Carol Berg Norm Daly Ross Clark Charlie Lewis

Office of the City Manager

Dick Wilson Martin Bernal Tina Shull

Parks and Recreation Department

Dannettee Shoemaker Carol Scurich Trink Praxel Steven Hammack

Public Works Department

Mark Dettle

Christopher Schneiter

Mary Arman Jim Burr

Redevelopment and Economic Development Department

Bonnie Lipscomb Ceil Cirillo Joe Hall Crystal Birns

Water Department

Bill Kocher Toby Goddard

Police Department

Kevin Vogel Patty Sapone Zach Friend

Fire Department Matthew Tracy Eric Aasen Mark Ramos

GIS/Mapping Richard Westfall

Consultants

Naphtali Knox, Knox and Associates Stephanie Strelow, Strelow Consulting Ron Marquez, Traffic Consultant Bill Davila, Ecosystems West Andrew Pulcheon, LSA & Associates

David Early, Design Community & Environment

Katie Burdick, Burdick & Company Janet Smith-Heimer, Bay Area Economics Harold Goldberg, Rosen, Goldberg,

Der & Lewitz

Jeff Waller, Hatch Mott MacDonald Ruth Bernstein, The Evans/McDonough Company, Inc

Jane Bolling, Jane Bolling Design

Redbat Photography







TABLE OF CONTENTS

Chapter 1: Introduction	1
The planning area	2
Related plans	2
Local Coastal Program	
Other Plans	
Housing element	
The role of this chapter	3
What is a general plan?	4
Legal requirements	4
Environmental assessment	4
Maps and diagrams	4
Santa Cruz General Plan history	5
The general plan process	5
Master Transportation Study (MTS)	
Cruz to the Future festivals	6
General Plan Advisory Committee (GPAC)	6
Public involvement	
General Plan communitywide survey	
Community design workshop	
Website	8
Vision and principles	8
Vision	8
Guiding principles	8
Organization of the plan	9
Goals, policies, and actions	9
Format	9
Role of the planning commission	10
Public review period and adoption	10
Amending the plan	11
Annual reports	1
Amendment cycles	1
Periodic updates	1

Chapter 2: Historic Preservation, Arts, and C	ulture 1:
Historic preservation, arts, and culture background	1:
Historic preservation	
Arts and culture	10
Goals, policies, and actions	10
Historic preservation	1
Arts and culture	1
Chapter 3: Community Design	2
Community design setting	25
Natural setting	
City character	20
Community values	2
Neighborhoods	2
A sense of place	2
Walkability	2
Goals, policies, and actions	28
Chapter 4: Land Use	3
Land use background	3
Sustainability	3
Complete neighborhoods	3
Employment opportunities	3
Land use and mobility	3
Open space and natural resources	3
Land use element requirements	3'
Existing land uses	3'
General Plan land use designations	39
Residential densities	4
Residential designations	4
Commercial designations	4
Mixed-use designations	4
Industrial designations	4





Public and institutional designations	42
Park and open space designations	42
Goals, policies, and actions	43
Land use patterns	45
Job creation	45
Commercial uses	45
Residential uses	46
Community needs	46
Open space	46
Chapter 5: Mobility	51
Mobility background	51
Transportation modes	
Land use patterns	
Transportation basics	52
Regional transportation	52
Road system	52
Future improvements	53
Goals, policies and actions	53
Chapter 6: Economic Development	63
Economic background	63
The regional economy	
The City's tax base	64
Role of the University in the local economy	64
The local workforce	64
The city's business districts	64
A sustainable economy	64
Goals, policies, and actions	65
Chapter 7: Civic and Community Facilities	71
Background	
Involved and informed citizenry, responsive and	
effective government	71
Comprehensive community facilities	
and services	
Water supply	
Wastewater system	73

Stormwater system	74
Solid waste	74
Community safety	75
Education	75
Libraries	75
Health and human services	75
Childcare	75
A technologically innovative community	75
Goals, policies and actions	76
Chapter 8: Hazards, Safety, and Noise	87
Hazards, safety, and noise background	87
Emergency and disaster readiness	87
Created hazards	88
Natural hazards	91
Goals, policies, and actions	92
Chapter 9: Parks, Recreation, and Open Space	109
Parks, recreation, and open space background	109
Parks and recreational facilities	109
Open space	110
Community gardens	110
Recreation programs	111
Trails	111
Goals, policies, and actions	
Chapter 10: Natural Resources and Conservation	117
Background	117
Creeks, riparian corridors, and wetlands	117
Plant and animal communities and habitats	119
Energy	121
Goals, policies and actions	122
Chapter 11: Implementation	131
Actions	
Glossary	185
Abbreviations	
Definitions	186



LIST OF MAPS

Regional Location and Municipal Boundaries	14
Areas of Historical Archaeological Sensitivity	21
Existing and Proposed Historic Districts	22
Paleontological	23
Landmarks	24
Neighborhoods	33
General Plan Land Use	48
General Plan Planning Area	49
Bicycle and Pedestrian Paths	59
Functional Classification	60
Railway System	61
Resident Daily Travel Patterns	62
Service Area	85
Community Facilities	86
Fire Hazard Area	98
Slope	99
Existing Noise Contours	100
Future Noise Contours	101
FEMA Flood Zone	102
Major Watercourses	103
Seismicity	104
Liquefaction	105
Tsunami Inundation Zone	106
Emergency Facilities	107
Parks and Open Space	115
Sensitive Habitat	129
Vegetation Types	130



vi



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*, *longrange*, 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 *longrange*—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 councilmanager 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







0.75

1.5 Miles

City of Santa Cruz



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.

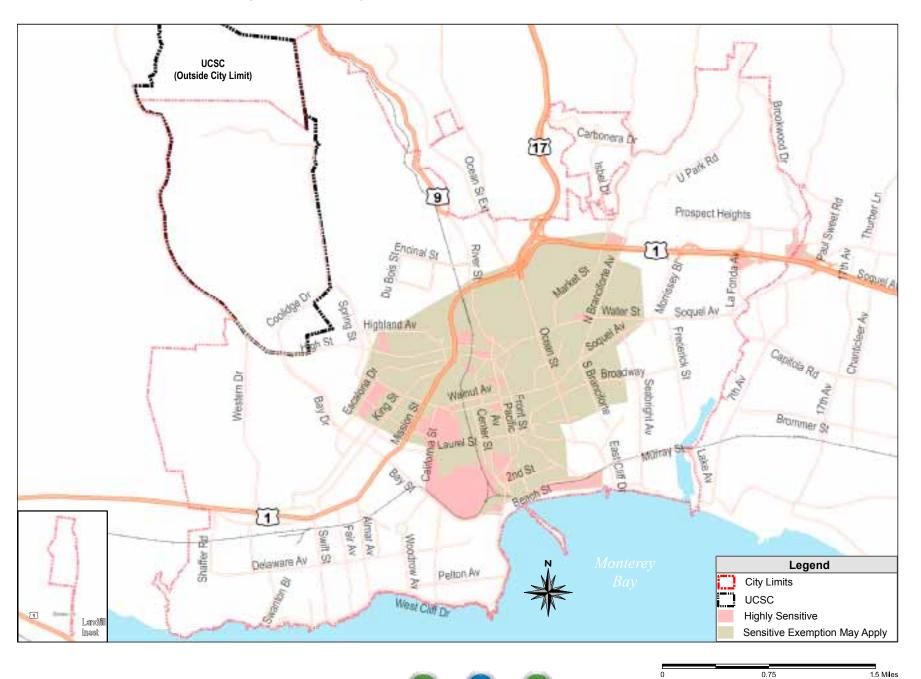




- HA4.1.1 Encourage public art projects that involve the community in design and implementation.
- HA4.1.2 Facilitate the placement of works of art for public display.
- HA4.2 Integrate art into City projects in accordance with the City's Public Art Plan.
 - HA4.2.1 Include public art in capital improvement 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.







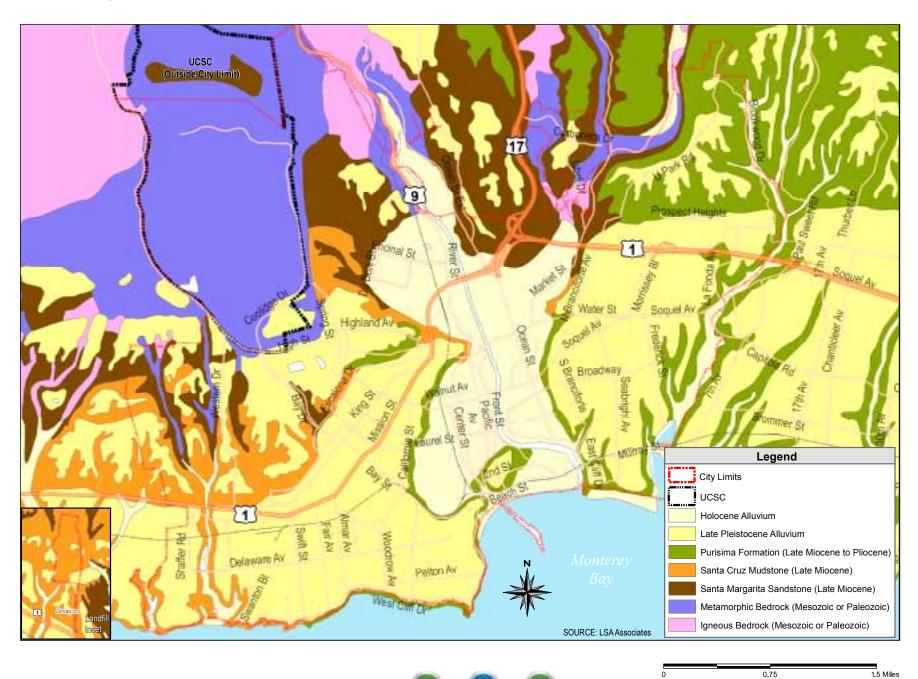




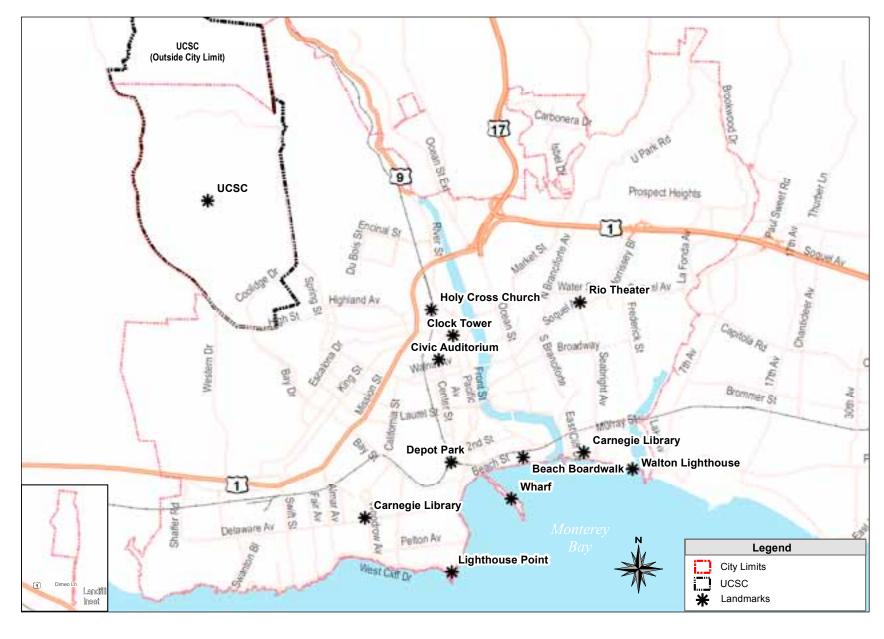
1.5 Miles

0.75

City of Santa Cruz



Landmarks











City of Santa Cruz



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 coast-line 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.



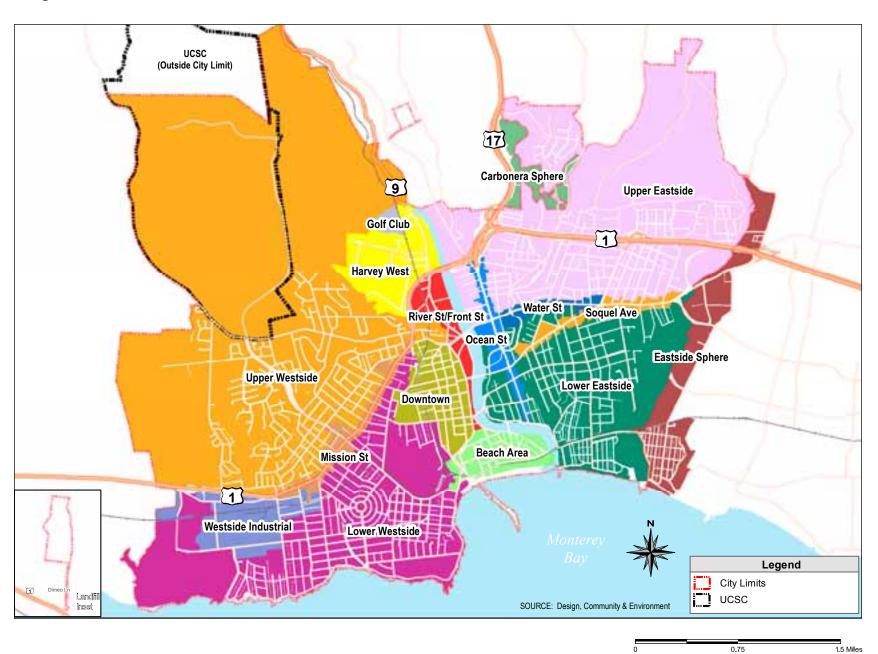
- CD4.2.2 Review landscaping requirements for parking lots. Cf. M1.6, ED5.4.1.
- CD4.2.3 Underground utilities when major road improvement or reconstruction is proposed, if possible.
- CD4.2.4 Develop guidelines that ensure sound walls, retaining walls, or fences are visually interesting and well land-scaped.
- 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.















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 con-

trolled 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 work-place.



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 over-draft 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.



20

30

- 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.

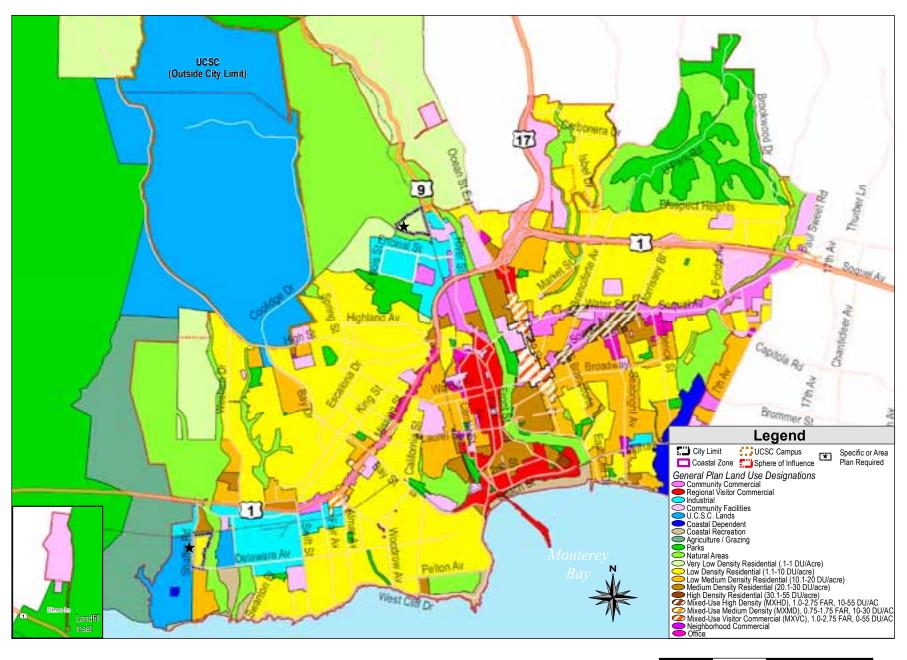


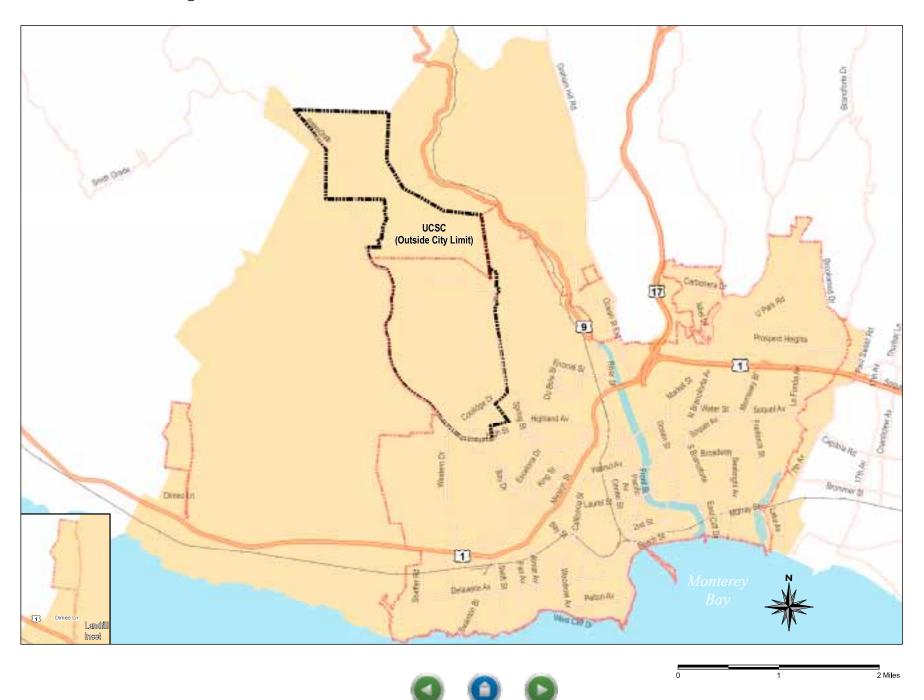
- LU4.1.2 Amend the Zoning Ordinance to ensure that infill and intensified development is sensitive to existing neighborhood and business districts.
- LU4.1.3 On major corridors, encourage mixed-use development, especially projects with priority for commercial uses that can provide services to the adjacent 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.
- 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.



20 30











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.



20

30

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, flex-time, 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 "com-

plete 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.
 - Create walkable, transit-oriented activity centers throughout the city. Cf. ED5.1, LU4.2; and M2.4.2, 3.1.2, and 4.3.
 - M1.1.2Connect activity centers with pedestrian and bicycle paths. Cf. M4.3.
 - Implement pedestrian and bicycle improvements that M1.1.3support transit ridership.
 - Amend the Zoning Ordinance to create an activity-M1.1.4 center-oriented urban form.
 - Support consolidating employment centers. M1.1.5
- M1.2Create 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."
 - Facilitate implementation of livable street design guidelines for key street types as defined in the City's Master Transportation Study.
 - Maintain street access to neighborhoods through the M1.2.2Capital Improvements Program.
- M1.3Create 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-ofway 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.
- M2.4.3Establish 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.
- M2.4.5Consider giving priorities to transit service on city transportation corridors.
- M2.4.6Encourage increased transit service capacity.
- M2.4.7Maintain and expand bus service along major commute corridors and to major destinations and to any future fixed-guideway systems.
- Encourage commuter bus travel to and from major M2.4.8destinations. Favor express bus systems along major commute corridors with a minimum number of stops.
- Increase local and regional transit ridership by M2.4.9encouraging 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.
- M2.5Consider 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

- M3.1Acknowledge and manage congestion.
 - Seek ways to reduce vehicle trip demand and reduce M3.1.1the number of peak hour vehicle trips. Cf. LU4.2, LU4.4, ED4.3.5.
 - Encourage high occupant vehicle travel. Cf. M1.1, M3.1.2and M1.5.1.
 - Strive to maintain the established "level of service" D M3.1.3or better at signalized intersections.
 - M3.1.4Accept 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.
 - Maintain and update the Transportation Impact Fee M3.1.5to ensure that developers pay a proportional share of circulation system improvements. Cf. LU1.4 and ED2.3.1.
 - Finance circulation system improvements by using M3.1.6local revenues as a match to leverage federal and State funds.

20

30

- 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.



- M3.3.6Reduce traffic in residential neighborhoods by improving arterial and collector streets and providing appropriate signs along arterial and collector routes. Cf. HZ3.1.7.
- Develop neighborhood traffic control plans where M3.3.7necessary to minimize traffic impacts on local streets.
- GOAL M4 A citywide interconnected system of safe, inviting, and accessible pedestrian ways and bikeways
- Enable and encourage walking in Santa Cruz. Cf. CD5.1. M4.1 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.
 - Encourage walking in Santa Cruz through educa-M4.1.4 tional outreach and promotional programs.
 - M4.1.5 Where there are proposed or existing plan lines, require developments to dedicate land for rights-ofway, 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.

- M4.2Provide and maintain a complete, interconnected, safe, inviting, and efficient citywide bicycle network. Cf. CD5.1, CC8.4, PR4.1.2.
 - M4.2.1Maintain and update as necessary the City's Bicycle Transportation Plan.
 - Work with appropriate agencies to seek funding for M4.2.2pedestrian and bicycle projects.
 - M4.2.3Facilitate bicycling connections to all travel modes.
 - Implement bicycle safety programs and cooperate M4.2.4with other agencies in the enforcement of bicycle safety.
 - M4.2.5Study 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.
 - Provide regular sweeping, pavement repairs, striping, M4.2.6and 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.
 - Promote the development of bike lanes on arterial M4.3.1and collector streets and in proposed and alreadyadopted City plans.
 - M4.3.2Develop bike commute routes along railroad rights-ofway (while ensuring the ability to develop rail transit) and along West Cliff Drive, Broadway, King, and other streets.
- Assure a high level of bicycle user amenities. Cf. PR1.6.4. M4.4
 - Maintain Zoning Ordinance and parking district M4.4.1 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.





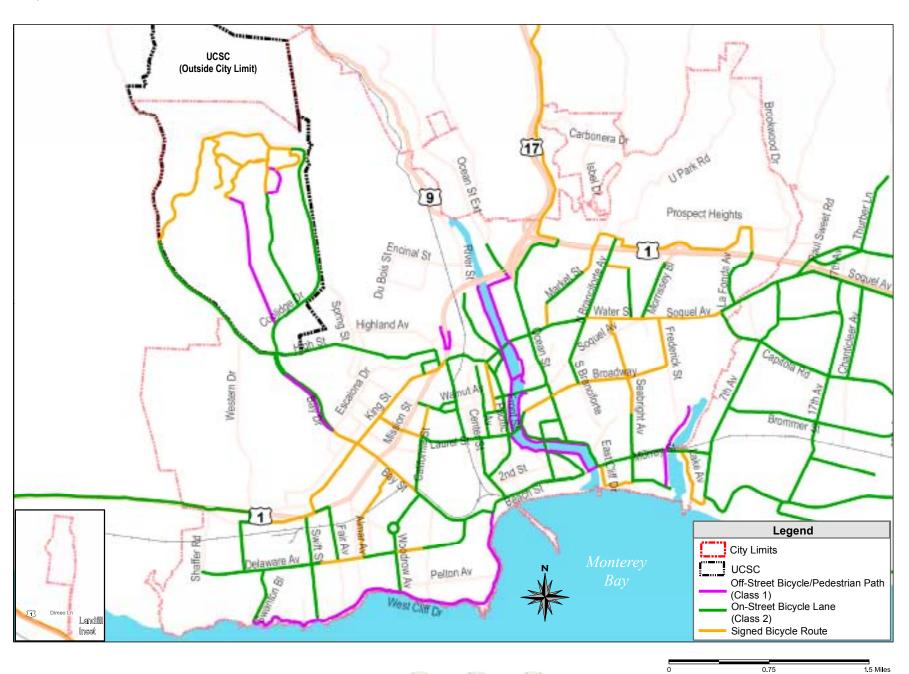
20

30

- 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.



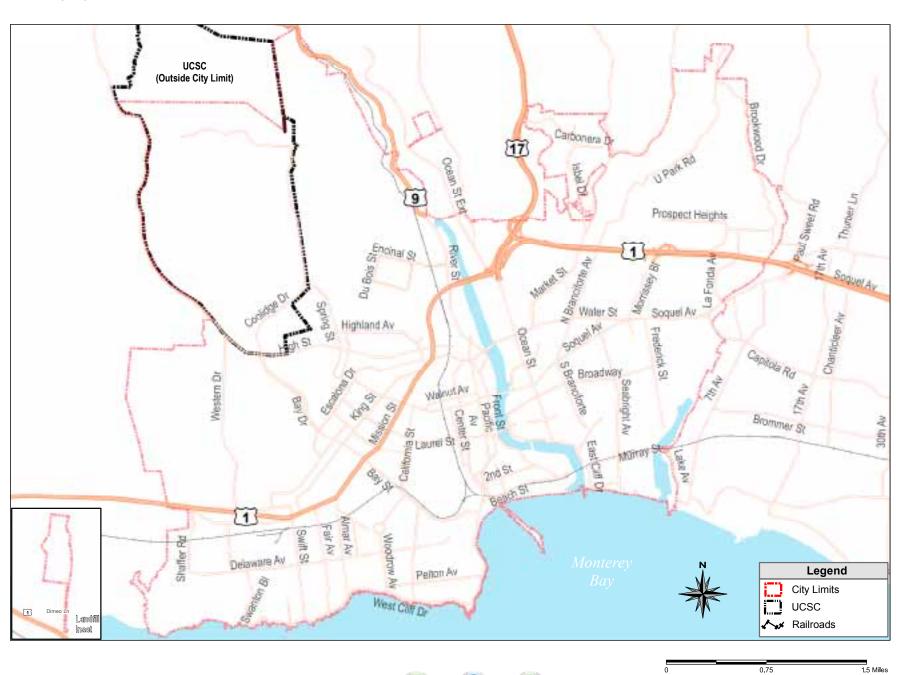








0.75















0.75



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 proj-

ects—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.
- 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.
- Promote cultural tourism as a vital element of the local econ-ED6.9 omy.
 - 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.









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 land-fill 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 lowand 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 child-care 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.

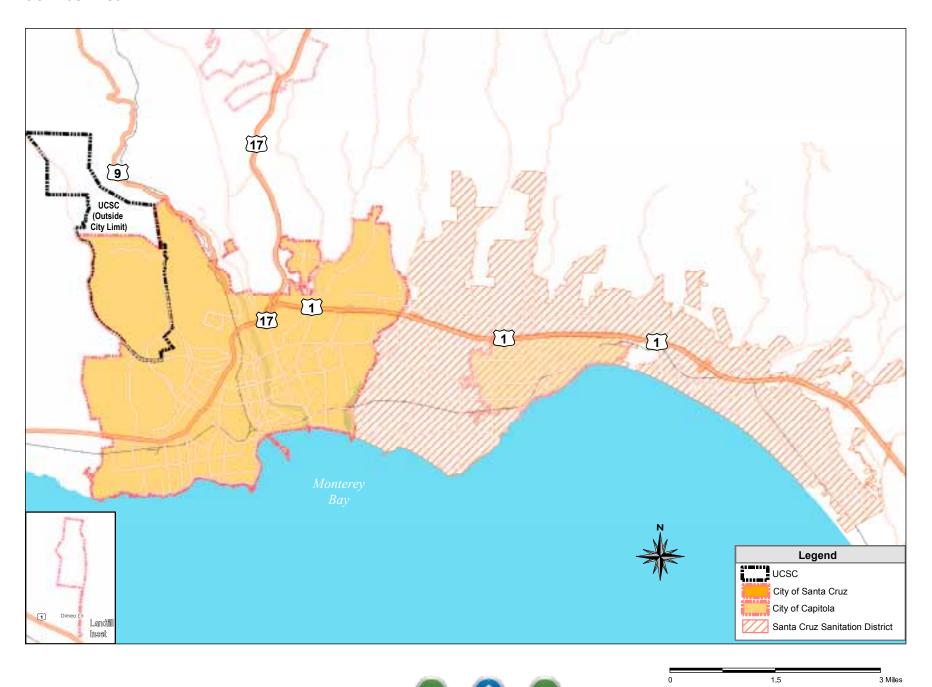


- CC11.2 Improve the efficiency and effectiveness of municipal services through the implementation of new technologies.
 - CC11.2.1 Collaborate with the County and other municipalities in developing consistent policies for developing communication and information technologies.
 - CC11.2.2 Develop and 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.











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.

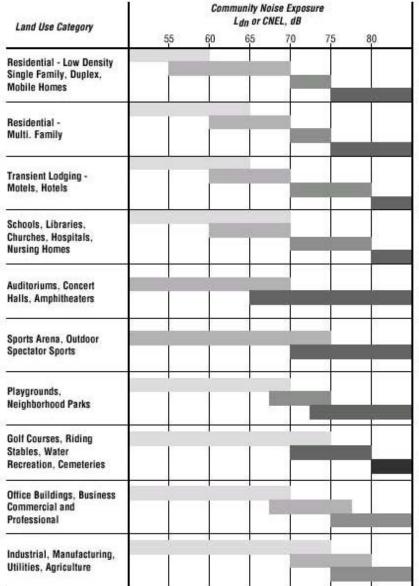
Because sensitivity to noise increases in the evening and at night and excessive noise interferes with the ability to sleep, 24-hour descriptors were developed to add artificial noise penalties to quiet-time noise events. State law requires general plans to use the Community Noise Equivalent Level (CNEL) or $L_{\rm dn}$ to describe the community noise environment and its effects on the population. (The two are essentially the same.) General Plan 2030 uses $L_{\rm dn}$. 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



INTERPRETATION:

Normally Acceptable

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction. but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable

New construction or development should generally not be undertaken.

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
- 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.
 - Limit truck traffic in residential and commercial HZ3.1.9 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 con-



- trol 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.





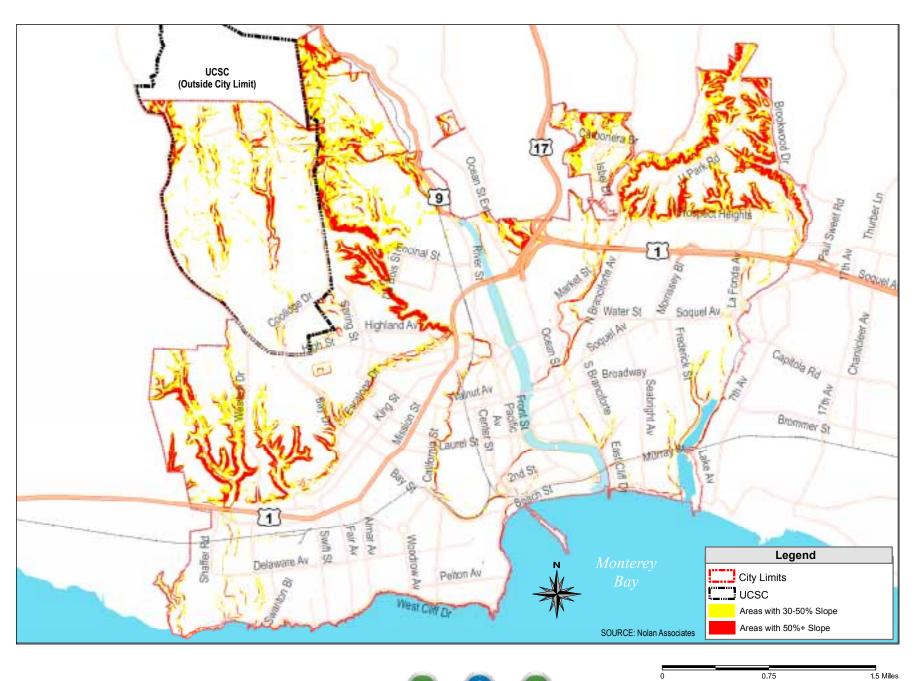


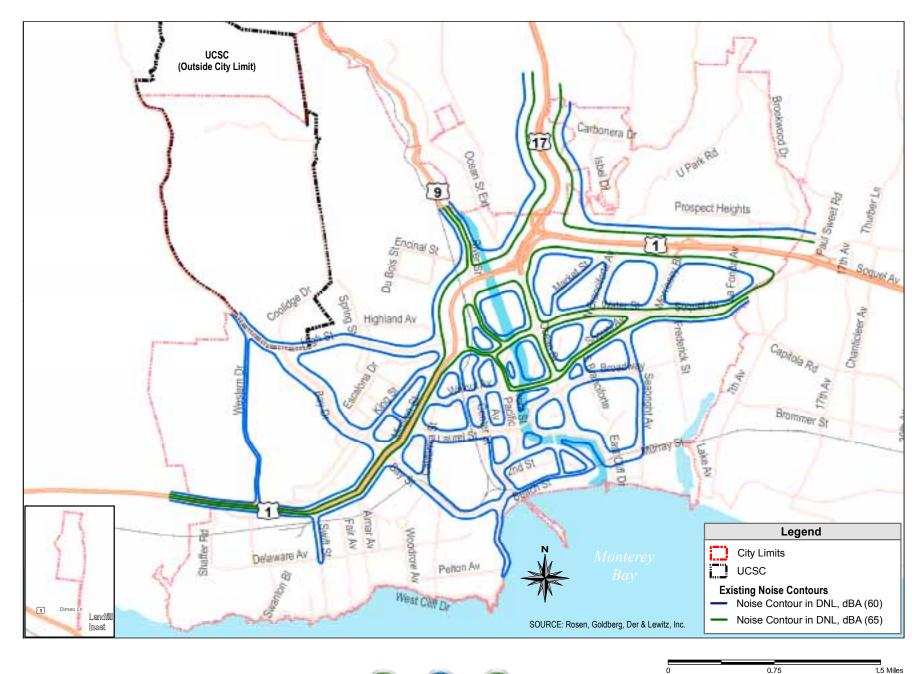


1.5 Miles

0.75

City of Santa Cruz

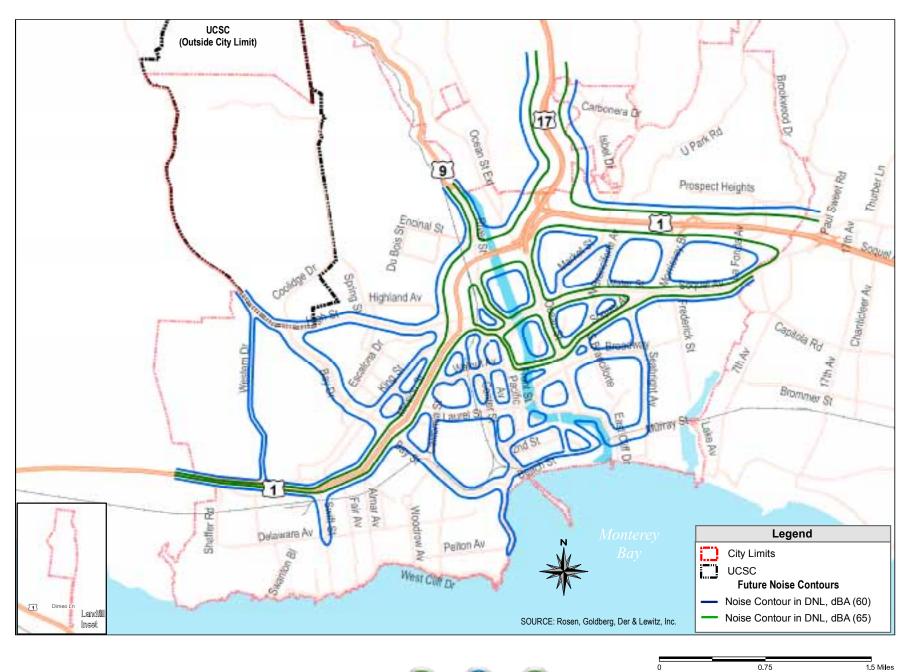








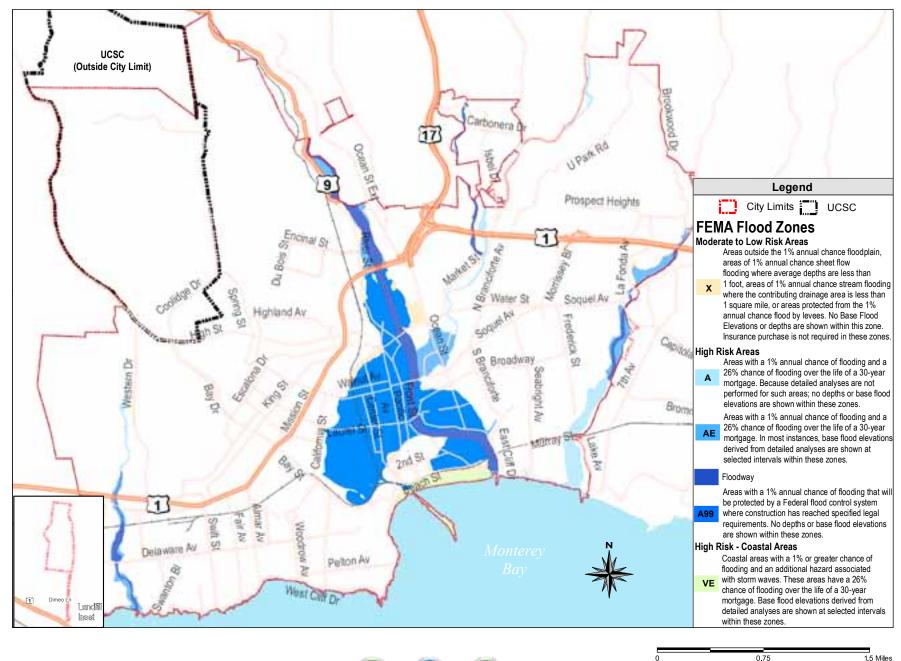








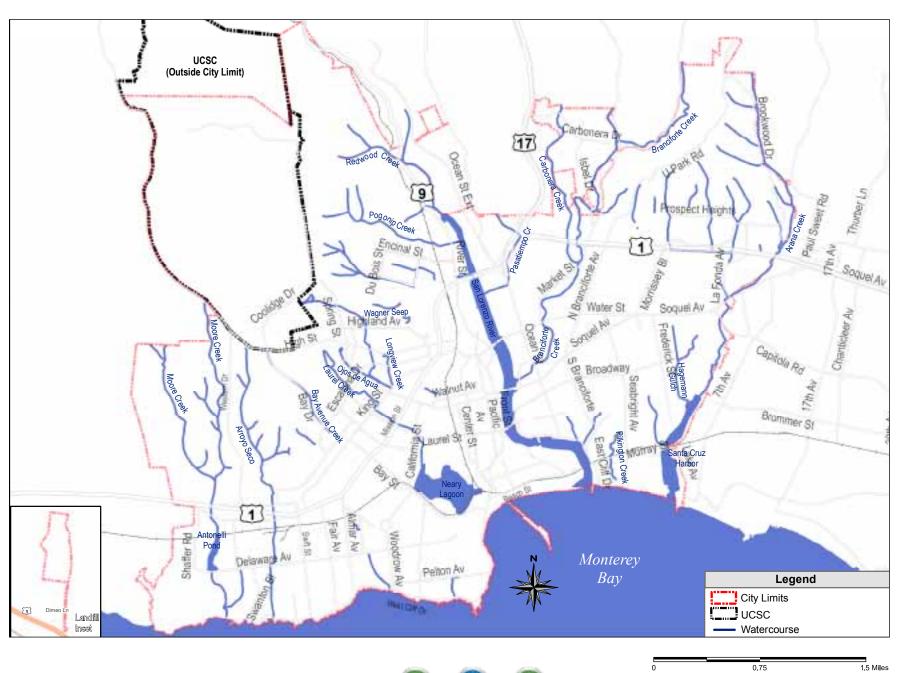








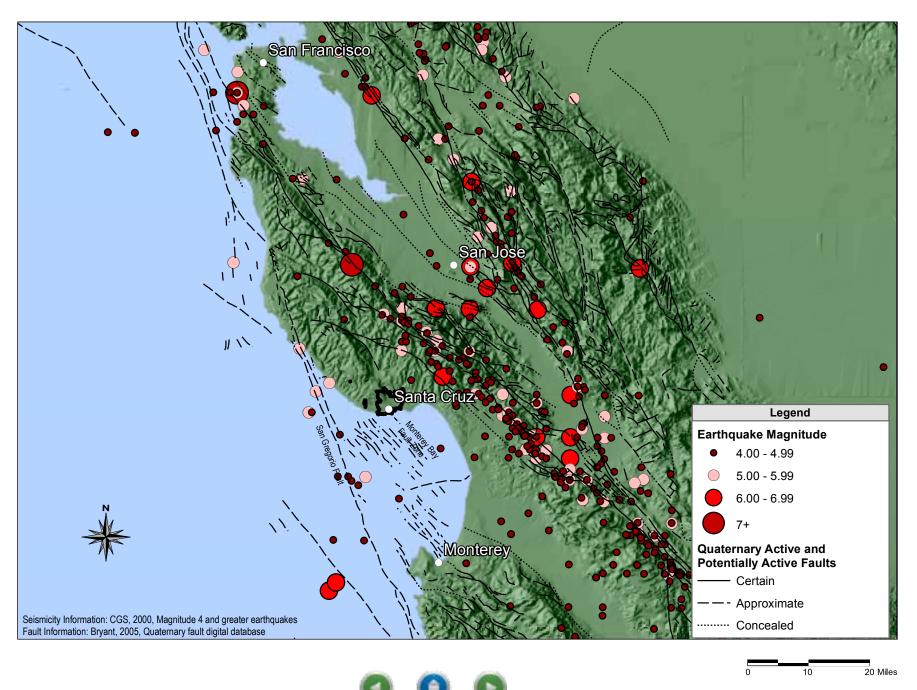


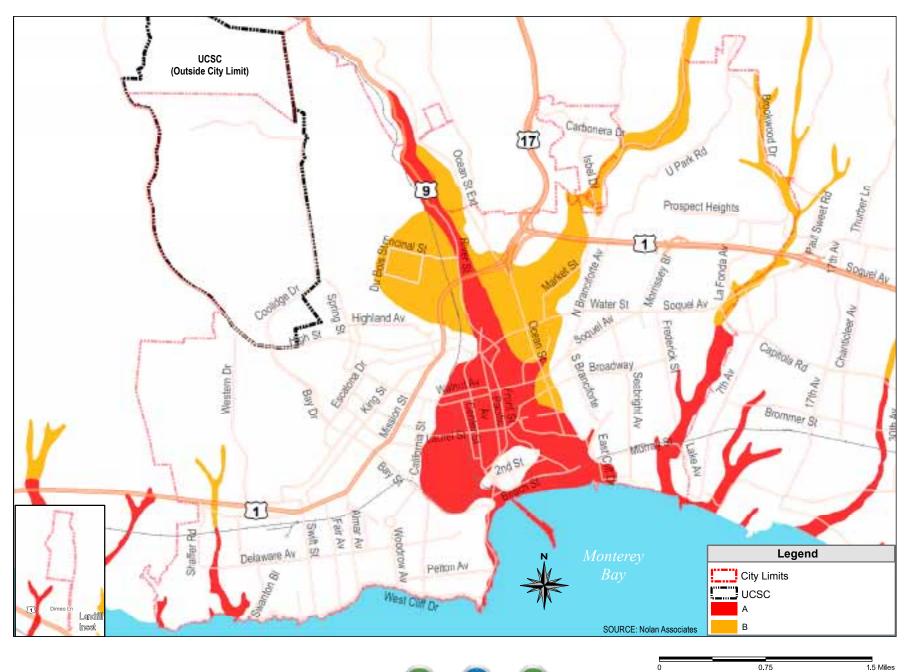




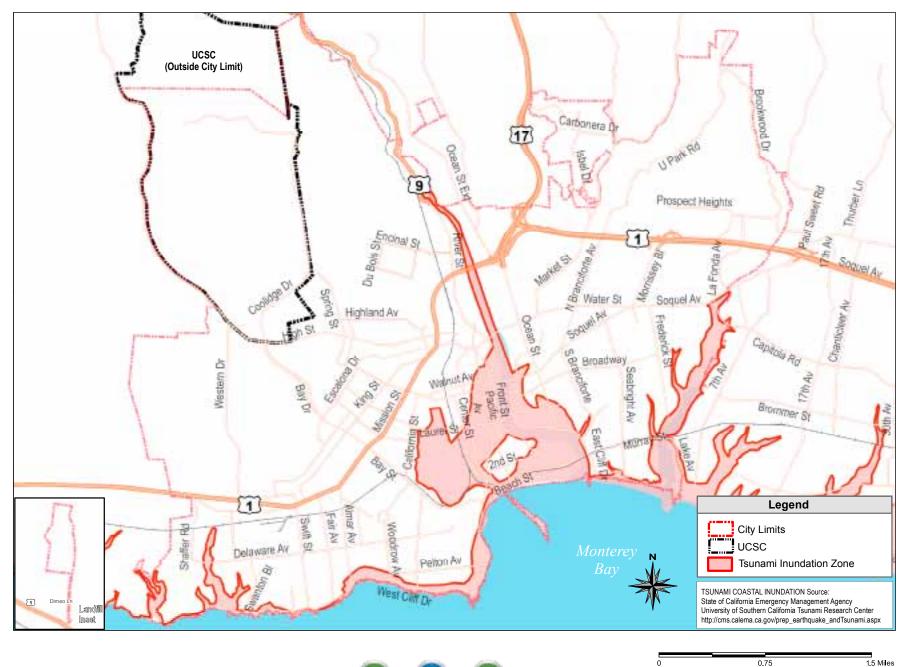








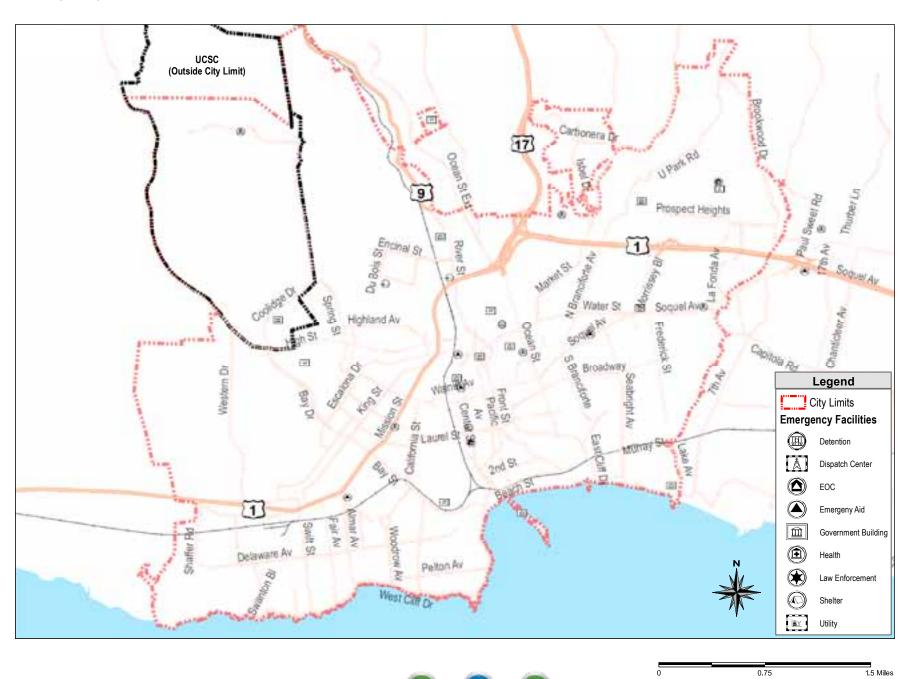
105







0.75











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 inlieu 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 Cityowned 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.







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 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.

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 water-courses 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 Citywide 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	Mitigation/Management*	
		(to determine presence)	(if resource is present)	
		SENSITIVE HABITATS		
Freshwater Wetland & Salt Marsh	City Ordinance & Plans CDFG Wetlands Resources Policy U.S. Army Corps of Engineers	Wetland Delineation	Permit from Corps (for fill) Avoidance and/or Mitigation, such as buffers, restoration or enhancement, and water quality protection	
Riparian Habitat	City Ordinance & Plans CEQA Review	Citywide Creeks & Wetlands Management Plan or Habitat Assessment	Comply with Creek Plan setback requirements & development standards and guidelines Streambed Alteration Agreement from CDFG, if required	
Coastal Prairie	CEQA Review	Habitat Characterization	Avoid direct impacts and buffer Mitigation for indirect impacts	
Coastal Bird Rookeries	CEQA Review Division of Migratory Birds- MBTA (USFWS)	Habitat Characterization Breeding bird surveys	Avoid direct impacts Conduct construction activities outside of nesting season and/or establish appropriate buffers	
SPECIAL-STATUS SPECIES				
Listed Special-Status Plant Species Robust spineflower Santa Cruz tarplant San Francisco popcornflower Other Special-Status Plant Species Santa Cruz manzanita Gardner's yampah Cloris' popcornflower	CEQA Review CESA and NPPA (CFGC) CEQA Review	Botanical survey during flowering period Botanical survey during flowering period	Avoidance – design to avoid removal of individuals and habitat Provide appropriate buffers to protect from indirect impacts Mitigation and/or Management to protect from indirect impacts and maintain long-term viability of species Consultation with and MOU from CDFG Avoidance and/or Mitigation – see above.	
Santa Cruz clover Hickman's popcorn flower Listed Special-Status Wildlife Species Ohlone tiger beetle	ESA (USFWS)	Survey during emergence season	Avoidance – design plans to avoid take of individuals and habitat Mitigation and Management to protect from indirect impacts USFWS Take permit through HCP process (no federal nexus) or Section 7	
Coho Salmon (Central CA ESU)	ESA (NOAA NMFS) CESA (CDFG)	Habitat assessment	(federal nexus) Consultation with NMFS Avoidance of instream construction during migration period Mitigation for indirect impacts	
Steelhead (Central CA ESU)	ESA (NOAA NMFS)	Habitat assessment	Consultation with NMFS Avoidance of instream construction during migration period Mitigation for indirect impacts	
Tidewater goby	ESA (USFWS)	Habitat assessment Protocol level survey during sandbar formation (permit required)	Consultation with USFWS 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 Protocol Level Survey (USFWS 2005b)	Avoid take of individuals and impacts to aquatic habitat USFWS Take permit through HCP process (no federal nexus) or Section 7 (federal nexus)
		Pre-construction Survey	Mitigation to protect from indirect impacts
Brown pelican (communal roosts	ESA (USFWS)	Habitat assessment	Avoid take of individuals and impacts to roosting and nesting habitat
and rookeries)	CESA (CDFG)	Communal roosting/ breeding bird survey	Consultation with USFWS through HCP process (no federal nexus) or Section 7 (federal nexus)
		,	Conduct construction activities outside of nesting season
Other Special-Status Wildlife	City Ordinance	Habitat Assessment	Avoidance – design plans to avoid take of individuals and habitat
Species	CEQA Review	Multi-year surveys during	Buffers to maintain suitable habitat conditions
Monarch butterfly (wintering sites)		winter roosting season	Conduct construction activities outside of winter roosting season or develop appropriate mitigation such as buffers to avoid disturbance such as smoke and fumes
			Management to protect from indirect impacts
Western pond turtle	CEQA Review (CDFG)	Habitat assessment	Avoid take of individuals in aquatic and upland habitat.
		Focused Surveys	Mitigation to protect from indirect impacts such as barrier to movement
Breeding Birds	CEQA Review (CDFG)	Habitat assessment	Avoid direct impacts to nesting birds, occupied nests, eggs and young
Double-crested cormorant (rookeries)		Breeding bird survey Wintering survey for golden	Conduct construction activities outside of nesting season or develop appropriate mitigation, such as buffers
Black-crowned night heron (rookeries)		eagle, ferruginous hawk, white-tailed kite, merlin,	Consultation with USFWS (golden eagle-unoccupied nest)
Sharp-shinned hawk		burrowing owl, saltmarsh	
Cooper's hawk		common yellowthroat, grasshopper sparrow	
Golden eagle (nesting and/or wintering)		grassnopper sparrow	
Ferruginous hawk			
White-tailed kite (nesting)			
Merlin			
Black oystercatcher Long-eared owl			
Burrowing owl			
Vaux' swift			
Black swift			
Loggerhead shrike			
California horned lark			
Oak titmouse			
Yellow warbler			
Hermit warbler			
Saltmarsh common yellowthroat			
Yellow-breasted chat			
Chipping sparrow			
Tricolored blackbird			

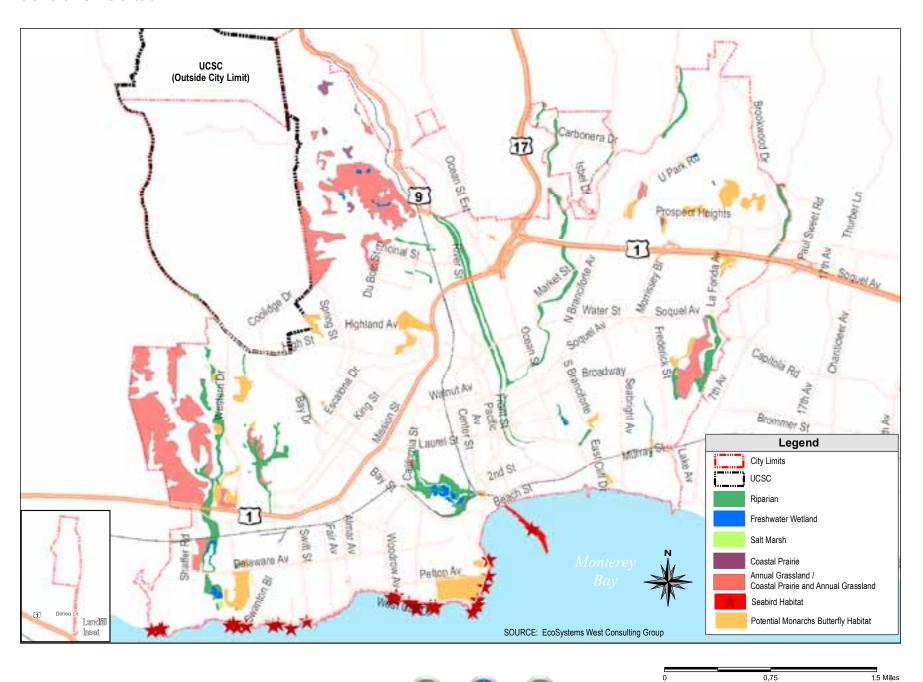


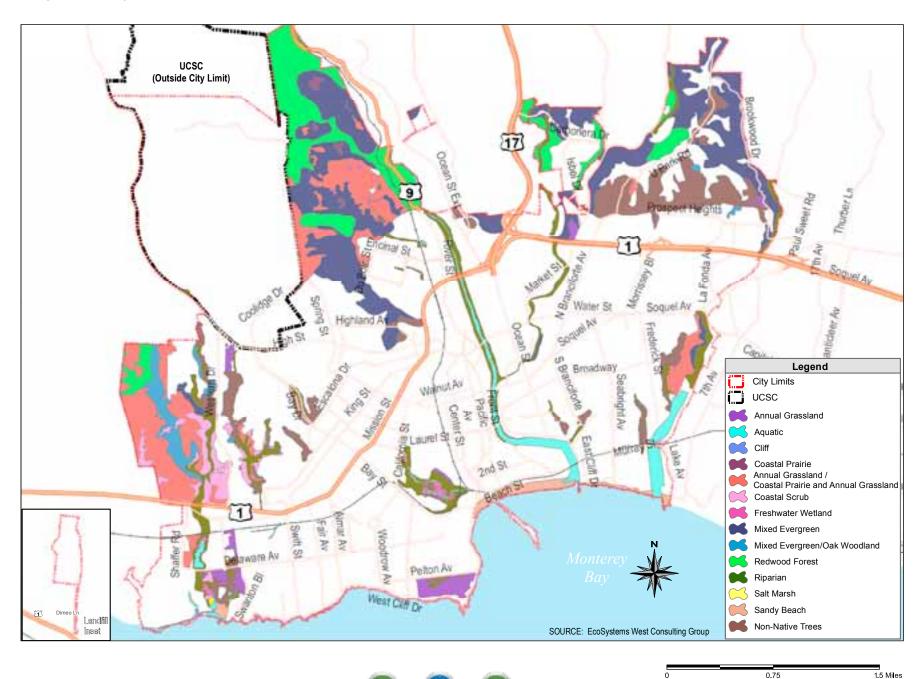




Resource	Regulatory Authority	Assessment (to determine presence)	Mitigation/Management* (if resource is present)
Special-status bats	CEQA Review (CDFG)	Habitat Assessment Emergence and nighttime acoustic surveys	Avoidance and/or Mitigation
San Francisco dusky-footed woodrat	CEQA Review (CDFG)	Habitat Assessment Nest survey	Avoidance and/or Mitigation
American badger	CEQA Review (CDFG)	Habitat Assessment Focused survey (burrow, sign, and prey base)	Avoidance and/or Mitigation
Nesting raptors and birds	Division of Migratory Birds- MBTA (USFWS) Fish and Game Codes (CDFG)	Habitat assessment Breeding bird survey	Avoidance during nesting season and/or Buffer Mitigation
Dispersal corridors	City of Santa Cruz CEQA Review	Wildlife movement study. Determine buffer width for corridor utility.	Comply with Creeks Plan setback requirements and development standards and guidelines Buffer from disturbances such as noise land light.







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.	PL	Short-term
	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.		
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



HA3.3.2 HA3.4.1	Encourage artist education and performances for children. Prepare and adopt a citywide Arts Master Plan.	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



CHAPTER 3 Community Design

TIME FRAMES: Ongoing = currently and continuously implement, Short-term by 2018, Mid-term by 2022, Long-term by 2028

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
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



CHAPTER 4 Land Use

TIME FRAMES: Ongoing = currently and continuously implement, Short-term by 2018, Mid-term by 2022, Long-term by 2028

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:	PL	Short-term
	• Require a specific plan for the property (with a landuse 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 Area shall be limited to three lots and a remainder per existing parcel.	PL	Ongoing
	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		
		1	



NUMBER	ACTION	RESPONSIBLE DEPARTMENT	TIME FRAME
	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.	PL	Ongoing
	• 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.		
LU1.2.1	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



	Limit the number, density, and placement of fast food outlets.	PL	C1
****			Short-term
	Revise the Zoning Ordinance to allow for appropriate neighborhood uses in strategic locations.	PL	Short-term
	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
	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
	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
	Amend the Zoning Ordinance to ensure that infill and intensified development is sensitive to existing neighborhood and business districts.	PL	Short-term



NUMBER	ACTION	RESPONSIBLE DEPARTMENT	TIME FRAME
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 redesignated 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



CHAPTER 5 Mobility

TIME FRAMES: Ongoing = currently and continuously implement, Short-term by 2018, Mid-term by 2022, Long-term by 2028

NUMBER	ACTION	RESPONSIBLE DEPARTMENT	TIME FRAME
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,	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

RESPONSIBLE DEPARTMENT	TIME FRAME
ding PW, PL, PR	Ongoing
PW	Ongoing
PW	Ongoing
PW	Ongoing
ment PW	Ongoing
side PW ing.	Ongoing
PW	Ongoing
and PW	Ongoing
ty to PW	Ongoing
vered PW	Ongoing
ccess ASA	Ongoing
PW	Ongoing
cycle PW	Ongoing
trian PW	Ongoing
	Ongoing
stem ASA	Ongoing
fic is 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

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



CHAPTER 7 Civic and Community Facilities

TIME FRAMES: Ongoing = currently and continuously implement, Short-term by 2018, Mid-term by 2022, Long-term by 2028

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:	PW	Ongoing
	• 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.	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



CC8.3.1Develop programs that promote youth leadership, empowerment, self-esteem, and an understanding, appreciation, and respect for cultural diversity.ED, PR, SDOngoingCC8.3.2Provide appropriate training opportunities for professionals who work with children, youth, and families.PR, NOngoingCC8.3.3Promote or sponsor teen activities such as dances, job fairs, special classes geared to teen interests and issues, and volunteer programs for youth.PR, N, SDOngoingCC8.3.4Work with appropriate agencies to develop aggressive prevention and early intervention efforts toward reducing educational failure and other problems for children and youth.PR, SDOngoingCC8.3.5Promote widely available public and private educational programs in the city.SDOngoingCC8.3.6Support youth and family programs through the community grant program.ED, PR, SDOngoingCC8.3.7Promote children, youth, and family programs in the annual budget review process.ED, PROngoingCC8.3.8Work to provide recreational, educational, and arts and cultural programs for residents of the community and region.ED, PROngoingCC8.4.1Implement the Safe Routes to School program where funded.PWOngoingCC8.4.2Restripe streets for school zone safety as needed.PWOngoingCC8.5.1Assure that basic library services are provided free of charge.LOngoingCC8.5.3Make all library buildings accessible to the physically disadvantaged and the elderly.LOngoingCC8.5.4Provide accurate information and professional guidance for the use of libra	NUMBER	ACTION	RESPONSIBLE DEPARTMENT	TIME FRAME
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. 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. CC8.4.1 Implement the Safe Routes to School program where funded. CC8.4.2 Restripe streets for school zone safety as needed. 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.	CC8.3.1		ED, PR, SD	Ongoing
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. 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. CC8.4.1 Implement the Safe Routes to School program where funded. CC8.4.2 Restripe streets for school zone safety as needed. 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.	CC8.3.2		PR, N	Ongoing
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. 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. CC8.4.1 Implement the Safe Routes to School program where funded. CC8.4.2 Re-stripe streets for school zone safety as needed. CC8.5.1 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.	CC8.3.3		PR, N, 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. CC8.4.1 Implement the Safe Routes to School program where funded. CC8.4.2 Re-stripe streets for school zone safety as needed. CC8.5.1 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.	CC8.3.4		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. 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. CC8.5.5 Ensure that the public is aware of the full range of information services provided by the library.	CC8.3.5	Promote widely available public and private educational programs in the city.	SD	Ongoing
CC8.3.8 Work to provide recreational, educational, and arts and cultural programs for residents of the community and region. CC8.4.1 Implement the Safe Routes to School program where funded. CC8.4.2 Re-stripe streets for school zone safety as needed. CC8.5.1 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.	CC8.3.6	Support youth and family programs through the community grant program.	ED, PR, SD	Ongoing
the community and region. 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. 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.	CC8.3.7	Promote children, youth, and family programs in the annual budget review process.	ED, PR	Ongoing
CC8.4.2 Re-stripe streets for school zone safety as needed. 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.	CC8.3.8		ED, PR	Ongoing
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. CC8.5.6 Ongoing	CC8.4.1	Implement the Safe Routes to School program where funded.	PW	Ongoing
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. CC8.5.6 CC8.5.7 CC8.5.8 Ensure that the public is aware of the full range of information services provided by the library.	CC8.4.2	Re-stripe streets for school zone safety as needed.	PW	Ongoing
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. CC8.5.6 Ungoing	CC8.5.1	Assure that basic library services are provided free of charge.	L	Ongoing
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. CN8.5.5 Description of the full range of information services provided by the library.	CC8.5.2	Maintain a significant collection and user-oriented hours at all City libraries.	L	Ongoing
community resources. CC8.5.5 Ensure that the public is aware of the full range of information services provided by the library. Ongoing	CC8.5.3	Make all library buildings accessible to the physically disadvantaged and the elderly.	L	Ongoing
library.	CC8.5.4		L	Ongoing
	CC8.5.5		L	Ongoing
CC8.6.1 Ensure that residents and businesses have full access to current communications, L Ongoing information technologies, and resources.	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	CC8.6.2	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.	CC8.6.3		L	Ongoing
CC8.7.1 Support provision of public library services via Library Joint Powers Agreements. 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



CHAPTER 8 Hazards, Safety, and Noise

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
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
	1	ı	1



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.	Р	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

RESPONSIBLE

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 Citywide 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 <i>General Plan</i> 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 <i>General Plan 2030</i> 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



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. Ongoing PW, PL, PW, W Ongoing PW, W 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 NRC7.1.7 Establish an outreach program and cooperate with other agencies that encourage energy through public informat	NUMBER	ACTION	RESPONSIBLE DEPARTMENT	TIME FRAME
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. NRC7.1.3 Implement energy strategies to increase the local use and production of renewable energy. PW, PL, PW, W 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. 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. PW, PL, PW, W 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 programs. NRC7.1.9 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. 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. 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, PW, W	NRC5.2.1	Provide and maintain a list for the public identifying species appropriate for street trees.	PR	Ongoing
the International Dark Sky Association and the Illuminating Engineering Society of North America. NRC7.1.3 Implement energy strategies to increase the local use and production of renewable energy. PW, PL, PW, W 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. 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. PW, PL, PW, W 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. PR Ongoing NRC7.1.11 Continue to install energy efficiently and which offer renewable energy systems and energy efficient production methods. NRC7.3.1 Promote the implementation of circulation system improvements that can reduce local energy efficient production methods. NRC7.3.2 Purchase City vehicles with fuel efficient or alternative fuel systems including hybrid, compressed natural gas (CNG), and bio-diesel.	NRC7.1.1			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. 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 system in existing park and recreational facilities. NRC7.2.1 Recruit industries that use energy efficiently and which offer renewable energy systems and energy efficient production methods. 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.	NRC7.1.2	the International Dark Sky Association and the Illuminating Engineering Society of North	PW	Ongoing
opportunities, including beneficial site orientation and dedication of solar easements. 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. PW, PL, PW, W 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. 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. 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, PW, W Ongoing PW, W Ongoing PW, PL, PR, Ongoing PW O	NRC7.1.3	Implement energy strategies to increase the local use and production of renewable energy.		Ongoing
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 system in existing park and recreational facilities. NRC7.2.1 Recruit industries that use energy efficiently and which offer renewable energy systems and energy efficient production methods. 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.	NRC7.1.4		PL	Ongoing
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 system in existing park and recreational facilities. NRC7.2.1 Recruit industries that use energy efficiently and which offer renewable energy systems and energy efficient production methods. 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.	NRC7.1.5		, ,	Ongoing
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. 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. 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.	NRC7.1.6	Increase local energy awareness.		Ongoing
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 system in existing park and recreational facilities. NRC7.2.1 Recruit industries that use energy efficiently and which offer renewable energy systems and energy efficient production methods. 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.	NRC7.1.7			Ongoing
technologies. 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. 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. PW, W Ongoing	NRC7.1.8	public information and outreach efforts, and offer educational programs for use in school		Ongoing
NRC7.1.11 Continue to install energy efficient system in existing park and recreational facilities. NRC7.2.1 Recruit industries that use energy efficiently and which offer renewable energy systems and energy efficient production methods. 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. PR Ongoing Ongoing PW Ongoing Ongoing	NRC7.1.9			Ongoing
NRC7.2.1 Recruit industries that use energy efficiently and which offer renewable energy systems and energy efficient production methods. 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. PW Ongoing PW, PL, PW, W	NRC7.1.10	Improve energy conservation and efficiency in existing parks and recreational facilities.	PR	Ongoing
energy efficient production methods. 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. PW Ongoing PW, PL, PW, W	NRC7.1.11	Continue to install energy efficient system in existing park and recreational facilities.	PR	Ongoing
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. PW, PL, PW, W	NRC7.2.1		ED	Ongoing
compressed natural gas (CNG), and bio-diesel.	NRC7.3.1		PW	Ongoing
NRC7.3.3 Establish telecommuting technologies and alternative work schedules for City employees. ALL Ongoing	NRC7.3.2		, ,	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.

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

Ldn Day and Night Average Sound Level

Leq 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

 $\ensuremath{\mathsf{TDR}}$ 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



^{*}Glossary covers terminology found in the Housing Element.

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, transitoriented 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 build-

ing 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 Statemandated 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 Statemandated 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 environ-

ments, 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 0.5 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 Statemandated 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).

Ldn 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 descrip-

tors 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 stopand-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 watersaturated 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 gener-

ally 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.

L₁₀ 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) nonconforming 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 Statemandated 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 own-

ers, 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 devel-

opment 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.



DRAFT ENVIRONMENTAL IMPACT REPORT

Downtown Plan Amendments



City of Santa Cruz

SCH NO: 2017022050

DRAFT ENVIRONMENTAL IMPACT REPORT

DOWNTOWN PLAN AMENDMENTS

SCH NO. 2017022050

PREPARED FOR

CITY OF SANTA CRUZ

Planning and Community Development Department

PREPARED BY

DUDEK

Santa Cruz, California

TABLE OF CONTENTS

1	INTE	RODUCTION	1-1
	1.1	Purpose of the EIR	1-1
	1.2	Project Overview	1-2
	1.3	Scope of the EIR	1-3
	1.4	Environmental Review and Approval Process	1-4
	1.5	Organization of EIR	1-7
2	SUMMARY2-		
	2.1	Introduction	2-1
	2.2	Project Overview	2-1
	2.3	Areas of Controversy or Concern	
	2.4	Summary of Alternatives	
	2.5	Summary of Impacts and Mitigation Measures	
	2.6	Issues to Be Resolved	2-10
3	PRC	DJECT DESCRIPTION	3-1
	3.1	Project Location and Setting	
	3.2	Project Background	3-2
	3.3	Project Objectives	3-2
	3.4	Project Components	
	3.6	Project Approvals and Use of EIR	3-14
4	ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES		
	4.0	Introduction	
	4.1	Aesthetics	
	4.2	Air Quality and Greenhouse Gas Emissions	
	4.3	Biological Resources	
	4.4	Cultural and Tribal Cultural Resources	
	4.5	Hydrology and Water Quality	
	4.6	Public Services	
	4.7	Transportation and Traffic	
	4.8	Water and Wastewater Utilities	
	4.9	Land Use	4.9-1
5	OTH	IER CEQA CONSIDERATIONS	5-1
	5.1	Significant and Unavoidable Impacts	
	5.2	Significant Irreversible Environmental Changes	5-1
	5.3	Growth Inducing Impacts	5-3
	5.4	Cumulative Impacts	5-4
	5.5	Project Alternatives	5-14

6	REFERENCES AND LIST OF PREPARERS		6-1	
	6.1	5.1 Agencies and Persons Contacted		
	6.2	_		
	6.3	EIR Team	6-8	
APPE	NDIC	EES		
A.	Notio	e of Preparation (NOP) & Initial Study		
B.		Comments		
C.	Prop	osed Plan and Ordinance Text Amendments		
D.	Build	out Assumptions		
E.	Air Q	uality and Greenhouse Gas Emissions Calculations – Available on CD & City	Website	
F.	Traff	ic Level of Service Calculations – Available on CD & City Website		
FIGUE	RES			
1-1	Pro	ject Location	3-17	
1-1	Do	wntown Recovery Plan Boundaries and Subareas	3-18	
2-1		wer Downtown Project Study Area		
3-1		sting and Proposed Additional Height Zones		
3-2	Sch	nematic of Proposed Height Distribution on Development Sites	3-21	
3-3	Pos	ssible Height Distribution along Pacific Avenue	3-22	
3-4		ssible Height Distribution along Front Street		
3-5	Pro	pposed Additional Height and Stepbacks Along Front Street/Riverfront C	orridor 3-24	
3-6	Pro	oject Development Areas	3-25	
4.1-1		otos of Downtown and Project Area		
4.1-2	Do	wtown Taller Buildings	4.1-20	
4.1-3A		ual Simulation of Proposed Project Along Riverwalk		
4.1-3B	Vis	ual Simulation of Proposed Project Along Pacific Avenue	4.1-22	
4.1-3A		ual Simulation of Proposed Project Along Front Street		
4.3-1	Fro	ont Street – Riverfront Corridor Shadow Study	4.1-23	
4.7-1	Exi	sting PM Peak Hour Traffic Volumes	4.7-25	
4.7-2	Pro	oject Trip Distribution	4.7-26	
4.7-3	Pro	oject Trip Assignment	4.7-27	
4.7-4	PIV	I Peak Hour Traffic Volumes with Project	4.7-28	
5-1	Cu	mulative PM Peak Hour Trips	5-31	
TABLE	ES			
3-1	Sumi	mary of Key Proposed DRP Amendments	3-6	
3-2	Sumi	mary of Pacific Avenue Retail District Development Standards	3-10	
3-3	Sumr	mary of Front Street/Riverfront District Development Standards	3-11	
3-4	Pote	ntial Development/Buildout Assumptions with Downtown Plan Amendmen	ts3-16	
4.1-1	Build	lings in Downtown That Exceed 50 Feet in Height	4.1-7	
4.2-1	Nort	h Central Coast Air Basin Attainment Classification	4.2-8	

Downtown Plan Amendments

4.2-2	Estimated Maximum Daily Operational Project Emissions	4.2-21
4.2-3	Estimated Annual Operational Project Greenhouse Gas Emissions	4.2-22
4.5-1	Sea Level Rise Projections in California	4.5-10
4.6-1	School Capacities and Enrollments	4.6-6
4.6-2	School Capacities and Projected Enrollments	4.6-12
4.6-3	General Plan 2030 Plans and Actions That Reduce Parks Impacts	4.6-14
4.7-1	Intersection Level of Service Definitions	4.7-7
4.7-2	Existing Intersection Weekday PM Peak Hour Levels of Service	4.7-9
4.7-3	Existing Highway Traffic Volumes and Peak Hour Levels of Service	4.7-10
4.7-4	Project Trip Generation	4.7-18
4.7-5	Intersection Weekday PM Peak Hour Levels of Service Definitions With Projection	ect 4.7-20
4.7-6	Highway Traffic Volumes and Peak Hour Levels of Service with Project	4.7-21
5-1	City Cumulative Projects	5-6
5-2	Intersection Weekday Cumulative PM Peak Hour Intersections Levels of Services	vice 5-13
5-3	Summary of Alternatives	5-18
5-4	Potential Development/Buildout Assumptions	
	With Existing General Plan and Downtown Recovery Plan	5-19
5-4	Comparison of Impacts of Project Alternatives	5-29

INTENTIONALLY LEFT BLANK

CHAPTER 1 INTRODUCTION

1.1 PURPOSE OF THE EIR

This EIR has been prepared for the City of Santa Cruz (City), which is the lead agency for the project. This EIR has been prepared in accordance with the California Environmental Quality Act (CEQA), which is found in the California Public Resources Code, Division 13, and with the State CEQA Guidelines, which are found in Title 14 of the California Code of Regulations, commencing with section 15000.

As stated in the CEQA Guidelines section 15002, the basic purposes of CEQA are to:

Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
Identify the ways that environmental damage can be avoided or significantly reduced.
Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
Disclose to the public the reasons a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Pursuant to State CEQA Guidelines section 15121, an EIR is an informational document which will inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. The public agency shall consider the information in the EIR along with other information which may be presented to the agency. While the information in the EIR does not control the ultimate decision about the project, the agency must consider the information in the EIR and respond to each significant effect identified in the EIR by making findings pursuant to Public Resources Code section 21081.

This EIR is being prepared as a "Program EIR" pursuant to section 15168 of the State CEQA Guidelines. A program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related geographically, by similar environmental effects, as logical parts in the chain of contemplated actions, or in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program. A program EIR can provide a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action and can ensure consideration of cumulative impacts. A program EIR can be used as part of the environmental review for later individual projects to be carried out pursuant to the project previously analyzed in the program EIR, where impacts have been adequately addressed in the program EIR. For later individual projects proposed in the areas covered by the plans and amendments covered in this EIR, the City will

determine whether the individual project or subsequent activity is within the scope of this Program EIR, meaning it is an activity within the same project as analyzed in the program EIR or within the same geographic area encompassed by the program EIR. Depending on the City's determination, including whether new effects could occur or new mitigation measures would be required, the analysis for later projects could range from no new CEQA document to a new EIR. The City potentially could apply one or more CEQA "streamlining" tools when it considers later projects, such as the focused analytical routes offered under Public Resources Code sections 21155.2 and 21083.3 and CEQA Guidelines sections 15152, 15182, 15183, and 15183.3. If appropriate and applicable to a proposed project, the City may also consider one or more statutory or categorical exemptions. The State CEQA Guidelines encourage agencies to tier the environmental analyses which they prepare for separate but related projects, including general plans, zoning changes, and development projects.

Pursuant to CEQA (Public Resources Code section 21002), public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures which would substantially lessen the significant environmental effects of such projects. Pursuant to section 15021 of the State CEQA Guidelines, CEQA establishes a duty for public agencies to avoid or minimize environmental damage where feasible. In deciding whether changes in a project are feasible, an agency may consider specific economic, environmental, legal, social, and technological factors. According to the State CEQA Guidelines, "feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors. This section further indicates that CEQA recognizes that in determining whether and how a project should be approved, a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors, and an agency shall prepare a "statement of overriding considerations" as to reflect the ultimate balancing of competing public objectives when the agency decides to approve a project that will cause one or more significant effects on the environment. The environmental review process is further explained below in subsection 1.4.

1.2 PROJECT OVERVIEW

This Environmental Impact Report (EIR) addresses the potential environmental effects of a series of proposed amendments to the following adopted plans and regulations; a full description of all project components is provided in the Chapter 3.0, Project Description, of this EIR.

Commercial land use designation in the downtown area

Downtown Recovery Plan: Amendment to extend Additional Height Zone A, modify
Additional Height Zone B, and modify development standards
General Plan 2030: Amendment to modify Floor Area Ratio for the Regional Visitor

☐ Local Coastal Plan (LCP): Amendment to Land Use Plan text to modify San Lorenzo Urban River Plan land use development policies

☐ Zoning Code sections: Amendment to Municipal Code Section 24.10, Part 24, Central Business District (CBD), of the Zoning Code to modify extension area regulations and add Parklet standards.

1.3 SCOPE OF THE EIR

An Initial Study and Notice of Preparation were prepared for the project and are included in Appendix A. The Initial Study identifies potentially significant impacts and discusses issues that were found to result in no impacts or less-than-significant impacts. The discussions in the Initial Study of impacts that are not being addressed in detail in the text of the Draft EIR are intended to satisfy the requirement of CEQA Guidelines section 15128 that an EIR "shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and therefore were not discussed in detail in the EIR."

Based on the analyses in the Initial Study and responses to the Notice of Preparation (as discussed below), this EIR evaluates potentially significant impacts for the topics listed below. The EIR also evaluates topics required by CEQA and CEQA Guidelines, including growth inducement, project alternatives, and cumulative impacts. The environmental analysis for this EIR includes:

Aesthetics
Air Quality and Greenhouse Gas Emissions
Biological Resources
Cultural Resources and Tribal Cultural Resources
Hydrology and Water Quality
Public Services (Fire and Police Protection Services, Parks and Recreation, Schools, Solid Waste)
Transportation and Traffic
Water and Wastewater Utilities
Land Use – Plan and Policy Review

The focus of the environmental review process is upon significant environmental effects. As defined in section 15382 of the CEQA Guidelines, a "significant effect on the environment" is:

... a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether a physical change is significant.

In evaluating the significance of the environmental effect of a project, the State CEQA Guidelines require the lead agency to consider direct physical changes in the environment and reasonably foreseeable indirect physical changes in the environment which may be caused by the project (CEQA Guidelines section 15064[d]). A direct physical change in the environment is a physical change in the environment which is caused by and immediately related to the project. An indirect physical change in the environment which is not immediately related to the project, but which is caused indirectly by the project. An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project.

CEQA Guidelines section 15064(e) further indicates that economic and social changes resulting from a project shall not be treated as significant effects on the environment, although they may be used to determine that a physical change shall be regarded as a significant effect on the environment. In addition, where a reasonably foreseeable physical change is caused by economic or social effects of a project, the physical change may be regarded as a significant effect in the same manner as any other physical change resulting from the project.

1.4 ENVIRONMENTAL REVIEW AND APPROVAL PROCESS

1.4.1 Scoping

Under CEQA, the lead agency for a project is the public agency with primary responsibility for carrying out or approving the project, and for implementing the requirements of CEQA. CEQA Guidelines section 15083 authorizes and encourages an early consultation or scoping process to help identify the range of actions, alternatives, mitigation measures, and significant effects to be analyzed and considered in an EIR, and to help resolve the concerns of affected regulatory agencies, organizations, and the public. Scoping is designed to explore issues for environmental evaluation, ensuring that important considerations are not overlooked and uncovering concerns that might otherwise go unrecognized.

A Notice of Preparation (NOP) for this EIR was circulated for a 30-day comment period on February 14, 2017. The NOP, with an Initial Study as an attachment, was circulated to the State Clearinghouse and to local, regional, and federal agencies in accordance with State CEQA Guidelines. The NOP also was sent to organizations and interested citizens that have requested notification in the past for the proposal project or any project. Additionally, the NOP was circulated to owners of property contiguous to the project site in accordance with the City's CEQA Guidelines. The Initial Study and NOP are included in Appendix A. A public scoping meeting also was held at a Planning Commission meeting on June 15, 2017.

Written comments were received from three public agencies (California Coastal Commission, Caltrans and FEMA), two organizations (Friends of San Lorenzo River Wildlife and Sierra Club), and five individuals (Candace Brown, Gillian Greensite, Debbie Hencke, Jane Mio, and Jack

July 2017 1--

Nelson). These letters are included, in Appendix B. Both the written comments and oral comments received at the scoping meeting have been taken into consideration in the preparation of this EIR for comments that address environmental issues. Comments received during the scoping period regarding environmental issues generally include the following concerns, which are further discussed in the EIR chapters that discuss the relevant topic:

Aesthetics and impacts to the visual character of the surrounding area;
Biological impacts to San Lorenzo River habitat, including potential impacts to birds;
Flood hazards and effects of climate change and sea level rise;
Drainage and water quality impacts;
Traffic and parking impacts; and
Provision of public access and recreation along the river.

1.4.2 Public Review of Draft EIR

The Draft EIR will be published and circulated for review and comment by the public and other interested parties, agencies, and organizations for a public review period from July 26, 2017 through September 8, 2017. Written comments on the Draft EIR may be submitted to the City of Santa Cruz at the address below or may be submitted by email to Ron Powers at rpowers@cityofsantacruz.com, by 5:00 pm on September 8, 2017.

Ron Powers, Principal Planner City of Santa Cruz Planning and Community Development Department 809 Center Street, Room 107 Santa Cruz, CA 95060

The Draft EIR will be available for public review during the comment period at the following locations:

· · · · · · · · · · · · · · · · · · ·
City of Santa Cruz Planning and Community Development Department, located at 809 Center Street, Room 107.
Reference Desk of the Downtown Public Library, located at 224 Church Street.
Online at: http://www.cityofsantacruz.com/departments/planning-and-community-development/environmental-documents .

The City of Santa Cruz encourages public agencies, organizations, community groups, and all other interested persons to provide written comments on the Draft EIR prior to the end of the 45-day public review period. Section 15204(a) provides guidance on the focus of review of EIRs, indicating that in reviewing draft EIRs, persons and public agencies "should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated," and that comments are most helpful when they suggest additional specific

alternatives or mitigation measures that would provide better ways to avoid or mitigate the significant environmental effects. This section further states that: "CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commenters. When responding to comments, lead agencies need only respond to significant environmental issues and do not need to provide all information requested by reviewers, as long as a good faith effort at full disclosure is made in the EIR."

1.4.3 Final EIR / Project Approval

Following the close of the public and agency comment period on this Draft EIR, responses will be prepared for all comments received during the public review period that raise CEQA-related environmental issues regarding the project. The responses will be published in the Final EIR. The Final EIR will include written responses to any significant environmental issues raised in comments received during the public review period in accordance with State CEQA Guidelines section 15088. The Final EIR also will include Draft EIR text changes and additions that become necessary after consideration of public comments.

The Final EIR document, which includes the Draft EIR document, will be presented to the City Planning Commission for consideration of the proposed actions and recommendation to the City Council. The City Council will make the final decision on the proposed General Plan amendment, rezoning and permit applications. The Planning Commission and the City Council must ultimately certify that it has reviewed and considered the information in the EIR, that the EIR has been completed in conformity with the requirements of CEQA, and that the document reflects the City's independent judgment.

Pursuant to sections 21002, 21002.1 and 21081 of CEQA and sections 15091 and 15093 of the State CEQA Guidelines, no public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant effects unless both of the following occur:

- (a) The public agency makes one or more of the following findings with respect to each significant effect:
 - 1. Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects on the environment.
 - Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by such other agency.
 - 3. Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report.
- (b) With respect to significant effects which were subject to a finding under paragraph (3) of subdivision (a), the public agency finds that specific overriding economic, legal,

social, technological, or other benefits of the project outweigh the significant effects on the environment.

Although these determinations (especially regarding feasibility) are made by the public agency's final decision-making body based on the entirety of the agency's administrative record as it exists after completion of a final EIR, the draft EIR must provide information regarding the significant effects of the proposed project and must identify the potentially feasible mitigation measures and alternatives to be considered by that decision-making body.

1.4.4 Adoption of Mitigation Monitoring & Reporting Program

CEQA requires that a program to monitor and report on mitigation measures be adopted by a lead agency as part of the project approval process. CEQA requires that such a program be adopted at the time the agency approves a project or determines to carry out a project for which an EIR has been prepared to ensure that mitigation measures identified in the EIR are implemented. The Mitigation Monitoring and Reporting Program will be included in the Final EIR, although it is not required to be included in the EIR.

1.5 ORGANIZATION OF EIR

The content and format of this Draft EIR are designed to meet the requirements of CEQA and the CEQA Guidelines (sections 15122 through 15132). This Draft EIR is organized into the following chapters:

Chapter 1, Introduction , explains the CEQA process; describes the scope and purpose of this Draft EIR; provides information on the review and approval process; and outlines the organization of this Draft EIR.
Chapter 2, Summary , presents an overview of the project; provides a summary of the impacts of the project and mitigation measures; provides a summary of the alternatives being considered; includes a discussion of known areas of controversy; and lists the topics not carried forward for further analysis.
Chapter 3, Project Description , provides information about the location, setting, and background for the project; identifies project-specific objectives; provides a detailed description of the project elements and components; and lists the likely approvals for the project.
Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, explains the approach to the environmental analysis for this EIR, and provides environmental setting, impacts, and mitigation measures for the topics identified for inclusion in the EIR. Each topical section in this EIR presents information in three parts. The "Environmental

July 2017 1-7

Setting" section provides an overview of the existing conditions on and adjacent to the

project site. Local, State and federal regulations also are identified and discussed, when relevant.

The "Impacts and Mitigation Measures" section provides an outline of the criteria used to evaluate whether an impact is considered significant based on standards identified in the California Environmental Quality Act (CEQA) and State CEQA Guidelines. Agency policies or regulations and/or professional judgment also are used to further define what actions may cause significant effects. Any project feature or element that may cause impacts, as well as project features that may serve to eliminate or reduce impacts, will be identified and addressed for both direct and reasonably foreseeable indirect impacts. Mitigation measures that would reduce significant impacts are identified. The significance of the impact after mitigation also is identified. For impacts found to be less-than-significant, mitigation measures are not required, but where relevant, the EIR recommends project modifications or appropriate conditions of approval.

recommends project modifications or appropriate conditions of approval.
Chapter 5, Other CEQA Considerations , This section evaluates the topics required to be included in an EIR, including significant unavoidable impacts, irreversible impacts growth inducement, cumulative impacts, and project alternatives.
Chapter 6, References and EIR Preparation , identifies all agencies contacted during the preparation of the EIR, all references that were cited or utilized in preparation of the EIR and individuals who were involved in preparing this Draft EIR and the individuals who provided information.
Appendices contain additional information used in preparing this Draft EIR. Appendix A contains the Notice of Preparation and Initial Study, and Appendix B includes comment letters that were submitted in response to the NOP. Appendix C includes the revised plan text amendments. Appendix D includes the development buildout assumptions developed by City Planning and Community Development Department staff. Appendix E includes calculations of air emissions prepared for this EIR, and Appendix F includes the traffic calculations prepared for the City.

CHAPTER 2 SUMMARY

2.1 INTRODUCTION

This chapter provides a brief description of the proposed project, known areas of controversy or concern, project alternatives, all potentially significant impacts identified during the course of this environmental analysis, and issues to be resolved. This summary is intended as an overview and should be used in conjunction with a thorough reading of the EIR. The text of this report, including figures, tables and appendices, serves as the basis for this summary.

2.2 PROJECT OVERVIEW

This Environmental Impact Report (EIR) addresses the potential environmental effects of construction of This Environmental Impact Report (EIR) addresses the potential environmental effects of a series of proposed amendments to the following adopted plans and regulations; a full description of all project components is provided in the Chapter 3.0, Project Description, of this EIR.

Downtown Recovery Plan: Amendment to extend Additional Height Zone A, modify Additional Height Zone B, and modify development standards
General Plan 2030: Amendment to modify Floor Area Ratio for the Regional Visitor Commercial land use designation in the downtown area
Local Coastal Plan (LCP): Amendment to Land Use Plan text to modify San Lorenzo Urban River Plan land use development policies
Zoning Code sections: Amendment to Municipal Code Section 24.10, Part 24, Central Business District (CBD), of the Zoning Code to modify extension area regulations and add Parklet standards.

2.3 AREAS OF CONTROVERSY OR CONCERN

The City of Santa Cruz, as the Lead Agency, has identified areas of concern based on the Initial Study and Notice of Preparation (NOP), which are included in Appendix A. In response to the NOP, letters of comment were received from three agencies (California Coastal Commission, Caltrans and FEMA), two organizations (Friends of San Lorenzo River Wildlife and Sierra Club), and five individuals (Candace Brown, Gillian Greensite, Debbie Hencke, Jane Mio, and Jack Nelson). An agency and public scoping also was held at the Planning Commission meeting on June 15, 2017 to receive public comments on the scope of the EIR's analyses and project alternatives. Both the written comments and oral comments received at the scoping meeting

Downtown Plan Amendments

have been taken into consideration in the preparation of this EIR for comments that address environmental issues.

Written comments on the NOP and oral comments received at the scoping meeting raised the following environmental concerns, some of which may be areas of controversy:

Aesthetics and impacts to the visual character of the surrounding area;
Biological impacts to San Lorenzo River habitat, including potential impacts to birds;
Flood hazards and effects of climate change and sea level rise;
Drainage and water quality impacts;
Traffic and parking impacts; and
Provision of public access and recreation along the river.

2.4 SUMMARY OF ALTERNATIVES

CEQA Guidelines require that an EIR describe and evaluate alternatives to the project that could eliminate significant adverse project impacts or reduce them to a less-than-significant level. The following alternatives are evaluated in Section 5.5.

No Project – Required by CEQA			
Alternative 1 – Reduced Height for Expanded Additional Height Zone A to 75 feet an Elimination of Additional Height Zone B			
Alternative 2 – Reduced Height for Additional Height Zone A to 75 feet along Pacific/Front and Reduced Height for Additional Height Zone B to 60 feet along the San Lorenzo River with Development Standard Modifications: eliminate encroachment over property line and require 10-foot setback above 50 feet			

Table 5-5 in Section 5 of this EIR presents a comparison of project impacts between the proposed project and each alternative. None of the alternatives, including the No Project Alternative would eliminate significant project impacts and cumulative impacts related to traffic, although all alternatives would result reduce the level of impact. Table 5-5 (on the next page) presents a comparison of project impacts between the proposed project and the alternatives. Excluding the No Project Alternative, Alternative 1 – Reduced Height for Additional Height Zone A and Elimination of Additional Height Zone B – is considered the environmentally superior alternative of the alternatives considered. Although it would not reduce significant impacts to less-than-significant levels, it could result in the greatest reduction of traffic and water demand impacts and reduce some of the other identified significant impacts. However, it would not fully meet project objectives.

2.5 SUMMARY OF IMPACTS AND MITIGATION MEASURES

All impacts identified in the subsequent environmental analyses are summarized in this section. This summary groups impacts of similar ranking together, beginning with significant unavoidable impacts, followed by significant impacts that can be mitigated to a less-than-significant level, followed by impacts not found to be significant. The discussions in the Initial Study of impacts that are not being addressed in detail in the text of the Draft EIR are intended to satisfy the requirement of CEQA Guidelines section 15128 that an EIR "shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and therefore were not discussed in detail in the EIR." The Initial Study is included in Appendix A of this EIR. A summary of less-than-significant and no impacts identified in the Initial study is presented at the end of this section.

2.5.1 Significant Unavoidable Impacts

The following impacts were found to be potentially significant, and while mitigation measures have been identified in some cases, the impact cannot be reduced to a less-than-significant level. Section 5.5, Project Alternatives, examines alternatives to eliminate or reduce the level of significance of these impacts.

Cumulative Impacts

The proposed project will contribute to significant cumulative traffic impacts at six locations in the project vicinity and along state highways. Future development projects within the area of the proposed plan amendments will be required to pay the City's traffic impact fee. However, payment of the traffic impact fee and the associated improvements would not mitigate impacts to a less-than-significant level at three intersections: Ocean Street/Water Street, Highway 1/ Highway 9, and Chestnut Street/Mission Street. Improvements could be made to the other intersections to achieve an acceptable LOS of D.

MITIGATION 5-1:

Require future development projects within the downtown area to contribute fair-share payments for improvements at the following intersections: Front/Soquel (signal timing and lane modifications); Front/Laurel (westbound lane addition and north and south right-turn overlap); and Pacific/Laurel (southbound left-turn lane addition).

With implementation of Mitigation 5-1, significant cumulative impacts at three intersections would be mitigated, and the project's contribution would not be cumulatively considerable. Future development projects in the downtown area would be required to pay the City's traffic impact fees for improvements at the other three intersections, but planned improvements would not result in acceptable levels of service, and no other feasible improvements have been identified. Therefore, cumulative traffic

impacts remain significant at three City intersections and along state highways this is a significant cumulative impact, and the project's contribution to cumulative traffic impacts would be cumulatively considerable at these locations.

2.5.2 Significant Impacts

The following impacts were found to be potentially significant, but could be reduced to a less-than-significant level with implementation of identified mitigation measures should the City's decision-makers impose the measures on the project at the time of final action on the project.

Impacts Evaluated in EIR

Biological Resources

- Impact 4.3-2: Indirect Impacts to Sensitive Riparian Habitat. Future development of taller buildings as a result of the proposed Downtown Plan amendments could result in indirect impacts to birds in the area that could lead to bird mortalities.
 - MITIGATION 4.3-2: Revise Downtown Plan to include standard for design guidance for bird-safe structures along the San Lorenzo River, including:
 - Minimize the overall amount of glass on building exteriors facing the San Lorenzo River.
 - Avoid mirrors and large areas of reflective glass.
 - Avoid transparent glass skyways, walkways, or entryways, free-standing glass walls, and transparent building corners.
 - Utilize glass/window treatments that create a visual signal or barrier to help alert birds to presence of glass. Avoid funneling open space to a building façade.
 - Strategically place landscaping to reduce reflection and views of foliage inside or through glass.
 - Avoid or minimize up-lighting and spotlights.
 - Turn non-emergency lighting off (such as by automatic shutoff), or shield it, at night to minimize light from buildings that is visible to birds, especially during bird migration season (February - May and August -November).
- Impact 4.3-3: Indirect Impacts to Nesting Birds. Future development as a result of the proposed Downtown Plan amendments could result in disturbance to nesting birds if any are present in the vicinity of construction sites along the San Lorenzo River.

MITIGATION 4.3-3: Require that a pre-construction nesting survey be conducted by a qualified wildlife biologist if construction, including tree removal, adjacent to the San Lorenzo River is scheduled to begin between March and late July to determine if nesting birds are in the vicinity of the construction sites. If nesting raptors or other nesting species protected under the MBTA are found, construction may need to be delayed until late-August or after the wildlife biologist has determined the nest is no longer in use or unless a suitable construction buffer zone can be identified by the biologist. (Citywide Creeks and Wetlands Management Plan Standard 12).

Public Services

Impact 4.6-1c: Schools. Adoption of the proposed plan amendments could indirectly result in increased population associated with potential development that would generate elementary school student enrollments that could exceed capacity of existing schools.

MITIGATION: No mitigation measures are required beyond payment of school impact fees that will be collected at the time of issuance of a building permit.

Impact 4.6-2: Parks and Recreation. Adoption of the proposed plan amendments could indirectly result in increased population associated with potential development that could be accommodated by the Plan that would result in increased demand for parks and recreational facilities that could result in some deterioration of existing parks and recreational facilities.

MITIGATION: 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 4.6-2 and required payment of park fees, the proposed project's indirect impact on parks and recreational facilities would be considered less-than-significant.

Impacts Evaluated in Initial Study (Appendix A)

Noise

Noise-1: Exposure to Noise. Future development in the project area would be exposed to exterior and / or interior noise levels that exceed local and state requirements. However, the project area is not within locations that would expose people to noise in excess of established standards.

MITIGATION NOISE-1: Require preparation and implementation of acoustical studies for future residential development along Front Street to specify building design features that meet state interior sound levels.

2.5.3 Less-Than-Significant Impacts

The following impacts were found to be less-than-significant. Mitigation measures are not required.

- **Impact 4.1-1: Scenic Views.** Future development accommodated by the proposed plan amendments would not eliminate or substantially adversely affect, modify, or obstruct a visually prominent or significant public scenic vista.
- Impact 4.1-3: Visual Character of the Surrounding Area. The proposed project would result in amendments to the DRP and General Plan that would allow increased heights of 20 to 35 feet over existing allowable standards, and future development could result in taller and more massive buildings. With implementation of required development standards for massing, required percentage variation of heights, and upper-level skyline variation, future buildings would be of similar height and scale as the other taller buildings in the downtown area, which already contains several multi-story buildings of varied height, and would not substantially degrade the visual character of the surrounding area.
- **Impact 4.1-4: Introduction of Light and Glare.** The proposed project would result in amendments to the DRP and General Plan that would allow increased heights and building coverage, and future development would include exterior and interior lighting typical of residential developments, but would not result in introduction of a major new source of light or glare.
- **Impact 4.2-1: Criteria Pollutant Emissions.** Future development and growth accommodated by the proposed project would result in emissions of criteria pollutants, but would not exceed adopted thresholds of significance, violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- **Impact 4.2-2: Greenhouse Gas (GHG) Emissions.** Future development and growth accommodated by the proposed project would result in in GHG emissions, which are not considered significant.

- Impact 4.3-1: Indirect Impacts to Special Status Species and Aquatic Habitat. Future development of taller buildings as a result of the proposed Downtown Plan amendments could result in indirect to impacts to riparian and aquatic special status species due to increased shading due to increased building heights, but would not substantially affect habitats.
- Impact 4.4-1: Archaeological and Tribal Cultural Resources. Future development accommodated by the proposed plan amendments could result to impacts to archaeological, historical archaeological, human remains, and/or tribal cultural resources. However, City requirements for cultural resource investigations would ensure that future development projects assess and mitigate potential impacts (4a, 4b, 4e).
- **Impact 4.4-2: Historic Resources.** Future development accommodated by the proposed plan amendments could result in impacts to historical resources (4c), however, site-specific redevelopment could occur under existing conditions without the proposed plan amendments.
- **Impact 4.4-3:** Paleontological Resources. Future development accommodated by the proposed plan amendments could result to impacts to unknown paleontological resources discovered during construction. However, adherence to City procedures would not result in significant impacts.
- Impact 4.5-1: Stormwater Drainage. Future development accommodated by the proposed plan amendments could result in stormwater runoff, but would not substantially alter the existing drainage pattern of the area, substantially increase the rate or amount of surface runoff, exceed the capacity of existing or planned storm drain facilities, cause downstream or off-site drainage problems, or increase the risk or severity of flooding in downstream areas.
- **Impact 4.5-2:** Water Quality. Future development accommodated by the proposed plan amendments could result in water quality degradation to San Lorenzo River from automobile oils and greases carried in stormwater runoff. Project grading could also result in erosion and potential downstream sedimentation if not properly managed.
- **Impact 4.5-3:** Flood Hazards. Future development accommodated by the proposed plan amendments could result in exposure to flood hazards, including watercourse flooding, sea level rise or tsunami. (5d-g). However, with compliance with federal flood requirements and implementation of City plans and programs, the proposed project would not lead to indirect impacts related to exposure to flood hazards.

- **Impact 4.6-1a: Fire Protection.** Adoption of the proposed plan amendments could indirectly result in increased population density associated with potential new development accommodated by the Plan that would result in increased fire protection and emergency service demands. Existing and future development and growth within the City would result in the need to construct new or expanded fire stations, however, the impacts of fire station construction or expansion are not expected to be significant.
- **Impact 4.6-1b: Police Protection.** Adoption of the proposed plan amendments 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 facilities.
- **Impact 4.6-3: Solid Waste.** Adoption of the proposed plan amendments could indirectly result in increased population associated with potential development that could be accommodated by the Plan, which could result in indirect generation of solid waste that could be accommodated within the remaining landfill capacity.
- **Impact 4.6-4: Energy Use.** Adoption of the proposed plan amendments could indirectly result in increased population associated with potential development that could be accommodated by the Plan, which could result in indirect increased energy demands, which would not be wasteful or an inefficient use of resources.
- **Impact 4.7-1:** Circulation System Impacts. The project will result in an increase in daily and peak hour trips, but would not cause existing or planned intersections to operate at an unacceptable Level of Service (LOS) or further degrade intersections that already operate at an unacceptable LOS.
- **Impact 4.7-2: Highway Segment Impacts.** The project will result in an increase in daily and peak hour trips, but would not result in a change to an unacceptable LOS along state highway segments.
- **Impact 4.8-1:** Water Supply. Adoption of the proposed plan amendments could indirectly result in intensified development with a demand for potable water in a system that, under existing conditions, has adequate supplies during average and normal years, but is subject to potential supply shortfalls during dry and critically dry years. The additional project demand would not result in a substantial increase during dry years and would not be of a magnitude to affect the level of curtailment that might be in effect.

Impact 4.8-2: Wastewater Treatment. Adoption and implementation of the proposed plan amendments 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.

2.5.4 No Impacts

The State CEQA Guidelines section 15128 require that an EIR contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR. Through the Initial Study, NOP scoping process, and EIR, the City of Santa Cruz determined that the proposed project would have no impact on the environmental issues outlined below, and thus, are not further analyzed in the EIR. See the Initial Study in Appendix A for further discussion.

Impacts Evaluated in EIR

- **Impact 4.1-2: Scenic Resources.** Future development accommodated by the proposed plan amendments would not result in elimination or a substantial adverse effect to scenic resources.
- **Impact 4.7-3: Project Access.** The project will not result in creation of hazards due to design of the project circulation system or introduction of incompatible uses.
- **Impact 4,7-4: Emergency Access.** The project will not result in inadequate emergency access.
- **Impact 4.7-5: Transit, Pedestrian and Bicycle Travel.** The project will not conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.
- **Impact 4.9-1:** Conflicts with Policies and Regulations. The proposed project will not conflict with policies or regulations adopted for the purpose of avoiding or mitigating an environmental effect, and therefore, will result in *no impact* related to consistency with local plans and policies.

Impacts Evaluated in Initial Study (Appendix A)

- Agricultural and Forest Resources
- Hazards and Hazardous Materials, except Wildland Fire Risk
- Mineral Resources
- Noise: Generation of Vibration, Location Within Airport Land Use Plan

2.6 ISSUES TO BE RESOLVED

CEQA Guidelines section 15123 requires the Summary to identify "issues to be resolved including the choice among alternatives and whether or how to mitigate the significant effects." This EIR has presented mitigation measures and project alternatives, and the City Planning Commission and City Council will consider the Final EIR when considering the proposed project. In considering whether to approve the project, the Planning Commission and City Council will take into consideration the environmental consequences of the project with mitigation measures and project alternatives, as well as other factors related to feasibility. "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors (State CEQA Guidelines, section 15364). Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or already owns the alternative site). No one of these factors establishes a fixed limit on the scope of reasonable alternatives. The concept of feasibility also encompasses the question of whether a particular alternative or mitigation measure promotes the underlying goals and objectives of a project. Moreover, feasibility under CEQA encompasses "desirability" to the extent that desirability is based on a reasonable balancing of the relevant economic, environmental, social, legal, and technological factors.

9711.0003 July 2017 2-10

CHAPTER 3 PROJECT DESCRIPTION

3.1 PROJECT LOCATION AND SETTING

The City of Santa Cruz is located along the northern shore of Monterey Bay, approximately 75 miles south of San Francisco, 25 miles south of San Jose and 40 miles north of Monterey (see Figure 1-1). The City occupies a picturesque location between the Pacific Ocean and the Santa Cruz Mountains and is bordered by parks, open space, and residential uses on the north, open space lands on the west, the Monterey Bay on the south, and a portion of the unincorporated urban community of Live Oak on the east. The City's western and northern borders are mostly defined by publicly- and privately-owned open space and agricultural lands, with the Monterey Bay on the south. Within the City, city-owned open space lands help establish a greenbelt around the City.

The project area is located within the Downtown Recovery Plan (DRP) planning area that covers approximately 69 acres. Boundaries of the DRP plan area generally are: Laurel Street on the south, Cedar and Center Streets on the west, River and Water Streets on the north, and the top of the west levee of the San Lorenzo River on the east. The DRP identifies the following four subareas, which are also referenced as sub-districts in the Central Business District (CBD). The area covered by the DRP and subareas are shown on Figure 1-2.

- a. *Pacific Avenue Retail District*, including a one-half block depth for all parcels fronting onto Pacific Avenue between Water and Laurel Streets;
- Front Street/Riverfront Corridor, including the one-half block depth of property on the west side of Front Street, and all parcels adjacent to the riverfront between Water and Laurel Streets;
- c. *Cedar Street "Village" District*, generally situated between the Pacific Avenue Retail District on the east and Center Street on the west; and
- d. *North Pacific Area*, situated between Water Street, River Street, and the Mission Hill escarpment.

The proposed project, as described in the following sections, would affect future development intensity within an approximate 12-acre portion of the lower DRP planning area that generally includes the lower parts of the Pacific Avenue Retail District and Front Street/Riverfront Corridor. The project area is shown on Figure 2-1 and is generally bounded by Laurel Street on the south; the San Lorenzo River on the east; Cathcart Street and Soquel Avenue on the north; and Cedar Street on the west. This area is developed primarily with a mix of commercial uses with some upper floor office and residential uses. The area also includes the Metro Station (approximately 1.5 acres), owned and operated by the Santa Cruz Metropolitan Transit District that serves as the bus plaza for the downtown area.

3.2 PROJECT BACKGROUND

The Downtown Recovery Plan (DRP) was adopted in 1991 to guide reconstruction of the 1989 Loma Prieta earthquake as the earthquake destroyed significant portions of downtown Santa Cruz. The intent was to establish policies, development standards and guidelines to direct the recovery process toward the rebuilding after the earthquake. In addition to an Introduction, Summary, and Implementation Strategy, the DRP includes the following components:

Land Use Plan for four subareas (Chapter 3)
Development Standards and Design Guidelines (Chapter 4)
Circulation and Parking Plan (Chapter 5)
Streetscape and Open Space Plan (Chapter 6).

An EIR on the DRP was prepared in 1991 and adopted by the City Council in 1991 with certification of an Environmental Impact Report prepared on the Plan. The DRP was adopted as a specific plan (pursuant to California Government Code requirements) to implement policies in the downtown area. The 1991 EIR prepared for the DRP estimated that the development program established by the DRP would result in a total of 656 residential units, 990,000 gross square feet of office space and 1,329,257 gross feet of commercial retail space. Prior to the earthquake, the downtown area supported 311 housing units, mostly residential hotels containing single-room occupancy (SRO) units and approximately 1,130,00 square feet of retail space and 431,300 square feet of office space (EIP Associates, 1991, DEIR volume).

The DRP has been modified several times over the past 25 years with the most recent change in 2016 to relocate the downtown sign regulations from the DRP to Chapter 24 of the Zoning Code. Implementation of the DRP also included amendments to the Zoning Code. Specifically, DRP Chapter 4—Development Standards and Design Guidelines—is incorporated by reference in Part 24 of the Zoning Code, the Central Business District (CBD).

The City Planning and Community Development Department and the Planning Commission began review of the development standards for the Pacific Avenue Retail District and the Front Street/Riverfront Corridor at the request of the City Council in October 2014. The Planning Commission established two subcommittees to review and develop recommendations. The recommended amendments were forwarded to the City Council, and in October 2016, the City Council directed staff to initiate environmental review on the proposed amendments.

3.3 PROJECT OBJECTIVES

Section 15124 of the State CEQA Guidelines indicates that the EIR Project Description shall include a statement of the objectives sought by the proposed project. A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to

evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project.

The existing DRP includes a set of "first principles" intended to guide redevelopment of the downtown area. These principles address the appearance and height of buildings, new housing opportunities, accessibility and circulation, open space and streetscape, and parking.

The following are the project objectives provided by City staff.

- 1. Support the following First Principles of the Downtown Plan:
 - Form and Character. New buildings should be allowed to develop individual character while retaining qualities of the historic townscape. Issues of articulation, materials, signage, setbacks, scale, massing, form, bulk, solar access and height are critical.
 - Housing. Significant new housing opportunities should be targeted throughout
 the downtown, including Pacific Avenue, the San Lorenzo riverfront, and South of
 Laurel. Housing should be comprised of a mix of apartments and
 condominiums. SRO housing should be replaced and dispersed throughout the
 downtown area.
 - Accessibility. A downtown that aesthetically integrates access as a primary design criterion for all improvements to ensure increased opportunities for the public to participate in commercial, governmental, residential, social and cultural activities.
 - Open Space and Streetscape. A strong network of public and private open spaces (streets, sidewalks, public parks, plazas, passageways and courtyards) that creates a socially active and pedestrian-oriented downtown core should be emphasized.
 - *Circulation.* Downtown should be predominantly pedestrian in nature; movement should be carefully structured to reinforce the character of the place. Pedestrian, bicycle, and transit access to the downtown should be enhanced.
 - Parking. Parking in the downtown core should continue to be provided by the Parking District in a centralized fashion, to maximize shared use and minimize the quantity of stored vehicles.
- 2. Increase opportunities for all types of housing in downtown.
- 3. Encourage and incentivize maximum public access to the San Lorenzo River.
- 4. Achieve superior connections to the San Lorenzo River above the existing DRP and existing SLURP policies consistent with Section 30211 of the Coastal Act.
- 5. Ensure that development adjacent to the Riverwalk will be designed to prevent impacts to the adjacent sensitive San Lorenzo River and will incentivize clean-up of degraded areas along the levee.

- 6. Enhance opportunities to view and interact with the San Lorenzo River as a coastal resource.
- 7. Create development standards that will incentivize development of key east-west public passageways between Pacific Avenue and the Riverwalk.

3.4 PROJECT COMPONENTS

Parklet standards.

The proposed project consists of a series of amendments to the following adopted City plans and regulations:

Downtown Recovery Plan: Amendment to extend Additional Height Zone A, modify Additional Height Zone B, and modify development standards
 General Plan 2030: Amendment to modify Floor Area Ratio for the Regional Visitor Commercial land use designation
 Local Coastal Plan (LCP): Amendment to Land Use Plan text to modify San Lorenzo Urban River Plan land use development policies
 Zoning Code sections: Amendment to Municipal Code Section 24.10, Part 24, Central Business District (CBD), of the Zoning Code to modify extension area regulations and add

Each of these project components is further explained in the next section.

3.4.1 Proposed Plan and Zoning Code Amendments

Downtown Recovery Plan Amendments

The proposed DRP amendments include minor revisions to text, reorganization of text, elimination of outdated text, addition of new text and exhibits, and modifications to development guidelines and standards. The focus of the amendment is to expand the location of "Additional Height Zones" and revise the Chapter 4 Development Standards. The primary proposed modification would increase allowable building heights in the lower Pacific Avenue and lower Front Street areas between Cathcart and Laurel Streets and along the San Lorenzo River between Laurel and Soquel Avenue. According to the City, these changes were initiated to provide more opportunities for housing in the core of the downtown. Increasing densities in the downtown is consistent with the overarching objectives of the City to maintain a compact downtown with a dense urban core in exchange for retaining a greenbelt around the City. The DRP amendment also includes: modifications to the format of the original DRP with the creation of a Use Chart for ground level and upper level uses; consolidating language relating to design guidelines and development standards; and the renaming of the plan to eliminate the word "Recovery" from the title that was formerly associated with the post-earthquake reconstruction

that is now mostly complete. Key proposed changes are summarized in Table 3-1 and further described in the following sections. All DRP text revisions can be viewed on the City's website at: http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/downtown-recovery-plan-amendments.

Development Standards and Design Guidelines

Land Uses. The proposed amendments continue to support and promote mixed-use development opportunities within the DRP area, but references to specific sites have been eliminated, including references to potential residential development on city-owned parking lots along Cedar Street. The proposed Plan revisions do indicate that "the Plan encourages the most intensive development along Pacific Avenue and the Front Street/Riverfront corridor, where it can most benefit from shared parking and convenient transit, and where higher density development is most appropriate" with acknowledgement that there are opportunities for redevelopment of existing structures along lower Pacific Avenue and Front Street.

The proposed amendments consolidate former text on permitted uses into a new table that identifies permitted uses for both ground level and upper level uses for each of the four CBD subdistricts, as well as the required level of permit approvals for each use. This modification allows for easier reference to allowed uses and provides notes about particular uses. Neither the existing DRP nor the proposed amendments provide an exhaustive list of all potential and foreseen uses for the CBD subdistricts. The proposed DP does include more uses not mentioned in the original DRP, including required Community Care, Family Day Care and Supportive and Transitional Housing uses that are required by State Law. Ground level parking has been added as a conditional (or administrative use) along Front Street if certain criteria are met (provision of some public parking, garage doesn't extend to street corners, one curb cut per garage). The proposed revisions include prohibition of marijuana dispensary facilities as a result of the passage of state Proposition 64, the ballot measure to allow personal recreational use of marijuana. The proposed DP also includes a provision that allows the Zoning Administrator to determine whether a proposed unlisted use would be considered similar in nature to other listed uses that support the objectives of the DP and the CBD.

Building Heights and Stepbacks. The primary change associated with the proposed amendment is to expand the area of "Additional Height" zones along lower Pacific Avenue and the River Street/Riverfront corridor. The proposed amendments would allow increases in allowable maximum building heights in three locations as shown on Figure 3-1 as described in the following sections. Additionally, the amendments propose an increase the base height along Pacific Street between Water and Laurel Streets from 50 to 55 feet and along the west side of Front Street.

TABLE 3-1: Summary of Key Proposed DRP Amendments

TABLE 3-1: Summary of Key Proposed DKP Amendments			
Chapter	Existing	Proposed	
Introduction, Executive	Downtown Recovery Plan	Revisions refer to the plan as Downtown Plan (DP), except where specifically referring to the original document.	
Summary, Chapters 1, 2 and 3	The 1989 Loma Prieta earthquake is the baseline for describing character of the CBD zone. Language indicating historic character or historic fabric of the CBD meant pre-1989 earthquake character.	Text has been modified to note that the City has had 25 years of post-earthquake development and recognizes that the CBD character has changed.	
	Summary of the Plan Recommendations	Revised text clarifies that language reflects recommendations in 1991.	
	References to flood improvements.	Updated to reflect improvements to the San Lorenzo River levee made since the Loma Prieta earthquake.	
	Descriptions and boundaries of the four CBD subdistricts - Pacific Avenue Retail, Front Street / Riverfront Corridor, Cedar Street Village Corridor, and North Pacific. Reference and description of the High	The general descriptions of the purposes and character of these four areas remain the same. The height map is moved to Chapter 4 with the other Development Standards. Text eliminated as the HDO District was repealed in 2016.	
	Density Overlay (HDO) District.	·	
Chapter 4	The DRP was formatted to describe allowable uses for each of the four CBD subdistricts, including by ground floor and upper floor uses, written in paragraph form. Prohibited uses are listed within Chapter	Reorganizes the allowable uses for all the CBD districts into a table format, similar to the Citywide Zoning Ordinance update format that will be more consistent with all zoning districts in the future. Adds two tables: one for ground level uses and one for upper floor uses.	
	4 of the Plan. The Plan also includes a list of amortized uses that are to be phased out by October 2020.	Adds Medical and Recreational marijuana service providers to the list of prohibited uses within the Central Business District. No change is proposed for the types of uses that are listed to be phased out of the CBD by October 2020.	
	Existing "Additional Height Zones" are located generally north of Cathcart and west of Front Street.	Expands zones of additional height to areas along lower Pacific Avenue and lower Front Street.	
Chapters 5, 6 and 7	Circulation-Parking, Open Space- Streetscape and Implementation	No revisions to Chapters 5, 6 and 7 are proposed with this update.	
Appendices	Appendix 3 – Sign Regulations 5 – Floor Area Ratio (ordinance)	Appendix 3 – Downtown Sign regulations previously were moved to the Zoning Code, Chapter 24.12. Appendix 5 – Floor Area Ratio ordinance appendix deleted as it is now identified in the General Plan 2030.	
	6 – Additional Height Zone C (specific to upper Pacific Avenue) 7 – Live Entertainment (ordinance)	Appendix 6 – The Additional Height Zone C is integrated with Additional Height Zone A in Chapter 4. Appendix 7 – Live Entertainment ordinance is in the Zoning Code Chapter 24.	
List of Maps and Diagrams	Land Use Concept Height Housing Zone A – Additional Height Standards	Land Use Concept remains unchanged. Height Map relocated to Chapter 4. Housing Map deleted as it represented the High Density Overlay Zone that is obsolete with the General Plan 2030. Additional Height Zones A and B are in Chapter 4.	
	Zone B – Additional Height Standards	Additional Height Zones A and b are in chapter 4.	

Downtown Plan Amendments

9<u>711.0003</u>

	Additional Height Zone A – to 75 Feet: The proposed amendment would extend the existing "Additional Height Zone A" to the area along Pacific Avenue between Cathcart Street and Laurel Street and to the area along the west side of Front Street between Cathcart Street and Soquel Avenue. Additional Height Zone A, which currently is applied to Pacific Avenue north of Cathcart, would allow building heights to 75 feet on sites 15,000 to 50,000 square feet in size Current allowable heights for these areas are 50 to
	60 feet. The proposed change also reduces the minimum property size to which the additional height may be applied from 20,000 to 15,000 square feet.
	Additional Height Zone A - to 85 Feet: The proposed amendment would establish a maximum height of 85 feet in Additional Height Zone A for the area between the east side of Pacific Avenue and the west side of Front Street (between Cathcart and Laurel) and on the west side of Front Street between Cathcart and Soquel Avenue for projects on aggregated parcels larger than 50,000 square feet.
	Additional Height B - to 70 Feet: The proposed amendment changes the "Additional Height Zone B ¹ " to cover properties located on the east side of Front Street between Soquel Avenue and Laurel Street. The amendment would allow additional heights to 70 feet over the base height limit of 50 for properties larger than 15,000 square feet in size. The DRP amendments performance criteria is provided that requires recessed building breaks, skyline architectural variation and integrated rooftop design.
nha	bitable mechanical penthouses continue to be permitted to exceed the maximum

Uninhabitable mechanical penthouses continue to be permitted to exceed the maximum building height (to a maximum height of 65 feet, except 60 feet for the Front Street/Riverfront corridor) with a 15-foot setback, which is reduced from the 25-foot setback in the current plan.

The proposed amendments also modify upper floor stepback requirements. A stepback is generally an upper floor setback from the edge of the building to help break up building mass. The proposed amendments would change the existing upper level 42 or 52 degree stepback standard to standard that would allow a certain percentage of a site to have heights over a specified limit. According to City staff, this "volumetric approach" is intended to ensure both vertical and horizontal building variation to avoid monolithic structures.

☐ For sites that are eligible for additional height in Additional Height Zone A, the footprint of portions of the building at or below 55 feet shall be at least 40% of the total site area; portions of the building footprint above 55 feet to a height of 75 feet may comprise up to 60% of the site area. For assembled sites greater than 50,000 square feet, buildings may achieve an 85-foot height for up to 20% of the total area in the area proposed for this additional height allowance. Figure 3-2 provides a schematic that shows proposed distribution of building height on different size sites.

¹ The existing Additional Height Zone B consists of two areas along Pacific Avenue that are now included in the proposed expansion of Additional Height Zone A. The existing Additional Height Zone C at the northern end of the DRP area is now included into Additional Height Zone A.

Along Pacific Avenue, portions of buildings that exceed the maximum base height of 55 feet may occupy up to 55% of the length of the property line along the street or 200 feet, whichever is less. Any additional height above the base height must be set back from the building wall by at least 15 feet. An example of the potential distribution of height that is included in the proposed revised Downtown Plan is shown on Figure 3-3.

Along Front Street, portions of buildings that exceed the maximum base height of 55 feet may occupy up to 60% of the length of the property line along the street or 180 feet, whichever is less with the proposed amendment. Any additional height above the base height must be set back from the building wall by at least 15 feet.

- □ For the Front Street/Riverfront Corridor, the proposed amendments require a minimum 10-foot stepback from Front Street for development above 50 feet in height and at least 50% of the building frontage along Front Street and Soquel Avenue shall have a 10-foot setpback for development above 50 feet (See Figure 3-4). Along the west side of the Riverwalk, a 10-foot setback from the exterior building face would be required for development above 50 feet. The proposed amendments allow up to 25% of the Riverwalk building frontage to encroach into the required 10-foot setpback area to provided massing variation. See Figure 3-4, which depicts heights and stepbacks along Front Street and adjacent to the San Lorenzo River. The proposed amendments also permit top floor cantilevered portions of the building to encroach over the property line a maximum of 5 feet in order to provide architectural interest to the façade, which shall not exceed 25 percent of the total building frontage along the riverfront.
- Along Laurel Street, Cathcart Street and Soquel Avenue, portions of buildings that exceed the maximum base height of 55 feet may occupy up to 60% of the length of the property line or 150 feet, whichever is less. Any additional height above the base height must be set back from the building wall by at least 15 feet.
- Along the Maple Street extension to Front Street, the proposed amendment requires the building frontage to be stepped back by 10 feet above a height of 50 feet. In addition to the 'build to' line, the Maple Street building face shall incorporate at least one recessed break, open to the sky, no less than 25 feet wide and no less than 10 feet in depth from Maple Street (see Figure 3-4).

Development Standards and Design Guidelines. The proposed amendments reorganize and combine Guideline language with Development Standard language in Chapter 4 with generally minor text revisions. A new section has been added that consolidates requirements and performance criteria for Additional Height areas, and another new section provides consolidates Storefront Standards and Guidelines that are applicable to the entire CBD zone. A new standard has been added that requires new development to provide for public passageways between the Riverwalk and Front Street at or near the extension of along Cathcart Street, Elm Street and Maple Street.

Tables 3-2 and 3-3 summarize changes in development standards and design guidelines for the Pacific Avenue Retail District and Front Street/Riverfront Corridor, respectively.

Other DRP Text Revisions

The proposed DRP amendments includes other revisions, including removing references to the High Density Overlay (HDO) District, which was repealed in 2016 due to redundancy with the adopted *General Plan 2030* and Housing Element. The HDO had been adopted for the Pacific Avenue corridor between Water and Elm Streets, which provided density bonuses amounting to an additional 2.0 FAR for residential development within commercial mixed-use projects. The zone became obsolete with the adoption of the *General Plan 2030* in 2012 as the Regional Visitor Commercial land use designation (applicable to the downtown area) includes new floor area ratio (FAR) ranges that supersede the HDO district.

The Draft Plan includes language to require the sloped side of the river levee between the levee and the private property to be filled with earth to achieve a similar elevation between the Riverwalk and the adjacent private development for the purposes of encouraging more connections to the Riverwalk. The original DRP did encourage filling along the levee, but the proposed language makes this public objective a mandatory design feature for new development.

The proposed amendment would require any development along the west side of Front Street between Cathcart Street and Laurel Street to dedicate sufficient property to result in a sidewalk depth of at least 12 feet. Development along Laurel Street between Pacific Avenue and Front Street would also require a setback to result in at least a 12 foot sidewalk. Additionally, specific parcels are identified and standards provided for future pedestrian extensions from Elm Street and Maple Street to Front Street and the San Lorenzo River. Buildings fronting the 10-foot Maple Street alley between Pacific Avenue and Front Street shall be set back 20 feet to provide for a 50-foot wide public paseo, lane or street. In recognition of this required dedication, the proposed amendment indicates that aggregated parcels meeting the size for additional height would not be required to provide on-site parking, but pay parking fees to the Downtown Parking District in lieu of meeting the on-site parking requirements. Specified properties are required to dedicate a 30-foot wide publicly accessible pedestrian connection as an extension of Elm Street between Pacific Avenue and Front Street, and the passageway shall be integrated into the design of the development.

TABLE 3-2: Summary of Pacific Avenue Retail District Development Standards

Standard	Existing	Proposed
Base Height	50 feet (maximum)	Increase to 55 feet (maximum)
Additional Height	Additional height not permitted south of Metro Center. 75' maximum height for properties eligible for additional height north of Metro Center. Project sites eligible for additional height must be at least 20,000 square feet in size.	Extend Additional Height zone south of Soquel Avenue to Laurel Street. Allow up to 60% of site area to be 75 feet in height and up to 20% of site up to 85' for eligible properties, subject to massing standards. Project sites eligible for additional height must be at least 15,000 square feet in size.
Uses within Additional Height Zone.	Maximum of 5 levels of commercial and 5 levels of residential above 1 level of required pedestrian-oriented ground level commercial.	Allow 6 levels of residential development above 1 level of required pedestrian-oriented ground level commercial.
Additional Height Stepbacks on Pacific Avenue	On west side, setback above 50' to create 42° solar access plane to opposite sidewalk. On east side setback so that no more than 30% of additional height is visible.	Replace terraced stepbacks with volumetric massing standards that avoid large monolithic buildings. Limit additional height to: a footprint no greater than 60% of the total site area with two-story variation
Additional Height Stepbacks on East-West Streets	Setback above 50' to create 52° solar access plane to opposite sidewalk.	between building masses. Limit additional height to a maximum of 55% of Pacific Avenue frontage or 200' whichever is less,
Additional Height Stepbacks on Front Street	Not applicable. Maximum height along Front Street is 50'.	 60% of east-west street frontages or 130', 60% of Front Street frontages or 180', and 50% of the Maple Avenue Paseo frontage. Provide recessed space with 15' minimum depth and 25' width to distinguish between volumes. Treat this recessed space in a manner that creates a positive pedestrian/streetscape environment.
Public Connections between Pacific Ave and Front St.	No specific requirements. All buildings are built to the property line of the street with some exceptions. No interior side yard setbacks stipulated.	Require all new development to physically dedicate and/or to make a fair share financial contribution to the creation of publicly accessible connections along or near the extension of Maple (50 feet) and Elm (40 feet) Streets. Require upper level stepbacks of 10 feet above 50 feet. A recessed break, open to the sky, is required along Maple Street of no less than 25 feet in width with a depth of at least 10 feet.

9711.0003 July 2017 3-10

TABLE 3-3: Summary of Front Street/Riverfront District Development Standards

Standard	Existing		Proposed		
Base Height	50' (max)	No change to maximum base height.			
Uses within Base Height:	3 floors of commercial or 3 floors of residential above 1 level of commercial.	No cl	No change for buildings within the base height.		
Additional Height	Additional height not permitted south of Metro Center.	Establish Additional Height Zone B, between Soquel Avenue and Laurel Street. Allow buildings up to 70 feet for properties that meet specific Performance Criteria that promote high quality public access to the river, appropriate treatment of the riverfront edge and commitment to manage and maintain riverfront open space.			
Ground Level Uses	Commercial uses required along Front Street.	Add I Stree	ive-work as a permitted ground level use along Front t.		
Building Stepbacks	Any development above 35' is required to step back at least 10' from the street.	step stepk River	ire at least 50% of Front and Laurel Street frontages to back by 10 feet above a height of 50 feet. Require a back of 10 feet above 50 feet on frontages facing the walk.		
		publi	ings Adjacent to River Street, east-west streets, and cly accessible passageways shall step back at least 10 from the street for any height above 35 feet.		
Upper Level Standards Not specified in current plan.		the p	ire top floor area to not exceed 60% of the site area if roject includes a publicly accessible passageway to the If no passageway is included within the project, re the top floor to not exceed 60% of the floor are v.		
Public Connections to River	No specific standard. Guidelines ask for pedestrian access between Front Street and the Riverwalk.	to ma of pu exter	ire all new development to physically dedicate and/or ake a fair share financial contribution to the creation blicly accessible connections along or near the assions of Cathcart, Maple and Elm Streets, at widths of 0 and 40 feet respectively.		
Building Length	No standard.		building to 250' of lineal street frontage. A minimum reak between buildings must be provided.		

July 2017

3-11

General Plan 2030 Amendment

The existing General Plan 2030 was updated and adopted by the City Council in June 2012. The proposed General Plan amendment would revise General Plan text to increase the upper level of permissible floor area ratio (FAR) for the Regional Visitor Commercial (RVC) land use designation in the downtown area from 3.5 to 5.0². (See Appendix C for text revision.) The RVC designation currently is applied to all of the area within the boundaries of the DRP.

The purpose of this modification is to reflect the changes to the Additional Height Zone A in the Downtown Plan, which would allow for a potential height of up to 85 feet for a portion of a development site that meets the criteria for additional height under the proposed DRP amendment. While the FAR is proposed to be modified, no changes to underlying zone districts are proposed.

Local Coastal Plan Amendments

A portion of the downtown and project study area lies within the coastal zone. Pursuant to the California Coastal Act, the City has a Local Coastal Plan (LCP) that was certified by the California Coastal Commission (CCC). The LCP consists of a land use plan, implementing ordinances and maps applicable to the coastal zone portions of the City, and applies to all private and public projects located within the coastal zone. The Land Use Plan consists of: text; policies, programs and maps; Area Plan coastal policies and maps; and a Coastal Access Plan. The Implementation Plan consists of ordinances and regulations used to implement the Land Use Plan, including sections in the Zoning Code. The City is in the process of updating and revising the LCP Land Use Plan as a separate document from the General Plan. The LCP applies to private and public projects located within the coastal zone.

Chapter 4 of the Downtown Recovery Plan is incorporated by reference in the CBD zone district, and the district is part of the implementation section of the LCP. Thus, revisions to the DRP Chapter 4 require review and approval by the California Coastal Commission as part of an LCP amendment.

In addition to the development standards of Chapter 4, there are several LCP policies that are proposed to be modified. Since the original certification of the City's LCP in 1985, additional plans have been prepared and policies incorporated into the LCP as amendments. The City adopted the San Lorenzo Urban River Plan (SLURP) in 2003 as a resource management protection plan for the river. Subsequent to the City Council approval, several resource-related and land use policies were included in the LCP and approved by the CCC as an amendment to the City's LCP. There are nine coastal policies based on the SLURP that pertain to development along

² FAR is the gross floor area permitted on a site divided by the total net area of the site. For example, on a site with 10,000 net sq. ft. of land area, a FAR of 1.0 will allow a maximum of 10,000 gross square feet of building floor area to be built. On the same site, a FAR of 3.5 would allow 35,000 sq. ft. of floor area,

Front Street within the coastal zone. The proposed amendment would modify one policy, eliminate the other existing eight policies, and add two new LCP policies. The LCP policies proposed for deletion address maintenance of 50-foot building heights along Front Street, provision of public amenities, and building architecture. Appendix C lists the policies proposed for deletion with an explanation provided by City Planning Department staff.

The proposed new LCP SLURP policies are:

Require new development projects to incorporate design features that encourage active
engagement with the Riverwalk such as: filling adjacent to the Riverwalk and
landscaping, providing direct physical access to the Riverwalk, including appropriate
active commercial and/or residential uses adjacent to the Riverwalk, or providing a
combination of these and/or other design features that support the resource
enhancement and river engagement policies of the San Lorenzo Urban River Plan.

☐ Require new development projects to incorporate pedestrian and/or bicycle connections between Front Street and the Riverwalk at appropriate locations such as the extensions from Maple Street and near Elm Street.

Zoning Code Amendments

The project includes amendments to Part 24 of the Municipal Code, Commercial Business District that is part of the Zoning Code. Minor text revisions are proposed in several sections as shown in Appendix C, and the two primary changes relate to outdoor extension areas and parklets:

Municipal Code section 24.10.2340, Extension Areas. The proposed amendment specifies
that this section is applicable to the Central Business District and to properties to the San
Lorenzo Riverwalk as areas for outdoor restaurant and business extension in order to
enhance the pedestrian ambiance of the downtown and the San Lorenzo Riverwalk, by
introducing uses attractive to pedestrians into the pedestrian environment, configured
and arranged in ways which activate and enliven the public streets and the San Lorenzo
Riverwalk.

☐ Municipal Code section 24.10.2341, Parklets. The proposed amendments add an new section that regulates construction of "parklets". The purpose of parklets is to enhance the pedestrian ambiance of the CBD zone district by creating useable outdoor spaces that encourage a sense of community and that provide a tool for economic development. The new sections include requirements for design, construction and operation.

3.4.2 Potential Buildout with Proposed Amendments

Adoption of the proposed plan and code amendments would not directly result in development, and the proposed amendments do not include site-specific development. However, the proposed amendments would expand and specify the geographical areas in which increased

building heights may be allowed, which could result in additional building floors as part of future redevelopment in the area. Therefore, the amendments could lead to reasonably foreseeable indirect physical changes in the environment.

City Planning Department staff developed an estimate of potential buildout without and with the proposed amendments for the purpose of identifying and evaluating potential indirect environmental impacts resulting from new development that could be accommodated by the project. The affected area was divided into three segments as shown on Figure 3-6 to include the Riverfront area, the area between the east side of Pacific and Front Street, and the area to the west of Pacific Avenue. City staff identified broad development assumptions for these areas, which are included in Appendix D.

Table 3-4 at the end of this section summarizes potential development based on City staff estimates. The proposed amendment to expand the existing "Additional Height Zones" could result in a net increase of approximately 711 residential units and approximately 2,200 square feet of office space with a net decrease of approximately 14,700 square feet of commercial building space over existing conditions within the study area. In comparison, City staff estimates that potential redevelopment under the adopted *General Plan 2030* without the proposed DRP amendments could result in a net increase of approximately 437 residential units with a decrease of approximately 24,000 square feet of commercial and 5,000 square feet of office uses.

At this time there are no development applications currently pending before the City. However, there have been development inquiries and discussions between private developers and City staff. The Santa Cruz Metropolitan Transit District also had been pursuing a mixed-use transit, parking, and residential project on the downtown Metro Station site, but there are no current project plans for this development.

3.5 PROJECT APPROVALS & USE OF EIR

As indicated in the Section 1.0, Introduction, the EIR is an informational document for decision makers. The EIR includes a "program-level" analysis. As defined by the State CEQA Guidelines section 15168, a Program EIR is prepared for a series of actions that can be characterized as one large project and are related geographically, by similar environmental effects, as logical parts in the chain of contemplated actions, or in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program.

The City of Santa Cruz is the lead agency and responsible for approving the proposed amendments to the DRP, General Plan and LCP. After certification, this EIR may be used by the City as a "first tier" document for later projects as authorized by section 15183 of State CEQA Guidelines. Reviews of later projects under this provision would be required to consider any project-specific impacts that were not adequately addressed in this EIR. The specific later

projects are not known at this time, but could include, for example, site-specific development projects.

For later individual projects proposed in the areas covered by the plans and amendments covered in this EIR, the City will determine whether the individual project or subsequent activity is within the scope of this Program EIR, meaning it is an activity within the same project as analyzed in the program EIR or within the same geographic area encompassed by the program EIR. Depending on the City's determination, including whether new effects could occur or new mitigation measures would be required, the analysis for later projects could range from no new CEQA document to a new EIR. The City potentially could apply one or more CEQA "streamlining" tools when it considers later projects, such as the focused analytical routes offered under Public Resources Code sections 21155.2 and 21083.3 and CEQA Guidelines sections 15152, 15182, 15183, and 15183.3. If appropriate and applicable to a proposed project, the City may also consider one or more statutory or categorical exemptions.

☐ California Coastal Commissions: Approval of LCP amendment

TABLE 3-4: Potential Development/Buildout Assumptions with Downtown Plan Amendments

	Area X Riverfront	Area Y E. Pacific/W. Front Pacific Station	Area Z W. Pacific	Totals	Change from Existing Conditions (Includes demolition and reconstruction)
Baseline/Existing Condition	S				
Property Area	146,000 sf	222,200 sf	148,800 sf	517,000 sf	N/A
	(3.35 acres)	(5.10 acres)	(3.42 acres)	(11.87 acres)	
Commercial	62,000 sf	74,864 sf	182,836 sf	319,700 sf	N/A
Office	N/A	56,105 sf	65,761 sf	121,866 sf	N/A
Residential	N/A	113 units	56 units	169 units	N/A
Parking	164 spaces	186 spaces	97 spaces	447 spaces	N/A
Buildout Assumptions with Proposed Downtown Plan Amendments (Units are totals, reflecting both demolition and reconstruction)					
Commercial	73,171 sf	47,000 sf	184,836 sf	305,007 sf	-14,693 sf
Office	18,296 sf	40,000 sf	65,761 sf	124,057 sf	+2,191 sf
Residential	321 units	483 units	76 units	880 units	+711 units
Parking	397 spaces	1,924 spaces	117 spaces	2,438 spaces	+1,991 spaces

SOURCE: City of Santa Cruz Planning and Community Development Department

SOURCE: Bing Maps (accessed 2017)

FIGURE 1-1
Project Location

City of Santa Cruz Downtown Plan Amendments EIR

SOURCE: City of Santa Cruz

FIGURE 1-2

Downtown Recovery Plan Boundaries and Subareas

City of Santa Cruz Downtown Plan Amendments EIR



SOURCE: Bing (accessed 2017), County of Santa Cruz

Lower Downtown Project Study Area

City of Santa Cruz Downtown Plan Amendments EIR

Existing Additional Height Zones

Proposed Additional Height Zones





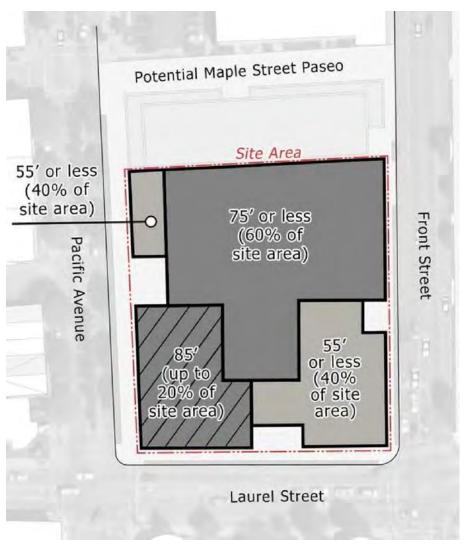
DUDEK

FIGURE 3-1 Existing and Proposed Additional Height Zones

Proposed distribution of additional height for sites 15,000° 50,000 sq. ft.



Proposed distribution of additional height for sites larger than 50,000 sq. ft.





SOURCE: City of Santa Cruz

FIGURE 3-2

Schematic of Proposed Height Distribution on Development Sites



Example of possible distribution of frontage heights along Pacific Avenue and Laurel Street.

DUDEK

SOURCE: City of Santa Cruz

FIGURE 3-3

Proposed Additional Height and Stepbacks Along Pacific Avenue



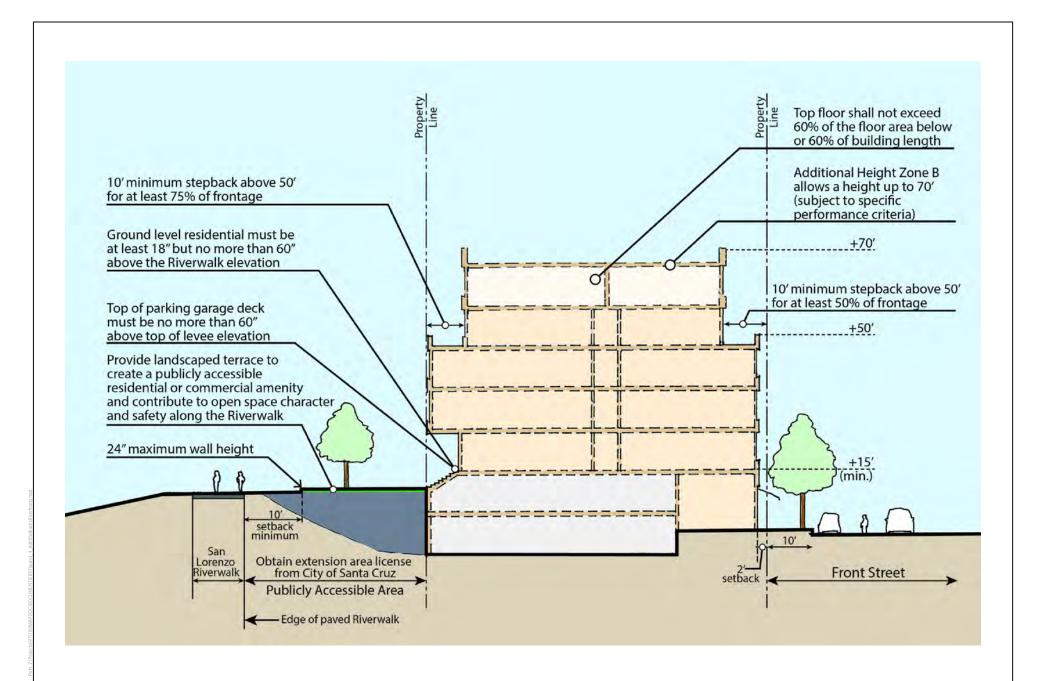
Example of possible distribution of frontage heights along Front Street and the Maple Street Paseo



SOURCE: City of Santa Cruz

FIGURE 3-4

Possible Height Distribution along Front Street





SOURCE: City of Santa Cruz

FIGURE 3-5



SOURCE: Kimley Horn

Project Development Areas

CHAPTER 4 ENVIRONMENTAL EVALUATION INTRODUCTION

The following sections evaluate the environmental impacts of the proposed residential project:

- 4.1 Aesthetics
- 4.2 Air Quality & Greenhouse Gas Emissions
- 4.3 Biological Resources
- 4.4 Cultural Resources
- 4.5 Hydrology
- 4.6 Public Services and Utilities
- 4.7 Transportation and Traffic
- 4.8 Water Supply and Wastewater Treatment
- 4.9 Land Use

Each section in Chapter 4 generally follows the same format and consists of the following subsections:

- ☐ ENVIRONMENTAL SETTING: This section describes the existing physical environment and applicable laws and regulations relevant to a discussion of impacts in the topic category. The Environmental Setting sections provide a general overview of the existing conditions throughout the City related to the topic being addressed. Local, State, and federal regulations also are identified and discussed, when relevant.
- ☐ ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES: The Environmental Impacts and Mitigation Measures section identifies thresholds of significance used to evaluate whether an impact is considered significant, based on standards identified in or criteria derived from the California Environmental Quality Act (CEQA) and State CEQA Guidelines. In some cases, agency policies and regulations or professional judgment are used to further define CEQA standards of significance.

This section first identifies issues for which no impacts have been identified. The section then evaluates and analyzes significant or potentially significant project impacts, states the level of significance prior to mitigation, and proposes mitigation measures (in bold) that can reduce such impacts. A statement regarding the level of significance of each impact after mitigation follows the mitigation measures for that impact. For impacts found to be less than significant, mitigation measures are not required, but where relevant, the EIR recommends project modifications or appropriate conditions of approval.

INTENTIONALLY LEFT BLANK

4.1 **AESTHETICS**

This section analyzes impacts of the proposed project related to aesthetics based on a visual assessment conducted as part of the preparation of this EIR, which includes consideration of photo simulations prepared for the City Planning and Community Development Department by McCann Adams Studio. This section also draws from the City of Santa Cruz General Plan 2030 EIR (SCH#2009032007), which was certified on June 26, 2012, regarding background information on aesthetics and scenic views. The General Plan EIR is available for review at the City of Santa Cruz Planning and Community Development Department (809 Center Street, Room 107, Santa Cruz, California) during business hours: Monday through Thursday, 8 AM to 12 PM and 1 PM to 5 PM. The General Plan EIR is also available online on the Citv's website at: http://www.cityofsantacruz.com/departments/planning-and-community-development/generalplan-2030.

Public and agency comments related to visual impacts were received during the public scoping period in response to the Notice of Preparation (NOP). Issues raised in these comments include:

- Concerns were raised regarding potential impacts of the proposed new height standards along Front Street and to public views along the Riverwalk and adjacent public recreational facilities.
- ☐ The CEQA analysis should include a visual resource analysis that includes visual simulations from all appropriate public vantage points, including from both sides of the Riverwalk, the Soquel Avenue and Laurel Street bridges, and San Lorenzo Park.
- ☐ Story poles should be erected along the river levee to assess visual impacts of the heights of new buildings.
- ☐ The EIR should evaluate alternatives to the proposed new height standards that meet most of the project objectives but also reduce potential aesthetic impacts.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. Public comments received during the public scoping period are included in Appendix B.

4.1.1 Environmental Setting

Regulatory Setting

There are no known federal regulations regarding aesthetics or project design review. City regulations and permits related to development and design standards are summarized in the following section.

In 2013, Senate Bill 743 was passed that changed CEQA as codified in California Public Resources Code section 21099, which became effective in January 2014. Under this law, projects located

within one-half mile of a major transit stop or facility are considered "transit-oriented development". Pursuant to section 21099(d)(1), aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment. Section 21099(d)(2)(A) further indicates that this subdivision does not affect, change, or modify the authority of a lead agency to consider aesthetic impacts pursuant to local design review ordinances or other discretionary powers provided by other laws or policies. This change does not affect the analysis of the proposed Downtown Plan amendments as the aesthetics issue exemption does not apply to plans, but it could apply to future CEQA analyses of specific development projects.

City Regulations and Permits

Zoning Regulations

Chapter 24.12 of the City of Santa Cruz Zoning Code provides community design standards related to site layout, parking, landscaping, fencing and other design features. The Zoning Code (Municipal Code section 24.22.162) defines building height as the vertical distance from average grade to the average midpoint of the highest pitched roof. Section 24.12.150 of the Zoning Code indicates that the height limitations do not apply to roof structures for the housing of elevators, stairways, tanks, ventilating fans, air conditioning, or similar equipment used solely to operate and maintain a building.

The Central Business District (CBD) zone (Municipal Code Chapter 24.10, Part 24) implements the Land Use Plan, Development Standards and Design Guidelines of the Downtown Recovery Plan (DRP). It supports the purpose of the Plan, in the context of the General Plan, which aims to make downtown the urban center of the city, with the many functions a city center serves. This section of the Zoning Code is also part of the Local Coastal Implementation Plan. Section 24.10.2301, Uses, Development Standards and Design Guidelines, also adopts by reference and includes Chapter 4 of the DRP, as amended, in the CBD zone district. This section indicates that the policies and regulations set forth in Chapter 4 of the DRP shall control all uses in the CBD, Central Business District, and its four subdistricts: Pacific Avenue Retail District; Front Street Riverfront Corridor; Cedar Street Village Corridor; and North Pacific Area.

Chapter 4 of the DRP identifies land uses, development standards and design guidelines for each of the four subdistricts. Elements addressed include:

Building heights
Building massing and stepbacks
Building façade guidelines, including window treatments, roofs, building materials, colors and landscaping
Storefront guidelines
Pedestrian passages and courtyards

Chapter 4 also allows additional height above the 50-foot base feet under certain conditions with a requirement that a detailed visual analysis of the proposed building be prepared to determine the visual impact of the development. See Figure 3-1 in Section 3, Project Description, which shows the existing areas where additional building height may be allowed.

Required Permits

Design Permit. The City's Zoning Code requires a "design permit" for most new construction in the City of Santa Cruz, including new construction of commercial structures and multiple dwellings containing three or more dwelling units. The purpose of the design permit is to promote the public health, safety and general welfare through the review of architectural and site development proposals and through application of recognized principles of design, planning and aesthetics and qualities typifying the Santa Cruz community. Pursuant to the Design Permit requirements (Zoning Code 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 Code provides "Community Design Standards" that address general site design standards, parking, advertising and signs, underground utilities, historic preservation, and other provisions for specific uses. The criteria to be addressed in findings for a Design Permit include:

- 1. Consistency with physical development policies of the General Plan and Local Coastal Program (LCP), if located in the coastal zone.
- 2. Compatible exterior design and appearance with other existing buildings and structures in neighborhoods which have established architectural character worthy of preservation.
- 3. Respect design principles in terms of maintaining a balance of scale, form and proportion, using design components which are harmonious, and materials and colors which blend with elements of the site plan and surrounding areas.
- 4. Site planning that takes into account uses other than that of a proposed project.
- 5. Orientation and location of buildings, structures, open spaces and other features to maintain natural resources including significant trees, maintain a compatible relationship to and preserve solar access of adjacent properties, and minimize alteration of natural land forms.
- 6. Protection of views along the ocean and of scenic coastal areas, and where appropriate and feasible, restore and enhance visual quality of visually degraded areas.
- 7. Site layout to minimize the effect of traffic conditions on abutting streets.
- 8. Encourage alternatives to travel by automobile where appropriate, through the provision of facilities for pedestrians, bicyclists, and public transit.
- 9. Provision of open space and landscaping which complement buildings and structures.
- Reasonably protect against external and internal noise, vibration and other factors which
 may tend to make the environment less desirable and respect the need for privacy of
 adjacent residents.
- 11. Provision of complementary signs.

- 12. Structural designs to take advantage of natural elements such as solar radiation, wind, and landscaping for heating, cooling and ventilation.
- 13. Incorporation of water-conservation features and landscaping.
- 14. Reuse of heat generated by machinery in industrial zones.
- 15. Design of buildings in industrial zones to make use of natural lighting wherever possible.
- 16. Solar heating systems for hot tubs and swimming pools.
- 17. Compatible siting and design along West Cliff Drive streetscape.

Planned Development Permit

The Planned Development Permit (PD) regulations in the Zoning Code (24.08.720) allow a variation in height not to exceed one story or 20 percent of height limit (in feet) above what is allowed in the district in which the project is located, with approval of a Planned Development Permit. Properties must be 20,000+ square feet in size and meet other requirements for the additional height to be considered. Five findings must be made with the approval of a Planned Development Permit related to consistency with the General Plan, LCP, and other regulations; variations that serve public purposes and are coordinated with surrounding development; and provision of amenities. Overall, the amenity level of the development and the amount of open space shall be greater than what would have been permitted by the underlying district regulations.

Study Area

The project area consists of the area covered by the Downtown Recovery Plan and the Central Business District zone, and specifically the lower downtown area generally between Soquel Avenue and Laurel Street on the north and south, and Cedar Street and the San Lorenzo River on the west and east. (Locations are shown on Figures 1-2 and 2-1 in Section 3, Project Description.) The proposed project includes a General Plan amendment to the land use designation text for the downtown portion of the Regional Visitor Commercial land use designation. The study area includes properties adjacent to the western San Lorenzo River levee.

The study area includes the Santa Cruz Metro Transit Center (Pacific Station) that serves areas within the City and County. This transit center qualifies as a major transit stop when evaluating projects for CEQA purposes per SB743, as codified in Public Resources Code 21099, transit priority projects. All of the properties within the defined study area are located within one-half mile or less from the METRO Pacific Station. The proximity of future development to this transit facility has a direct relationship on the applicability of CEQA with respect to evaluating aesthetic impacts for project-level impact analysis. See Section 4.1.2, Impacts and Mitigation Measures, for further discussion.

Regional Setting

The visual character of the City of Santa Cruz is influenced by a blend of natural features, historic neighborhoods and other development. 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 (City of Santa Cruz, April 2012, DEIR volume). 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.

According to the City's General Plan, 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 are identified as providing 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—act as community landmarks; and shallow slopes toward Monterey Bay (City of Santa Cruz, June 2012). 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 and aesthetic quality. Pogonip, DeLaveaga Park, Arana Gulch, Neary Lagoon, Younger Lagoon, Antonelli Pond, Arroyo Seco Canyon, the Moore Creek Preserve, and the Jessie Street Marsh are identified in the General Plan as being important natural features that provide scenic amenities and contribute to the identity of surrounding residential neighborhoods (City of Santa Cruz, June 2012).

Visual Character of the Project Area

The project area is located within downtown Santa Cruz and is located to the west of the San Lorenzo River. The visual character of downtown is defined by existing development, as well as views of and along the San Lorenzo River at some elevated locations, such as bridges and from the Riverwalk. Downtown is characterized by a mix of primarily commercial buildings, some of which have upper floor office and residential units. The area supports a mix of both pre- and post- Loma Prieta earthquake constructed structures with a variety of architectural styles and building heights. Most of the buildings constructed after the earthquake are located north of Cathcart Street.

Rows of deciduous trees line both sides of Pacific Avenue and create a broad canopy along the street except during the winter months. The streetscape has a varied but uniformed appearance

with a mix of buildings. Front Street is characterized by a mix of older buildings south of Soquel Avenue and has few street trees than Pacific Avenue.

The San Lorenzo River is a prominent natural and visual feature in the City and is prominently visible from numerous locations in the downtown, including the Soquel Avenue and Broadway Bridges. From these vantage points views of the river are the predominant visual feature, which is framed by the Santa Cruz Mountains to the north and Beach Hill to the south. Existing development is mostly visible along the west side of the river levee.

The project area subject to changes in building height is located along Pacific Avenue and Front Street generally between Laurel Street on the south and Cathcart Street on the north, with the west side of Front Street up to Soquel Avenue. The area is characterized by a mix of commercial structures with some upper floor office uses. South of Cathcart, residential uses are limited primarily to the building at 1010 Pacific Avenue. Buildings along Front Street are a mix of mostly older buildings of varying architectural styles, sizes and heights. The older buildings along Front Street are generally one story and approximately 16-20 feet in height. Buildings are a mix of two and three stories along Pacific Avenue and generally one story in height along Front Street. There is less street tree landscaping along lower Front Street. Photos of representative views in the project area and downtown are shown on Figure 4.1-1.

The area along Pacific Avenue north of Cathcart is within the Additional Height Zone A as set forth in the existing DRP, as is the property at 1010 Pacific Avenue. Properties in this zone may be allowed additional building heights to 75 feet over the base height of 50 feet in specified conditions. Most of the buildings downtown are approximately 50 feet in height, which is the base building height required by DRP, except for areas along Cedar Street that have a 35-foot height limit. Some existing older buildings in the project area south of Cathcart are one or two stories and less than 50 feet in height. Rooftop mechanical equipment that often extends the base height limits as permitted by the DRP and City regulations. Buildings that exceed 50 feet in height are summarized on Table 4.1-1, some of which are shown on Figure 4.1-2. The tallest building in the project area is located at 1010 Pacific Avenue, which is 66.5 feet in height (76.5 feet to top of elevator structure).

Scenic Views

Within the City of Santa Cruz, prominent scenic views are primarily 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 (City of Santa Cruz, April 2012, DEIR volume). There are no designated scenic highways or roads within the City. The 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." None of the streets in the project area meet this definition, with the exception of a portion of Beach Street in the beach area.

TABLE 4.1-1: Buildings in Downtown That Exceed 50 Feet in Height

Building	Building Height in Feet
1547 Pacific - Approved	60 feet-5 stories
1375 Pacific, Rittenhouse Building	80 feet – Top of Mechanical
	Equipment/Elevator
	• ~ 50 feet – Top of Stepback Parapet
110 Cooper Street at Pacific, Cooper House	80 feet – Top of Penthouse Roof
	• ~ 50 feet – Top of Stepback Parapet
1344 Pacific, Hotel Palomar	92 feet
Front Street/Soquel Parking Garage	58.5 – Top of Tower Elevator
1200 Pacific, Redtree Building	64.5 – Building Height
1124 Pacific, Del Mar Theater	Estimated 60 feet with marquee
1101 Pacific, University Town Center	69.5 – Top of Roof
1010 Pacific	76.5 – Top of Elevator Penthouse
	• 66.5 – Top of 6 th Floor
	50.0 – Top of Parapet
725 Front St.	~52 feet, plus elevator equipment room

The Santa Cruz downtown is an area characterized by primarily commercial, but also office and some upper floor residential uses. According to maps developed for the City's General Plan 2030 and included in the General Plan EIR, the project site is not within a mapped scenic panoramic view (City of Santa Cruz, April 2012, DEIR volume-Figure 4.3-1). Urban views, including those of the downtown project area, are identified along the San Lorenzo levee (Ibid.). The existing LCP identifies Beach Hill as part of an urban skyline with "visually distinctive structures" (City of Santa Cruz, 1994-Map CD-3).

The prominent views along the river levee are those of the river corridor, adjacent riparian vegetation where it exists, and distant mountains to the north. To the south, views of some buildings on Beach Hill are available at some locations from the project area. In locations where views of the downtown area are available, the views are dominated by structural development with some landscaping and significant street tree canopy along Pacific Avenue, especially north of Cathcart.

Scenic Resources

The San Lorenzo River is east of a portion of the downtown study area and is a prominent natural and open space feature in the area. The DRP indicates that the river offers potential as an open space, habitat and a recreational amenity and provides opportunities for creation of linkages to the downtown. The DRP recommends creation of a riverfront connection at the terminus of Cathcart Street and the enhancement of that street as a strong pedestrian and visual linkage between Pacific Avenue and the river. Other pedestrian linkages to the river are suggested opposite from the Metro Center in the vicinity of Elm Street, and across from the existing Maple Street alley.

9711.0003 July 2017 4.1-7

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 Section 4.3, Cultural Resources, 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 (City of Santa Cruz, April 2012, DEIR volume). In downtown, the Civic Center, Town Clock are identified as visual landmarks in the City's General Plan. The Boardwalk and Santa Cruz Wharf are identified as landmarks in the beach area, and none are identified along Ocean Street.

4.1.2 Impacts and Mitigation Measures

Thresholds of 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 Eliminate or substantially adversely affect, modify, or obstruct a visually prominent or significant public scenic vista, public viewing area, or public view corridor, including views of the ocean, to and along the shoreline, and panoramic background mountain views;
- 1b Eliminate or substantially adversely affect 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;
- 1c Substantially degrade the existing visual character or quality of the surrounding areai.e., be incompatible with the scale of the surrounding area or substantially detract from the aesthetic character of the neighborhood; or
- 1d 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.

As previously indicated, Public Resources Code section 21099, effective January 2014, defines projects located within one-half mile of a major transit stop or facility as considered transit oriented development. Section 21099(d)(1) further indicates that: "Aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment." While, this provision does not apply to the proposed Plan amendments, it may be applicable to future development projects as the study area is within one-half mile of the Santa Cruz Metro Transit Center, a major transit facility. State law continues to allow local jurisdictions the ability

to consider design review as part of a discretionary permit project level evaluation, including consideration of aesthetic impacts pursuant to local design review ordinances or other discretionary powers provided by other laws or policies.

Analytical Method

The proposed project consists of amendments to the City's Downtown Recovery Plan, General Plan, Local Coastal Plan and Zoning Code regarding development in the downtown area, Central Business District and in areas designated RVC in the General Plan. The proposed project would not directly result in new development. However, the proposed Downtown Plan amendment would expand areas for potential additional building height that could accommodate intensified redevelopment of existing developed sites. The proposed General Plan amendment would increase FAR in areas within downtown that are designated as RVC in the General Plan. The proposed LCP and Zoning Code amendments would not result in changes that could indirectly lead to intensified development or air emissions. The Zoning Code amendments consist of minor text revisions to the Central Business District zone related to references to the Downtown Plan and outdoor extension areas. The revisions also add a new section on "parklets", which is intended to enhance the pedestrian ambiance of the CBD zone district by creating useable outdoor spaces.

The analysis reviews the potential increased heights and intensified development that could occur as a result of the proposed amendments based site visits to view the study area from different vantage points in the vicinity to characterize the visual setting and visibility of the project area. Six massing studies were prepared for the City Planning and Community Development Department by McCann Adams Studio to show existing and proposed allowable building heights superimposed on photos. Representative views were developed along the San Lorenzo River, Front Street and Pacific Avenue. The EIR evaluates the potential changes to the visual character of the downtown based on both existing conditions and the incremental difference between what is allowed under the existing Downtown Recovery Plan and what would potentially be allowed with the proposed amendments that form the project for CEQA purposes.

Impacts and Mitigation Measures

The following analysis assesses impacts on scenic views (1a), scenic resources (1b), the visual character of the site and surrounding area (1c), and light and glare (1d).

Impact 4.1-1: Scenic Views. Future development accommodated by the proposed plan amendments would not eliminate or substantially adversely affect, modify, or obstruct a visually prominent or significant public scenic vista. Therefore, project would result in a *less-than-significant impact* to scenic views (1a).

Future development in the area as a result of the proposed Downtown Plan amendment could be constructed at taller heights than currently permitted, but taller buildings would not obstruct or remove scenic views in the downtown. There are no mapped panoramic views across or from the downtown area as shown in the City's General Plan 2030 EIR (City of Santa Cruz, April 2012, DEIR volume-Figure 4.3-1). However, taller buildings adjacent to San Lorenzo River would be visible from locations along the levee Riverwalk and from Laurel Street and Soquel Avenue bridges. The buildings would be in locations of existing buildings and would not block views of the river. Effects of new development on the visual character of the area as a result of the proposed Plan amendments is discussed in Impact 4.1-3.

Development along the river would obscure a portion of distant mountain views to the north, which would also occur under the allowed existing heights without the proposed amendments. However, these areas are limited, and most distant mountain views would be maintained. Depending on the actual height and extent of future development, a portion of the distant view Beach Hill could be blocked. However, from the levee or Soquel Avenue bridge, the view of Beach Hill is primarily of the upper canopy and not the older Victorian structures that are identified as "distinctive" in the LCP. Furthermore, it is a minor part of the background view from vantage points in which the river is the primary component of views. Therefore, no significant impacts to scenic views would occur as a result of the proposed project.

The proposed General Plan amendment would revise General Plan text to increase the upper level of permissible floor area ratio (FAR) for the RVC land use designation in the downtown from 3.5 to 5.0. FAR is the gross floor area permitted on a site divided by the total net area of the site. For example, on a site with 10,000 net sq. ft. of land area, a FAR of 1.0 will allow a maximum of 10,000 gross square feet of building floor area to be built. On the same site, a FAR of 3.5 would allow 35,000 sq. ft. of floor area, which is the current limit in the downtown RVC designation. The proposed increase in FAR to 5.0 would allow 50,000 square feet of building, or essentially five floors on the entire site. Future development needs to comply with the Downtown Plan standards for the based height (currently 55 feet along Pacific Avenue and 35 feet along Front Street. If the Additional Height Zones are not amended it might be possible to achieve a larger building along Pacific Avenue, but the Front Street height would not allow a full 5.0 FAR. This increase in FAR without a height increase is similar to what other development has achieved through Planned Developments on some parcels larger than 20,000 square feet in the downtown. As a result, the proposed General Plan amendment would not result in substantially larger buildings based on the existing height limitations and the General Plan amendment would not result in any potential significant impacts to scenic views.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

9711.0003 July 2017 4.1-10

Impact 4.1-2: Scenic Resources. Future development accommodated by the proposed plan amendments would not result in elimination or a substantial adverse effect to scenic resources, and there would be *no impact* to a scenic resource (1b).

The project areas are not located adjacent to or in proximity to a local or state scenic highway or road. All of the project study area is currently developed and there ae no known scenic resources in the study area, except for the Beach Boardwalk, which is an identified visual landmark. The San Lorenzo River is an important natural feature in the area. While street trees exist in some portions of the study area, no individual tree is visually prominent, and landscaping would be provided with any future development. The proposed project would not affect adjacent natural features of the San Lorenzo River. Neither the proposed project nor subsequent development on the site would have an adverse effect on scenic resources as none are present on the project site. Therefore, the proposed Plan amendments would not indirectly lead to impacts on scenic resources.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact 4.1-3: Visual Character of the Surrounding Area. The proposed project would result in amendments to the DRP and General Plan that would allow increased heights of 20 to 35 feet over existing allowable standards, and future development could result in taller and more massive buildings. With implementation of required development standards for massing, required percentage variation of heights, and upper-level skyline variation, future buildings would be of similar height and scale as the other taller buildings in the downtown area, which already contains several multi-story buildings of varied height, and would not substantially degrade the visual character of the surrounding area (1c). This is considered a less-than-significant impact.

The proposed project would extend the zones for Additional Height Zones to three new areas:

Additional Height Zone A (up to 75 feet in height) along the west side of Pacific Avenue between Cathcart and Laurel,
Additional Height Zone A (up to 85 feet in height) on the west side Front Street and east side of Pacific between Laurel and Soquel, and
Additional Height Zone B (up to 70 feet in height) along the east side of Front adjacent to the San Lorenzo River.

The proposed amendments also would increase the base building height from 50 to 55 feet for the Additional Height Zone A areas, but the base height east of Front Street would remain at 50 feet. Under the existing DRP, development along Pacific Avenue must conform to the base height requirements, except where Additional Heights may be applied. The proposed DRP amendment

would decrease the property size eligible for additional height from 20,000 to 15,000 square feet. The maximum height for mechanical equipment would increase from 55 to 65 feet with a reduction in the mechanical equipment setback from 25 to 15 feet.

The combined result of the proposed DRP amendments would be potential development of larger and more massive buildings. However, the proposed DRP amendment includes standards to limit the percentage of coverage of buildings with allowed additional height. For Additional Height Zone B, upper floor stepbacks/setbacks also would be required along the Front/Riverfront Corridor. The proposed amendments modify the Additional Height Zone A upper floor stepback requirements. A stepback is generally an upper floor setback from the edge of the building to help break up building mass. The proposed amendments would change the existing upper level 42 or 52 degree stepback standard to standard that would allow a certain percentage of a site to have heights over a specified limit. According to City staff, this "volumetric approach" is intended to ensure both vertical and horizontal building variation to avoid monolithic structures. In addition to the upper level requirements for Additional Height Zone B and the maximum height percentages in Additional Height Zone A, all of the study area includes a requirement for recessed breaks or horizontal variations to avoid long blank walls. Further description of upper floor coverage and stepbacks with the proposed amendments is provided below.

☐ For sites that are eligible for additional height in Additional Height Zone A, the footprint of portions of the building at or above 55 feet to a height of 75 feet may comprise up to 60% of the site area. For assembled sites greater than 50,000 square feet, buildings may achieve an 85-foot height for up to 20% of the total area in the area proposed for this additional height allowance. Figure 3-2 in Section 3 of this EIR provides a schematic that shows proposed distribution of building height on different size sites.

Along Pacific Avenue, portions of buildings that exceed the maximum base height of 55 feet may occupy up to 55% of the length of the property line along the street or 200 feet, whichever is less. Any additional height above the base height must be set back from the building wall by at least 15 feet. An example of the potential distribution of height that is included in the proposed revised Downtown Plan is shown on Figure 3-3 in Section 3.

Along Front Street, portions of buildings that exceed the maximum base height of 55 feet may occupy up to 60% of the length of the property line along the street or 180 feet, whichever is less with the proposed amendment. Any additional height above the base height must be set back from the building wall by at least 15 feet.

☐ For the Front Street/Riverfront Corridor, the proposed amendments require a minimum 10-foot stepback from Front Street for development above 50 feet in height and at least 50% of the building frontage along Front Street and Soquel Avenue must have a 10-foot stepback for development above 50 feet. Along the west side of the Riverwalk, a 10-foot setback from the exterior building face would be required for development above 50 feet. The proposed amendments allow up to 25% of the Riverwalk building frontage to encroach into the required 10-foot setpback area to provided massing variation. See Figure 3-4 in Section 3, which depicts heights and stepbacks along Front Street and adjacent to the San Lorenzo River. The proposed amendments also permit top floor

cantilevered portions of the building to encroach over the property line a maximum of 5 feet in order to provide architectural interest to the façade, which shall not exceed 25 percent of the total building frontage along the riverfront.

- Along Laurel Street, Cathcart Street and Soquel Avenue, portions of buildings that exceed the maximum base height of 55 feet may occupy up to 60% of the length of the property line or 150 feet, whichever is less. Any additional height above the base height must be set back from the building wall by at least 15 feet.
- □ Along the Maple Street extension to Front Street, the proposed amendment requires the building frontage to be stepped back by 10 feet above a height of 50 feet. In addition to the 'build to' line, the Maple Street building face shall incorporate at least one recessed break, open to the sky, no less than 25 feet wide and no less than 10 feet in depth from Maple Street .

Figures 4.1-3A through 4.1-3C provide diagrams superimposed on photographs that show outlines of potential building mass with additional heights as seen from the San Lorenzo River, Pacific Avenue and Front Street, respectively. The diagrams do not represent actual projects or architecture as no project applications have been submitted, but they are intended to conceptually represent the upper limits of structural massing that could occur over time. The building mass depicted may or may not occur. Furthermore, achieving the maximum heights illustrated in the diagram can only occur on properties that meet the minimum parcel sizes required by the DRP for additional height; the illustrations assume that parcels have been combined in order to be eligible for additional heights. It is noted that as part of the EIR scoping process, a request was made that story poles be erected along the river levee for the entire comment period for the public to assess the visual impact of the heights of new buildings. However, use of story poles is more typically done at a project level and in certain situations where photosimulations may not be appropriate. The project consists of a series of plan amendments, and there are no specific building locations or designs proposed at this time. To erect story poles on all of the private properties potentially affected by the DRP amendments is not feasible, and furthermore, it would be speculative to try to predict where the tallest portions of the buildings would potentially be located. The photosimulations, while not required under CEQA, provide a scaled, accurate depiction of potential building mass as seen from pedestrian viewpoints, sufficient to inform the public and City decision makers about the hypothetical appearance of full buildout under the DRP amendments.

The purpose of Figures 4.1-3A through 4.1-3C is to illustrate a reasonable worst-case scenario at buildout under the existing and proposal DRP development standards. As can be seen, potential future worst-case development could appear more massive than existing development in all locations compared to existing conditions. However, illustrating the worst-case scenario does not typically reflect actual development pattern over time. The diagrams also show existing height limits that have been in effect since 1991, but very few properties in the downtown are built to the existing additional height limits. Nonetheless, the illustrations show that the additional future buildings could appear more massive than existing development, although this change would be noticeable even with more buildout under the existing 50-foot height limits

generally in the areas south of Cathcart. There is no required presumption under CEQA that taller buildings are necessarily a substantial adverse change in the existing visual environment. Such determinations are made on a case-by-case basis at a lead agency's discretion and in consideration of the relevant environmental setting or context, which here, is a nearly fully developed urban area. Future proposed buildings with additional height would not be considered to be substantially out of scale with other existing buildings in the downtown area. There are about a dozen existing buildings in downtown that exceed 55 feet in height.

Additionally, under the existing Planned Development regulations, a 20% increase in height could be allowed for properties larger than 20,000 square feet with specified findings. Thus, some buildings could reach a height of 60 feet under existing regulations without the proposed project amendments. In addition to the existing Planned Development process, which is an existing procedure that could allow for heights to exceed the underlying base height, the State Density Bonus law allows for a full story or floor to be provided as a possible concession, in exchange for providing a 100 percent affordable housing project. Granting such a concession as mandated under state law could also result in buildings about 10 feet taller than the underlying development standards.

Although, it is not known how future projects will be developed, it is conservatively concluded that the proposed expansion of Additional Height Zones could lead to taller and more massive development. According to the DRP, the intent of the existing additional height standards "is not to create a five-story downtown, but rather to preserve the overall character and scale of the historic core while allowing some intensification and increased height on larger parcels". There is no evidence from the aesthetic analysis that leads to the conclusion that the proposed development standards would promote the development of a uniformly five-story downtown, any more than the existing development standards (particularly along the east of Front Street) have led to the development of a continuous three-story, or 50-foot downtown. Based on the historic development pattern in the City, a varied-height downtown is the most likely result of the DRP amendments.

Both existing and proposed DRP development standards include design guidelines to break up overall building mass, including limits on upper floor coverage where additional heights are achieved and required upper floor stepbacks in some areas. As a result, building mass would be broken up and there would not be full coverage of the additional upper floors where additional heights may be allowed. The proposed Plan amendments also require building recesses, and the existing and revised building and storefront design standards and guidelines in the DRP serve to break up building mass. Other design guidelines call for variation in rooflines along Pacific Avenue. Although maximum height of mechanical equipment would increase with the proposed amendments, the proposed amendments require that rooftop equipment be completely concealed from view and integrated within the architectural design of the building. The use of landscaped roof terraces and gardens is also recommended. In the Front/Riverfront Corridor, the proposed amendments promote skyline variation, the top floor shall not exceed 60% of the floor area below or 60% of the building length as measured along Front Street or the Riverwalk. An

9711.0003 July 2017 4.1-14 exception may be considered where the project includes a publicly accessible passageway to the Riverwalk. In this area, the DRP requires creative and integrated roof designs.

Thus, existing and proposed design guidelines include design standards that will result in buildings of variable height, massing and architectural treatments, and the extent of allowable additional height is restricted to larger properties, i.e., 15,000 square feet. The design guidelines address many architectural features, including building facades and windows, as well as building materials, colors and lighting. For example, building facades are required to provide visual variation at specified intervals with use of architectural elements,

building materials or building planes in order to avoid large expanses of horizontal or vertical wall surface. Furthermore, continued landscaping with street trees along Pacific and Front Street, as well as along on the inland side of the Riverwalk, will further screen building mass in all areas. The dense canopy along Pacific often screens upper floors from a distance softens views of larger buildings and maintains a pedestrian-level scale, as shown on the photos to the right. With implementation of requirements to limit upper floor heights, provision of stepbacks, implementation of design treatments to minimize building mass, and compliance with the Downtown Plan development standards and design guidelines, potential intensified development resulting from additional allowed heights would not significantly alter the visual character of the





study area from what might be developed under the allowable standards or taller buildings that have been constructed in the downtown area.

This conclusion also is consistent with state law that will be applicable to future mixed-use projects proposed in the downtown area. As previously indicated, CEQA provides that aesthetic impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment, although design review would still be required pursuant to local City requirements and regulations.

In allowing additional building heights, both the existing DRP and proposed amendments require the City to make findings including that: a) the additional height will contribute to an improved social and economic environment by including new housing; and b) the form of the development promotes the appearance of a grouping of buildings rather than large, monolithic building masses. Furthermore, both the existing Plan and proposed amendment require that development projects provide a visual analysis for the Additional Height Zone A. The

requirement, including three-dimensional perspectives is added as part of the proposed amendment for Additional Height Zone B to determine the visual impact of the views from key locations, including views from Front Street and from the Soquel and Laurel bridges and the levee opposite the project site from a pedestrian level view. Architectural and design features of future proposed projects, as well as compliance with the Downtown Plan development and design standards and guidelines will be further reviewed by City staff as part of the Design Permit process.

The proposed General Plan amendment also would revise General Plan text to increase the upper level of permissible floor area ratio (FAR) for the RVC land use designation in the downtown area from 3.5 to 5.0. As discussed in Impact 4.1-1, future development would need to comply with existing height limits established in Downtown Plan. It is possible that some future development could result in slightly more massive buildings along Pacific Avenue under the existing Downtown Recovery Plan standards than would otherwise be allowed under the existing FAR designation, however, buildings would not be taller or substantially degrade the visual character of these areas.

Mitigation Measures

No mitigation measures are required as the proposed incremental increase in height regulations of the project would not lead to a substantial degradation of the visual character of the surrounding area.

Impact 4.1-4: Introduction of Light and Glare. The proposed project would result in amendments to the DRP and General Plan that would allow increased heights and building coverage, and future development would include exterior and interior lighting typical of residential developments, but would not result in introduction of a major new source of light or glare (1d). Thus, this is considered a *less-than-significant impact*.

Future development accommodated by the proposed project would not result in introduction of a major new source of light or glare, although there will be introduction of windows and exterior building lighting typically associated with commercial development. This type of lighting would be oriented so as to not create offsite light. Windows along Pacific are required to be recessed. Furthermore, the use of reflective or tinted glass is prohibited on ground floors.

Exterior building lighting will be further reviewed as part of the Design Permit review for future site-specific developments, and the project will be conditioned to install lighting such that it is directed downward and does not create light onto adjacent properties. The DRP requires buildings to low-level lighting in the building façade. Therefore, the project would not result in a significant impact related to creation of a new source of substantial light or glare.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

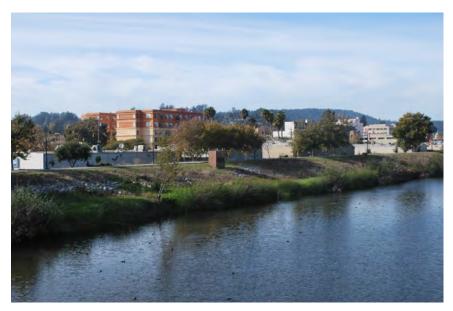
INTENTIONALLY LEFT BLANK

 Downtown Plan Amendments
 9711.0003

 July 2017
 4.1-18



Looking North on Pacific Avenue from Front Street



Looking North From Laurel Street Bridge



Looking South from Water Street



Looking South on Pacific - Hotel Palomar

FIGURE 4.1-1

Photos of Downtown and Project Area





1200 Pacific - 64.5 feet tall



1375 Pacific Avenue - 50 feet tall



1010 Pacific - 66.5-76.5 feet tall



1101 Pacific ~ 69.5 feet tall

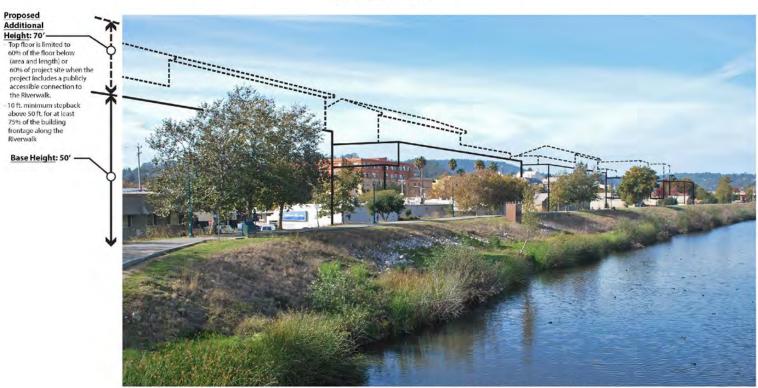
FIGURE 4.1-2

Downtown Taller Buildings





VIEW FROM SOQUEL BRIDGE LOOKING SOUTH ALONG THE RIVERWALK Draft: March 27, 2017



VIEW FROM LAUREL BRIDGE LOOKING NORTH ALONG THE RIVERWALK

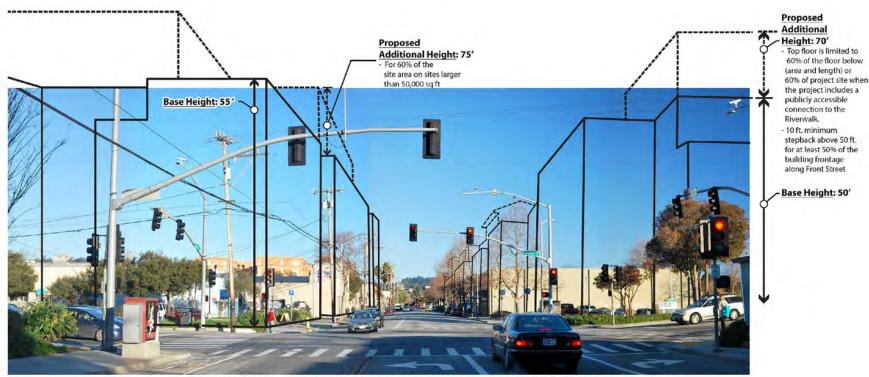
NOTE: This line diagram visual simulation does not represent actual projects or architecture. The diagram is intended to conceptually represent the upper limits of development mass that could occur over a period of decades. The mass depicted in this diagram may or may not ever be built. For the purposes of evaluating potential environmental impacts, the diagrams are intentionally exaggerated to illustrate a reasonable worst-case scenario at build-out under the existing and proposed regulations. Illustrating the worst-case scenario does not typically reflect actual development pattern over time. The diagram also shows the existing height limits and setback requirements, which have been in effect since 1991. Very few of the existing properties in the downtown are built to these existing limits. Achieving the maximum heights illustrated in this diagram can only occur on properties that meet the minimum parcel sizes required by the Downtown Plan. This illustration assumes that parcels have been combined in order to meet the standards necessary to achieve the maximum build out.

Additional Height: 70' 60% of the floor below (area and length) or 60% of project site when the project includes a publicly accessible connection to the

10 ft, minimum stepback above 50 ft. for at least 75% of the building frontage along

Riverwalk.

Base Height: 50'



VIEW FROM LAUREL STREET LOOKING NORTH ALONG FRONT STREET



VIEW FROM SOQUEL STREET LOOKING SOUTH ALONG FRONT STREET Draft: March 27, 2017

NOTE: This line diagram visual simulation does not represent actual projects or architecture. The diagram is intended to conceptually represent the upper limits of development mass that could occur over a period of decades. The mass depicted in this diagram may or may not ever be built. For the purposes of evaluating potential environmental impacts, the diagrams are intentionally exaggerated to illustrate a reasonable worst-case scenario at build-out under the existing and proposed regulations. Illustrating the worst-case scenario does not typically reflect actual development pattern over time. The diagram also shows the existing the initial to these existing limits. Achieving the maximum heights illustrated in this diagram can only occur on properties that meet the minimum parcel sizes required by the Downtown Plan. This illustration assumes that parcels have been combined in order to meet the standards necessary to achieve the maximum build out.



VIEW FROM THE NIAC BUILDING LOOKING NORTH ALONG FRONT STREET



VIEW NEAR LAUREL STREET LOOKING NORTH ALONG PACIFIC AVENUE

Draft: March 27, 2017

NOTE: This line diagram visual simulation does not represent actual projects or architecture. The diagram is intended to conceptually represent the upper limits of development mass that could occur over a period of decades. The mass depicted in this diagram may or may not ever be built. For the purposes of evaluating potential environmental impacts, the diagrams are intentionally exaggerated to illustrate a reasonable worst-case scenario at build-out under the existing and proposed regulations. Illustrating the worst-case scenario does not typically reflect actual development pattern over time. The diagram also shows the existing the initial school in this case of the existing properties in the downtown are built to these existing limits. Achieving the maximum heights illustrated in this diagram cannot only occur on properties that meet the minimum parcel sizes required by the Downtown Plan. This illustration assumes that parcels have been combined in order to meet the standards necessary to achieve the maximum build out.

4.2 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

This section analyzes impacts of the proposed project related to project air emissions, including greenhouse gas (GHG) emissions, based on air quality modeling conducted as part of the preparation of this EIR. The results of the air modeling are summarized in this section, and are included in Appendix E. This section also draws from the City of Santa Cruz *General Plan 2030* EIR (SCH#2009032007), which was certified on June 26, 2012, regarding background information on climate change. The General Plan EIR is incorporated by reference in accordance with section 15150 of the State CEQA Guidelines. Relevant discussions are summarized below under the "Climate Change" subsection. The General Plan EIR is available for review at the City of Santa Cruz Planning and Community Development Department (809 Center Street, Room 107, and Santa Cruz, California) during business hours: Monday through Thursday, 8 AM to 12 PM and 1 PM to 5 PM. The General Plan EIR is also available online on the City's website at: http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/general-plan.

Public and agency comments related to air quality and emissions were received during the public scoping period in response to the Notice of Preparation (NOP). Issues raised in these comments include:

Potential creation of a "urban heat island" due to an increase in building mass.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. Public comments received during the public scoping period are included in Appendix B.

4.2.1 Environmental Setting

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, as discussed below, work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy making, education, and a variety of programs.

Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the United States Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The standards identify levels of "criteria pollutants" that are regarded as the maximum levels of ambient (background) air pollutants considered to have an adequate margin of safety necessary

to protect the public health and welfare. The standards are designed to protect the most sensitive people from illness or discomfort. Criteria pollutants include ozone (O_3) , nitrogen dioxide (NO_2) , carbon monoxide (CO), sulfur dioxide (SO_2) , coarse particulate matter (PM_{10}) , fine particulate matter $(PM_{2.5})$, and lead. In California, sulfates (SO_4) , hydrogen sulfide (H_2S) , vinyl chloride, and visibility-reducing particles are also regulated as criteria air pollutants. An area is designated as "in attainment" when it is in compliance with the federal and/or state standards as further discussed below.

Federal. The federal Clean Air Act (FCAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the FCAA, including setting National Ambient Air Quality Standards (NAAQS) for criteria air pollutants; setting hazardous air pollutant standards; approving state attainment plans; setting motor vehicle emissions standards; issuing stationary source emissions standards and permits; and establishing acid rain control measures, stratospheric O₃ protection measures, and enforcement provisions.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of citizens of the nation. The NAAQS (other than for O₃, NO₂, SO₂, PM₁₀, PM_{2.5}, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O₃, NO₂, SO₂, PM₁₀, and PM_{2.5} are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The FCAA requires the EPA to reassess the NAAQS at least every five years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan that demonstrates how those areas will attain the standards within mandated time frames.

State. The FCAA delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. The 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. CARB establishes the California Ambient Air Quality Standards (CAAQs), pursuant to the CCAA, which are generally more restrictive than the NAAQS. These standards apply to the same criteria pollutants as the FCAA and also include SO₄, H₂S, visibility reducing particles, and vinyl chloride.

The CAAQs describe adverse conditions; pollution levels must be below these standards before an air basin can attain the standard. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQs and violate the standards no more than once each year. The CAAQs for O₃, CO, SO₂ (1-hour and 24-hour), NO₂, PM₁₀, PM_{2.5}, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

Regional. Regulatory oversight for air quality in the North Central Coast Air Basin (NCCAB) in which the City of Santa Cruz is located, rests at the regional level with the Monterey Bay Unified Air Pollution Control District (MBUAPCD),¹ the CARB at the state level, and the EPA Region IX office at the federal level. The MBUAPCD is one of 35 air districts established to protect air quality in California. The NCCAB is comprised of Santa Cruz, Monterey, and San Benito Counties. 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 ambient air quality standard (AAQS) for O₃.

The CCAA requires each nonattainment district in the state to adopt a plan showing how the CAAQS for O_3 would be met with subsequent updates every three years. The MBUAPCD adopted its first Air Quality Management Plan (AQMP) in 1991 and has subsequently updated the AQMP seven times.

Local. 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 readily detectable quantities. Section 24.14.272 prohibits emissions from any source that exceed permissible amounts or limits established by the MBUAPCD.

Toxic Air Pollutants

A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure or acute and/or chronic non-cancer health effects. A toxic substance released into the air is considered a toxic air contaminant (TAC). TACs are identified by federal and state agencies based on a review of available scientific evidence. Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced from short-term (acute) or long-term (chronic) exposure to a given TAC.

Federal. At the federal level, TACs are identified as Hazardous Air Pollutants (HAPs). The 1977 FCAA amendments required the EPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPS) to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard based on scientific studies of exposure to humans and other mammals. Under the 1990 FCAA Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

-

¹ The District has changed its name to the Monterey Bay Air Resources District (MBARD). In this report, references to agency publications or guidance that predate the official name change use MBUAPCD.

State. The state Air Toxics Program was established in 1983. The California TAC list identifies more than 700 pollutants, of which carcinogenic and non-carcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. The state list includes the federal HAPs. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

Diesel particulate matter (DPM) was identified as a TAC by the state of California in 1998. The CARB developed a comprehensive strategy to control DPM emissions. In 2000, CARB approved a Diesel Risk Reduction Plan to reduce diesel emissions from new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80 percent decrease in statewide diesel health risk by 2020 compared with to the diesel risk in 2000 (CARB 2000). Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, and the In Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel powered equipment.

Regional. Air quality control agencies, including the MBUAPCD, must incorporate air toxics control measures into their regulatory programs or adopt equally stringent control measures as rules within six months of adoption by CARB. The MBUAPD also regulates TACs from new or modified sources under Rule 1000, a Board-approved protocol that applies to any source which requires a permit to construct or operate pursuant to MBUAPCD regulations and has the potential to emit carcinogenic or noncarcinogenic TACs. The MBUAPCD'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 MBUAPCD 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).

Study Area

Regional Setting and Climate

The project study area includes a portion of the downtown area in the City of Santa Cruz. The project study area is located within the NCCAB, which is just south of the San Francisco Bay Area

Air Basin, and covers an area of 5,159 square miles. The NCCAB consists of the counties of Santa Cruz, San Benito, and Monterey. Topography and meteorology heavily influence air quality. In the project vicinity, the northwest sector of the basin is dominated by the Santa Cruz Mountains, which 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 (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 NCCAB. 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 Unified Air Pollution Control District, February2008).

Sensitive Receptors

The MBUAPCD's CEQA Guidelines (Guidelines) defines a sensitive receptor generically as any residence including private homes, condominiums, apartments, and living quarters; educational 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 Guidelines indicate that identification of sensitive receptors in the vicinity of a project site should be determined as part of the CEQA review with an analysis of whether a project would expose sensitive receptors to significant amounts of pollution. The sensitive receptors closest to the project study area are residential uses located along Pacific Avenue within the study area.

Effects of Air Pollutants

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 reactive organic gases (ROGs, also termed volatile organic compounds or 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 ROG 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 O_3 results in injury and damage to the lung, decreases in pulmonary function, and impairment of immune mechanisms (Ibid.).

Coarse particulates refer to particulate matter less than 10 microns in diameter (PM_{10}). 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 atmospheric chemical and photochemical reactions.

PM₁₀ 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).

Carbon monoxide (CO) is an odorless, colorless 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, CO 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 CO 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.

Existing Air Quality Conditions

Ambient Air Quality Standards

As indicated above, 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, CO, NO₂, SO₂, PM₁₀, PM₂₅, and lead. State standards also include SO₄, H₂S, visibility reducing particles, and vinyl chloride.

Local Ambient Air Quality and Attainment Status

Ambient air quality is monitored at nine stations within the NCCAB. The network includes seven stations operated by the MBUAPCD and one station operated by the National Park Service at the Pinnacles National Monument. The monitoring stations operated by the MBUAPCD are part of the State and Local Air Monitoring Systems (SLAMS) network, and are located in Santa Cruz, Scotts Valley, Felton, Hollister, King City, Salinas, and Carmel Valley. The MBUAPCD also carries out wood smoke monitoring as needed, including seasonal monitoring of wood stove use in areas like the San Lorenzo Valley area in Santa Cruz County, large controlled burns such as those conducted at Fort Ord and some of those conducted for agricultural management, and for catastrophic events such as large structural fires and wildfires.

Designations in relation to state standards are made by the CARB, while designations in relation to national standards are made by the EPA. State designations are updated annually, while the national designations are updated either when the standards change or when an area requests re-designation due to changes in air quality. Designations are made according to 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 4.2-1 summarizes the attainment status for criteria pollutants in the NCCAB. In summary, the NCCAB is designated as a nonattainment area for state O_3 standards and PM_{10} standards. The NCCAB is designated as unclassified or attainment for all other state and federal standards (California Air Resources Board, 2016; U.S. EPA, 2017).

CO emissions are generated by motor vehicles from traffic. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Air pollutant monitoring data indicate that CO levels have been at healthy levels (i.e., below state and federal standards) for years, reflecting improvements in tailpipe emissions controls. As a result, the region has been designated as attainment/unclassified for the standard. Ambient air quality monitoring at a station in Santa Cruz measured CO concentrations and found that highest measured level over any eight-hour averaging period during the last three years is

less than 1.0 parts per million (ppm), compared to the ambient air quality standard of 9.0 ppm (City of Santa Cruz, April 2012, DEIR volume).

TABLE 4.2-1: North Central Coast Air Basin Attainment Classification

Pollutant	Averaging Time	Designation/Classification	
Federal Standards			
0 ₃	8 hours	Unclassifiable/Attainment	
NO ₂	1 hour, annual arithmetic mean	Unclassifiable/Attainment	
СО	1 hour; 8 hours	Unclassifiable/Attainment	
SO ₂	24 hours; annual arithmetic mean	Unclassifiable/Attainment	
PM ₁₀	24 hours	Unclassifiable/Attainment	
PM _{2.5}	24 hours; annual arithmetic mean	Unclassifiable/Attainment	
Lead	Quarter; 3-month average	Unclassifiable/Attainment	
State Standards			
0 ₃	1 hour; 8 hours	Nonattainment (Transitional) ^a	
NO ₂	1 hour; annual arithmetic mean	Attainment	
		Monterey Co. – Attainment	
СО	1 hour; 8 hours	San Benito Co. – Unclassified	
		Santa Cruz Co. – Unclassified	
SO ₂	1 hour; 24 hours	Attainment	
PM ₁₀	24 hours; annual arithmetic mean	Nonattainment	
PM _{2.5}	Annual arithmetic mean	Attainment	
Lead ^b	30-day average	Attainment	
SO ₄	24 hours	Attainment	
H ₂ S	1 hour	Unclassified	
Vinyl chloride ^b	24 hours	No designation	
Visibility-reducing	8 hours (10:00 a.m.–6:00 p.m.)	Unclassified	
particles			

Sources: CARB 2016; EPA 2017.

Notes: CO = carbon monoxide; H_2S = hydrogen sulfide; NO_2 = nitrogen dioxide; O_3 = ozone; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SO_2 = sulfur dioxide; SO_4 = sulfates

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

Downtown Plan Amendments

9644

^a Nonattainment-transitional is a subcategory of the nonattainment designation category for state standards that indicates that the area is nearing attainment.

^b CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined.

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. There are no known sources of objectionable odors in the vicinity of the proposed project.

Air Basin Plans

Air Quality Management Plan

The 1991 AQMP for the Monterey Bay Area was the first plan prepared in response to the CCAA of 1988 that established specific planning requirements to meet the O_3 standard. The Act requires that the AQMP be updated every three years. The most recent update was adopted in March 2017, and is an update to the elements included in the 2012 AQMP for the years 2012-2015. The primary elements updated from the 2012 AQMP include the air quality trends analysis, emission inventory, and mobile source programs.

The NCCAB is a nonattainment area for the CAAQS for both O_3 and PM_{10} . The AQMP addresses only attainment of the O_3 CAAQS. Attainment of the PM_{10} CAAQS is addressed in the MBUAPCD's Particulate Plan, which was adopted in December 2005 and is summarized further below. Maintenance of the 8-hour NAAQS for O_3 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.

A review of the air monitoring data for 2013-2015 indicates that there were fewer exceedance days compared to previous periods (MBARD, March 2017). The long-term trend shows progress has been made toward achieving O_3 standards. The number of exceedance days has continued to decline during the past 10 years despite population increases (Ibid.).

The MBUAPCD's 2017 AQMP identifies a continued trend of declining O_3 emissions in the NCCAB primarily related to lower vehicle miles traveled. Therefore, the MBUAPCD determined progress was continuing to be made toward attaining the 8-hour O_3 standard during the three-year period reviewed (Monterey Bay Air Resources District, March 2017).

Federal Maintenance Plan

The "Federal Maintenance Plan" (May 2007) presents the strategy for maintaining the NAAQS for O_3 in the NCCAB. It is an update to the 1994 Federal Maintenance Plan, which was prepared for maintaining the 1-hour NAAQS for O_3 that since has been revoked and is superseded by the current 8-hour O_3 standard. Effective June 15, 2004, the U.S. EPA designated the NCCAB as an attainment area for the 8-hour NAAQS for O_3 . The plan includes an emission inventory for the years 1990 to 2030 for VOC and NO_X , the two primary O_3 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 with 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 MBUAPCD's Smoke Management and emission reduction incentive programs.

Climate Change

A full discussion of global climate change is presented in the *General Plan 2030* EIR (DEIR pages 4.12-1 to 4.12-20 and FEIR pages 3-26 to 3-27), which is incorporated by reference; key elements of the discussion are summarized below and have been updated where relevant. Climate change refers to any significant change in measures of climate, such as average temperature, precipitation, or wind patterns over a period of time. Climate change may result from natural factors, natural processes, and human activities that change the composition of the atmosphere and alter the surface and features of the land. Significant changes in global climate patterns recently have been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to accumulation of greenhouse gas (GHG) emissions in the atmosphere. GHGs trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. Climate change models predict changes in temperature, precipitation patterns, water availability, and rising sea levels, and these altered conditions can have impacts on natural and human systems in California that can affect California's public health, habitats, ocean and coastal resources, water supplies, agriculture, forestry, and energy use.

Greenhouse Gas Emissions

GHGs include, but are not limited to, carbon dioxide (CO_2) , methane (CH_4) , nitrous oxide (N_2O) , O_3 , fluorinated gases (hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6) and nitrogen trifluoride (NF_3)), chlorofluorocarbons (CFCs), and hydrochlorofluorocarbons (HCFCs), in addition to water vapor. Some GHGs, such as CO_2 , CH_4 , and N_2O , occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Some industrial gases

-

² California Health and Safety Code 38505 identifies seven GHGs that CARB is responsible to monitor and regulate to reduce emissions: CO₂, CH₄, N₂O, SF₆, HFCs, PFCs, and NF₃.

are also GHGs that have a much greater heat-absorption potential than CO_2 , include fluorinated gases, such as HFCs, PFCs, and SF₆, which are associated with certain industrial products and processes.

According to the U.S. EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014* (U.S. Environmental Protection Agency 2016), total United States GHG emissions were approximately 6,870.5 million metric tons (MMT) CO_2E^3 in 2014. The primary GHG emitted by human activities in the United States was CO_2 , which represented approximately 80.9 percent of total GHG emissions (5,556.0 MMT CO_2E). The largest source of CO_2 , and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.7 percent of CO_2 emissions in 2014 (5,208.2 MMT CO_2E). Total United States GHG emissions have increased by 7.4 percent from 1990 to 2014, and emissions increased from 2013 to 2014 by 1.0 percent (70.5 MMT CO_2E). Since 1990, United States GHG emissions have increased at an average annual rate of 0.3 percent; however, overall, net emissions in 2014 were 8.6 percent below 2005 levels (Ibid.).

According to California's 2000–2014 GHG emissions inventory (2016 edition), California emitted 441.5 MMT CO₂E in 2014, including emissions resulting from out-of-state electrical generation (California Air Resources Board 2016). As with nationwide emissions, the primary GHG emitted by human activities in California was CO₂, which represented approximately 84.3 percent of total GHG emissions. The largest sources of GHG emissions in California were transportation and industrial uses, followed by electric power production from both in-state and out-of-state sources, residential and commercial activities, agriculture, high global-warming potential substances, and recycling and waste (Ibid.).

During the 2000 to 2014 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 13.9 MT per person to 11.4 MT per person in 2014, representing an 18 percent decrease. In addition, total GHG emissions in 2014 were 2.8 MMT CO_2E less than 2013 emissions. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California is on track to meet the 2020 target of 431 MMT CO_2E (California Air Resources Board 2016).

California Regulations and Plans

The State of California passed the Global Warming Solutions Act of 2006 (AB 32), which requires reduction of GHG emissions generated within California. The Governor's Executive Order S-3-05 and AB 32 (Health and Safety Code, Section 38501 et seq.) both seek to achieve 1990 emissions levels by the year 2020. Executive Order S-3-05 further requires that California's GHG emissions

³ The Intergovernmental Panel on Climate Change (IPCC) developed the Global Warming Potential (GWP) concept to compare the ability of each greenhouse gas to trap heat in the atmosphere relative to another gas. The reference gas used is CO₂, and GWP weighted emissions are measured in teragrams (or million metric tons) of CO₂ equivalent (Tg CO₂E). A million metric tons of CO₂ equivalent also is referenced as MMTCO₂E (City of Santa Cruz, April 2012, DEIR volume).

be 80 percent below 1990 levels by the year 2050. Senate Bill 32 requires the CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030.

In 2007 the CARB approved a statewide limit on the GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 million metric tons (MMT) CO₂E). In 2008, the CARB adopted the *Climate Change Scoping Plan: A Framework for Change (Scoping Plan)* in accordance with Health and Safety Code Section 38561. The *Scoping Plan* establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5 percent from the otherwise projected 2020 emissions level; i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as "Business-As-Usual" [BAU]).

The Scoping Plan identified 18 emissions-reduction measures that address cap-and-trade programs, vehicle gas standards, energy efficiency, low carbon fuel standards, renewable energy, regional transportation-related greenhouse gas targets, vehicle efficiency measures, goods movement, solar roofs program, industrial emissions, high speed rail, green building strategy, recycling, sustainable forests, water, and air. The key elements of the Scoping Plan include the following:

- 1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- 2. Achieving a statewide renewable energy mix of 33 percent;
- 3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions;
- 4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- 5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard (LCFS 17 Cal. Code Regs. Section 95480 et seq.); and
- 6. Creating targeted fees, including a public goods charge on water use, fees on high global warming potential (GWP) gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

In the 2011 Final Supplement to the *Scoping Plan's* Functional Equivalent Document, the CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, the CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7 percent (down from 28.5 percent) from the BAU conditions. When the 2020 emissions level projection was updated to

account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewable Portfolio Standard (12 to 20 percent), the CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16 percent (down from 28.5 percent) from the BAU conditions.

In 2014, the CARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (*First Update*). The stated purpose is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050." The *First Update* found that California is on track to meet the 2020 emissions reduction mandate established by AB 32, and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80 percent below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the *First Update*, the CARB identified "six key focus areas comprising major components of the state's economy to evaluate and describe the larger transformative actions that will be needed to meet the state's more expansive emission reduction needs by 2050." Those six areas are: 1) energy; 2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure); 3) agriculture; 4) water; 5) waste management; and, 6) natural and working lands. The *First Update* identifies key recommended actions for each sector that will facilitate achievement of Executive Order S-3-05's 2050 reduction goal. Based on the CARB's research efforts presented in the *First Update*, it has a "strong sense of the mix of technologies needed to reduce emissions through 2050." Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings and industrial machinery; decarbonizing electricity and fuel supplies; and, the rapid market penetration of efficient and clean energy technologies.

As part of the *First Update*, the CARB recalculated the state's 1990 emissions level using more recent global warming potentials identified by the Intergovernmental Panel on Climate Change. Using the recalculated 1990 emissions level (431 MMT CO₂E) and the revised 2020 emissions level projection identified in the 2011 Final Supplement, the CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15 percent (instead of 28.5 percent or 16 percent) from the BAU conditions. The update also recommends that a statewide mid-term target and mid-term and long-term sector targets be established toward meeting the 2050 goal established by EO S-3-05 (i.e., reduce California's GHG emissions to 80 percent below 1990 levels), although no specific recommendations are made. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California is on track to meet the 2020 target of 431 MMT CO₂E (California Air Resources Board, May 2014).

On January 20, 2017, CARB released The 2017 Climate Change Scoping Plan Update (Second Update) for public review and comment (California Air Resources Board, January 2017). This

update proposes the CARB's strategy for achieving the states 2030 GHG target, including continuing the Cap-and-Trade Program through 2030 and includes a new approach to reduce GHGs from refineries by 20 percent. The *Second Update* incorporates approaches to cutting super pollutants from the Short Lived Climate Pollutants Strategy (such as black carbon), acknowledges the need for reducing emissions in agriculture and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon. When discussing project-level GHG emissions reduction actions and thresholds, the *Second Update* states "achieving no net increase in GHG emissions is the correct overall objective, but it may not be appropriate or feasible for every development project. And the inability to mitigate a project's GHG emissions to zero does not necessarily imply a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA."

For local governments, the *Second Update* replaced the initial Scoping Plan's 15% reduction goal with a recommendation to aim for a community-wide goal of no more than 6 MT CO₂E per capita by 2030 and no more than 2 MT CO₂E per capita by 2050, which are consistent with the state's long-term goals. These goals are appropriate for the plan level (city, county, subregional, or regional level, as appropriate), but not for specific individual projects because they include all emissions sectors in the State. The *Second Update* recognized the benefits of local government GHG planning (e.g., through climate action plans (CAPs)) and provide more information regarding tools the CARB is working on to support those efforts. It also recognizes the CEQA streamlining provisions for project level review where there is a legally adequate CAP. It is expected that CARB will consider the *Second Update* for approval in the spring or summer 2017.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32, Senate Bill 32 and the Executive Orders and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. A project is considered consistent with the statutes and Executive Orders if it meets the general policies in reducing GHG emissions in order to facilitate the achievement of the state's goals and does not impede attainment of those goals. As discussed in several cases, a given project need not be in perfect conformity with each and every planning policy or goals to be consistent. A project would be consistent, if it will further the objectives and not obstruct their attainment.

City of Santa Cruz Climate Action Plan

The City's General Plan 2030 includes goals, policies, and actions on climate change, including reducing community-wide GHG emissions 30 percent by 2020, reducing GHG emissions 80 percent by 2050 (compared to 1990 levels), and for all new buildings to be emissions-neutral by 2030. In October 2012, the City adopted a Climate Action Plan (CAP) that outlines the actions the City will take over the next 10 years to reduce GHGs by 30 percent and to implement the policies and actions identified in the General Plan 2030. The CAP addresses citywide GHG reduction strategies. The CAP provides City emissions inventories, identifies an emissions reduction target for the year 2020, and includes measures to reduce energy use, reduce vehicle trips, implement water conservation programs, reduce emissions from waste collection, increase use of solar systems, and develop public partnerships to aide sustainable practices. Measures are outlined

for the following sectors: municipal, residential, commercial, and community programs. The CAP includes an implementation chapter that identifies tracking and reporting of the success of the measures, including City staff responsibilities.

4.2.2 Impacts and Mitigation Measures

Thresholds of 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 Conflict with or obstruct implementation of the air quality management plan;
- Violate any air quality standards or contribute substantially to an existing or projected air quality violation, i.e. result in generation of emissions of or in excess of 137 pounds per day for ROG or NO_x, 550 pounds per day of carbon monoxide, 150 pounds per day of sulfur oxides (SO_x), 82 pounds per day of PM₁₀ (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 PM₁₀), and/or 55 pounds per day of PM_{2.5} pursuant to impact criteria for significance developed by the MBARD (MBUAPCD, "CEQA Air Quality Guidelines," February 2008 and February 2016);
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- 2d 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;
- 2e 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;
- 2f Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- 2g Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The State CEQA Guidelines do not prescribe specific methodologies for performing a GHG emissions assessment, establish specific thresholds of significance, or mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance that are consistent with the manner in which other impact areas are handled in CEQA. Global climate change is a

cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. There are currently no established thresholds for assessing whether the GHG emissions of a project in the NCCAB would be considered a cumulatively considerable contribution to global climate change, except the MBUAPCD has an adopted guideline for stationary source projects in which a project would not have not a significant GHG emissions impact if the project emits less than 10,000 MT/yr CO₂E or complies with regulations or requirements adopted to implement a statewide, regional or local plan for the reduction or mitigation of GHG emissions (Monterey Bay Unified Air Pollution Control District, February 2016).

Analytical Method

The proposed project consists of amendments to the City's Downtown Recovery Plan, General Plan, Local Coastal Plan and Zoning Code regarding development in the downtown area and Central Business District. The proposed project would not directly result in new development. However, the proposed Downtown Plan amendment would expand areas for potential additional building height that could accommodate intensified redevelopment of existing developed sites. City staff estimates that the proposed amendments could indirectly lead to development, resulting in a potential net increase of 711 new residential units and 2,200 square feet of office space with a net decrease of approximately 14,700 square feet of commercial building space over existing conditions within the downtown area. The proposed General Plan amendment would increase FAR in areas designated as RVC in the General Plan. The proposed LCP and Zoning Code amendments would not result in changes that could indirectly lead to intensified development or air emissions.

The air quality analysis used the California Emissions Estimator Model (CalEEMod), which is currently being recommended by the MBUAPCD. The CalEEMod Version 2016.3.1 was used to estimate potential project-generated criterial pollutant and GHG emissions with projected buildout resulting from the proposed plan amendments, including an estimated reduction in existing commercial uses. No specific development projects are proposed, and no project-site specific development applications have been submitted to the City. City Planning Department staff estimate that potential development and buildout estimated for the purpose of assessing environmental impacts would occur over 25 years. Construction emissions cannot be determined in the absence of specific development projects with identified construction schedules and equipment. Emissions from the operational phase of future development supported by the project and for the reduced commercial area were estimated using CalEEMod default emission factor values for mobile, area, and energy sources. In addition, project-specific trip generation and water demand rates identified in this EIR were incorporated into CalEEMod. Model outputs and assumptions are included in Appendix E.

Impacts and Mitigation Measures

As described in the Initial Study (see Appendix A), exposure to diesel emission during construction would result in a less-than-significant impact (2d), and the project would not result in creation of objectionable odors (2e). Thus, no further discussion is required for these topics. The project would not conflict with or obstruct implementation of the AQMP (2a) or conflict with GHG reduction plans (2g) as explained below. The impact analyses address criteria pollutant emissions and potential violation of an air quality standard (2b) and GHG emissions (2f). Cumulative impacts (2c) are addressed in Chapter 5, CEQA Considerations.

Conflicts with Adopted Plans - No Impact

Effective September 1, 2011 the MBUAPCD Board approved a new procedure for determining whether a residential project conflicts with the District's adopted AQMP. The procedure uses AMBAG's adopted housing unit forecast instead of population, and the MBUAPCD has developed a spreadsheet to assist jurisdictions with developing calculations, which was used to determine whether the proposed project conflicts with the AQMP as described below.

The City had 23,693 existing dwelling units as of January 1, 2017, and approximately 389 residential units have been constructed, are under construction or have been approved. With existing units, approved units and the proposed project increase of 711 residential units, there would be a total of 24,793 dwelling units within the City. Development that could occur as a result of the proposed project is estimated to occur over the next 20-25 years. Housing units with the addition of the proposed project would be below the current AMBAG forecast of 28,297 dwelling units for the year 2030 and 29,335 units in the year 2035. The proposed project with buildout under the General Plan and accounting for units that have been constructed and occupied since the General Plan was adopted, would result in approximately 27,244 dwelling units, which is within AMBAG forecasts for 2030 and 2035. Therefore, growth that could be accommodated by the proposed project is consistent with the AQMP, and would not conflict with or obstruct implementation of the AQMP (2a).

With regards to GHG reduction plans, the Scoping Plan, approved by CARB on December 12, 2008, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. As such, the Scoping Plan is not directly applicable to specific projects. In the Final Statement of Reasons for the Amendments to the CEQA Guidelines, the California Natural Resources Agency (CNRA) observed that "[t]he [Scoping Plan] may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (California Natural Resources Agency, 2009). Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles)

and associated fuels (e.g., LCFS), among others. The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. The project would comply with all applicable regulations adopted in furtherance of the Scoping Plan to the extent required by law.

The proposed project consists of amendments to the City's Downtown Recovery Plan, General Plan, LCP and Zoning Code to accommodate intensified development in the downtown area. To this extent, the proposed amendments are consistent with the sustainable transportation and land use planning goals set forth in the City's Climate Action Plan that encourage higher density development along transit corridors and activity centers to support efficient, accessible, and sustainable transportation options. Based on the preceding considerations, the proposed project would not result in conflicts with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions (2g)

Urban Heat Island Effect – No Impact

A comment was raised regarding the potential for subsequent development under the proposed Plan amendments to create an "urban heat island." The phrase "urban heat island" refers to the effect of urbanized areas on surface and air temperature compared to their rural surroundings. Buildings, roads, and other "hardscape" create an island of higher temperatures within the regional landscape. As described by the EPA, "[u]rban heat islands are caused by development and the changes in radiative and thermal properties of urban infrastructure as well as the impacts buildings can have on the local microclimate—for example tall buildings can slow the rate at which cities cool off at night. Heat islands are influenced by a city's geographic location and by local weather patterns, and their intensity changes on a daily and seasonal basis" (U.S. Environmental Protection Agency, 2008). The term is generally used to refer to community-wide effects, particularly for large metropolitan cities. Increased temperatures due to the urban heat island effect may lead to increased energy consumption, which has implications for air quality and GHG emissions. In addition to energy-related increases in air emissions, elevated air temperatures increase the rate of ground-level O₃ formation.

Some cities have adopted strategies to deal with these environmental impacts, such as increasing vegetation and using more energy-efficient building materials. These strategies are often part of more general energy savings or "sustainability" practices and are not identified as "urban heat island effect" mitigation, but nevertheless they provide the benefits of reducing surface and atmospheric heat islands.

In the present case, the downtown area is within an existing urbanized and developed area. The proposed amendment would allow an increment of increased height, but the area already supports existing development, paved areas as well as larger buildings, street trees and landscaping. The area is not within a rural setting and future development would not be of the magnitude to result in creation of the effect referred to as an "urban heat island." Future development would be subject to the City's General Plan 2030, Zoning Code and Green Building

standards regrading energy efficiency. Furthermore, this potential effect is not related to pollutant or greenhouse gas emissions or the thresholds of significance identified for impact analysis, and no further review is required under CEQA.

Impact 4.2-1: Criteria Pollutant Emissions. Future development and growth accommodated by the proposed project would result in emissions of criteria pollutants, but would not exceed adopted thresholds of significance, violate any air quality standard or contribute substantially to an existing or projected air quality violation (2b). This is a *less-than-significant* impact.

Construction Emissions

Future development accommodated by the proposed plan amendments would result in construction-related emissions that could affect air quality by increasing O₃ 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 DPM emissions from diesel-fueled equipment.

The proposed project could indirectly lead to new development that could result in generation of particulate emissions from entrained dust, off-road equipment, vehicle emissions, architectural coatings, and asphalt pavement application during construction. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM₁₀ and PM_{2.5} emissions. 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. Internal combustion engines used by construction equipment, vendor trucks (e.g., delivery trucks), and worker vehicles would result in emissions of ROG, NO_x, CO, PM₁₀, and PM_{2.5}. The application of architectural coatings, such as exterior application/interior paint and other finishes, and application of asphalt pavement would also produce ROG emissions. Based on MBUAPCD CEQA Guidelines (2008), exhaust emissions from these typical construction activities generally would not result in a significant impact because their emissions are already accounted for in the emissions inventories of the state- and federally-required air plans, and they would not have a significant impact on the attainment and maintenance of the O₃ AAQS.

The scale and timing of construction is unknown, and construction activities would be variable throughout the day and overall construction period. The City's General Plan requires future development projects to implement applicable MBARD control measures and/or air quality mitigations in the design of new projects as set forth in the District's "CEQA Guidelines". The Guidelines provide screening levels for potential significant impacts, and projects that are cover 2.2 or more acres may be required to implement dust suppression measures during construction unless future project-level construction-emissions modeling indicates that pollutant thresholds established by the MBARD would not be exceeded. Therefore, implementation and application

of General Plan policies and MBARD recommended measures, if required, would reduce any future significant project construction emissions to a less-than-significant level.

Operational Emissions

Future development and growth accommodated by the proposed project would generate criteria pollutant emissions from vehicular traffic, area sources (consumer products, architectural coatings, landscaping equipment), and energy sources (natural gas appliances, space and water heating). The reduced commercial area would result in an associated reduction in emissions from these sources. The emissions associated with on-road mobile sources include running and starting exhaust emissions, evaporative emissions, brake and tire wear, and fugitive dust entrainment. The CalEEMod model was utilized to estimate operational emissions for the year 2040, which is the closest selectable year in the model to the earliest year that the project is expected to be built out over 25 years. Default trip rates in CalEEMod were adjusted to match the weekday trips provided by the traffic consultant for the project (Kimley Horn, May 2017). Default water demand estimates in CalEEMod were also adjusted to match the values provided in the City Urban Water Management Plan.

Table 4.2-2 summarizes the results of the emissions modeling. As shown, daily emissions associated with project operation would not exceed the MBUAPCD significance thresholds. The project emissions would be below the significance thresholds adopted by MBUAPCD for evaluating impacts to O_3 and particulate matter, and, thus, the project would not contribute substantially to existing or projected violations of those standards. Therefore, emissions of criteria pollutants associated with operation of the proposed project would result in a less-than-significant impact.

CO emissions from traffic generated by the project would be the pollutant of concern at the local level. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of CO. As indicated above, air pollutant monitoring data indicate that CO levels have been at healthy levels (i.e., below state and federal standards) for years, reflecting improvements in tailpipe emissions controls. As a result, the region has been designated as attainment/unclassified for the standard. The MBUAPCD's CEQA Guidelines indicated that a project could result in potentially significant CO emissions if the project would result in a decrease in intersection or road level of service (LOS) from D or better to E or F or increase delays by more than 10 seconds at intersections that operate at E or F. As discussed in Chapter 4.5, Traffic and Transportation, the project would not result in a decrease in intersection LOS to E or F. The project would result in approximately 237 weekday PM peak hour trips distributed to numerous intersections, however, the project would not result in a decrease in operations to a LOS below D, and would result in less than 10 seconds delay at intersections operation at LOS E. Thus, the proposed project does not meet the criteria for potential indirect CO emissions, and the project does not have the potential to cause a CO violation at affected intersections to which the project contributes traffic.

ROG NO_x CO SO_x PM₁₀ $PM_{2.5}$ **Emission Source** (pounds per day) Increased Residential and Office Uses Area 19.9 0.7 58.6 0.3 0.3 0.0 Energy 0.3 2.6 1.1 0.0 0.2 0.2 Mobile 10.7 30.8 18.4 2.4 0.1 5.0 Subtotal 14.0 90.6 19.0 22.6 0.1 5.5 **Reduced Commercial Uses** Area 0.4 0.0 0.0 0.0 0.0 0.0 Energy 0.0 0.0 0.0 0.0 0.0 0.0 Mobile 0.3 1.1 2.5 0.0 1.3 0.3 **Subtotal** 0.6 1.1 2.5 0.0 1.3 0.3 **Total Net Increase** 22.0 12.9 88.1 0.1 17.7 5.2 **Emission threshold** [1] 137 137 550 150 82 55 Threshold exceeded? No No No No No No

TABLE 4.2-2: Estimated Maximum Daily Operational Project Emissions

[1] Monterey Bay Unified Air Pollution Control District, February 2008, February 2016.

Notes: Emissions were modeled with CalEEMod 2016.3.1. The maximum of summer or winter values are included above and the totals may not sum exactly due to rounding. In addition, project emissions are based on the "Mitigated" CalEEMod outputs in order to incorporate the 2016 Title 24 standards (i.e., residences and commercial uses that comply with 2016 Title 24 are 28% and 5% more efficient than 2013 Title 24, respectively), high efficiency outdoor lighting, and the 75% waste diversion consistent with State standards (Assembly Bill 341), even though compliance with these standards would not be considered actual mitigation. For the Reduced Commercial scenario, only the 75% waste diversion was assumed with no building energy improvements, since this scenario represents existing uses that would be demolished.

ROG = reactive organic gases; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.

Area sources = consumer product use, architectural coatings, and landscape maintenance equipment. Energy sources = natural gas appliances. Mobile sources = on-road vehicles.

See Appendix E for detailed results.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact 4.2-2: Greenhouse Gas (GHG) Emissions. Future development and growth accommodated by the proposed project would result in in GHG emissions, which are not considered significant (2f). Therefore, this is a *less-than-significant* impact.

Development accommodated by the proposed project is expected to occur over the next 25 years. No stationary source emissions (such as emergency generators) are anticipated with future residential and office space accommodated by the project. Future development would result in GHG emissions from vehicular traffic, area sources (landscaping maintenance), electrical generation, natural gas consumption, water supply and wastewater treatment, and solid waste. The reduced commercial area would result in an associated reduction in emissions from these

sources. Project-specific trip generation rates and indoor water use consistent with the City Urban Water Management Plan were incorporated into the CalEEMod model. As shown in Table 4.2-3, the proposed project is estimated to result in a net increase of approximately 4,053 MT of CO_2E per year.

TABLE 4.2-3: Estimated Annual Operational Project Greenhouse Gas Emissions

	MT CO ₂	MT CH ₄	MT N₂O	MT CO₂E
Increased I	Residential and	Office Uses		
Area Sources	12.0	0.0	0.0	12.3
Energy	1,813.4	0.1	0.0	1,825.1
Mobile	2,297.2	0.1	0.0	2,298.8
Solid Waste	16.7	1.0	0.0	41.4
Water Supply and Wastewater	37.5	1.0	0.0	68.9
Subtotal	4,176.8	2.2	0.0	4,246.5
Re	duced Commerc	ial		
Area Sources	0.0	0.0	0.0	0.0
Energy	34.4	0.0	0.0	34.6
Mobile	155.1	0.0	0.0	155.2
Solid Waste	0.8	0.0	0.0	1.9
Water Supply and Wastewater	1.2	0.0	0.0	2.2
Subtotal	191.5	0.0	0.0	193.9
Total Net Increase				4,052.6

Notes: Emissions were modeled with CalEEMod 2016.3.1. The annual emission totals may not sum exactly due to rounding. Project emissions are based on the "Mitigated" CalEEMod outputs in order to incorporate the 2016 Title 24 standards (i.e., residences and commerical uses that comply with 2016 Title 24 are 28% and 5% more efficient than 2013 Title 24, respectively), high efficiency outdoor lighting, and the 75% waste diversion consistent with State standards (Assembly Bill 341), even though compliance with these standards would not be considered actual mitigation. For the Reduced Commercial scenario, only the 75% waste diversion was assumed with no building energy improvements, since this scenario represents existing uses that would be demolished.

 $MT\ CO_2-metric\ tons\ carbon\ dioxide;\ MT\ CH_4-metric\ tons\ methane;\ MT\ N_2O-metric\ tons\ nitrous\ oxide;\ MT\ CO_2E-metric\ tons\ carbon\ dioxide\ equivalent$

See Appendix E for detailed results.

The project site is located within the NCCAB under the jurisdiction of the MBARD, which to date, has not adopted significance criteria or thresholds for land use projects. However, in February 2013, a staff report to the District Board indicated that the staff's current recommendation is to further review a GHG threshold of 2,000 MT CO₂E per year for land-use projects or compliance with an adopted GHG Reduction Plan/Climate Action Plan (Monterey Bay Unified Air Pollution Control District, February 2013). This recommendation was made after considering AB 32 goals and scoping plan measures that would reduce regional emissions and MBUAPCD staff's review of thresholds adopted or considered in other air districts throughout the state. The threshold was considered based on projects that would contribute 75-90 percent of future GHG emissions. Other air districts in the State have adopted a threshold of 1,100 MT CO₂E per year for land-use

projects, including the Bay Area Air Quality Management District, Sacramento Metropolitan Air Quality Management District, and San Luis Obispo County Air Pollution Control District (Association of Environmental Professionals 2016). Both the Bay Area and San Luis Obispo air districts also have per service population (i.e., residents plus employees) GHG emission thresholds of 4.6 and 4.9 MT CO₂E per year, respectively, for land-use projects (Ibid.).

Neither the City of Santa Cruz nor the MBUAPCD has adopted GHG emission significance thresholds. The project's estimated GHG emissions (about 4,053 MT/ CO_2E year) would exceed the significance threshold for development projects of 1,100 MT CO_2E per year used in neighboring air districts and the 2,000 MT of CO_2E per year threshold that had been under consideration by the MBUAPCD. However, the per service population emissions for operations would be about 2.4 MT CO_2E per year (based on 4,053 MT CO_2E per year divided by 1,728 service population of the project), which is substantially less than the thresholds established in neighboring air districts.

These quantitative thresholds are based on 2020 reduction goals and although the project buildout is estimated to be approximately 25 years, there are no established protocols or thresholds of significance for post-2020 future-year analysis (i.e., compliance with the Senate Bill 32 goal of reducing GHG emissions to 40% below 1990 levels by 2030 and Executive Order S-3-05 goal of reducing GHG emissions to 80% below 1990 levels by 2050). However, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting these long-term GHG goals, although the specific path to compliance is unknown (CARB 2014). As discussed previously, the project would comply with all applicable state and local GHG reduction regulations and would not conflict with the state's trajectory toward future GHG reductions. In addition, since the specific path to compliance for the state in regards to the long-term goals will likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for future projects developed as a result of the proposed plan amendments would be speculative and cannot be identified at this time.

With respect to future GHG targets under Senate Bill 32 and Executive Order S-3-05, CARB has also made clear its legal interpretation that it has the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet the reduction targets in 2030 and in 2050; this legal interpretation by an expert agency provides evidence that future regulations will be adopted to continue the state on its trajectory toward meeting these future GHG targets. Additionally, the City's *General Plan 2030* EIR estimated GHG emissions that could result in 2030 from potential development and buildout accommodated by the plan that included 3,350 residential dwelling units and approximately 3,140,000 additional square feet of new commercial, office, and industrial uses. The General Plan EIR analysis determined that the GHG emissions levels associated with potential buildout that would be accommodated by the General Plan would not be considered substantial compared to long-term forecasts and state and regional targets, and would be less than forecast statewide per capita emission rates. The preceding considerations support the conclusion that the project-level emissions are less than

significant and less than cumulatively considerable. Thus, the impact is considered less than significant.

It is expected that GHG emissions resulting from the proposed project would be partially offset by the incorporation of energy and water conserving features and "green" building designs that would be required under City and State building regulations, including the City's Green Building requirements. Furthermore, the City's General Plan 2030 seeks to reduce citywide contribution to greenhouse gas emissions through land use planning, program development, investment in energy efficient infrastructure, and increased use of renewable energy. Green building policies and actions 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 also set planning goals to minimize future risks of sea level rise and climate change.

The City's General Plan 2030 includes one goal with four polices and 19 accompanying actions that address climate change, including preparation and implementation of a "Climate Action Plan" to attain emissions reductions goals, which has been completed. In particular, the City seeks to achieve a 30% reduction in GHG emissions by 2020 and 80% by 2050 (NRC4.1.1) with all new development being carbon neutral by the year 2030. Other policies and actions seek to reduce vehicle emissions by 30% (NRC4.1.3) in addition with other transportation policies to reduce vehicle trips, and promote energy efficiency. Table 4.2-3 summarizes policies that directly or indirectly reduce greenhouse gas emissions and impacts. Additionally, policies in other chapters of the draft General Plan support local, state and federal actions to reduce carbon dioxide and GHG emissions (HZ2.1.1, HZ2.1.2) and efforts to improve local energy efficiency (NRC7.1), including a reduction in gas and electricity consumption (NRC7.1.1). A number of policies are also directed to reducing automobile trips and creating sustainable development and land use patterns, which would result in further reductions of automobile trips; Goal LU1 and supporting policies and actions seek sustainable land uses within the City.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

4.3 BIOLOGICAL RESOURCES

This section analyzes impacts of the proposed project on biological resources based on a review of existing city plans and review of potential impacts upon riparian and aquatic habitats and species by Dudek biologists and Kittleson Environmental Consulting as part of the preparation of this EIR. This section also draws from the City of Santa Cruz General Plan 2030 EIR (SCH#2009032007), which was certified on June 26, 2012, regarding background information on regulatory setting and sensitive habitats. The General Plan EIR is incorporated by reference in accordance with section 15150 of the State CEQA Guidelines. Relevant discussions are summarized in subsection 4.3.1. The General Plan EIR is available for review at the City of Santa Cruz Planning and Community Development Department (809 Center Street, Room 107, Santa Cruz, California) during business hours: Monday through Thursday, 8 AM to 12 PM and 1 PM to 5 PM. The General Plan EIR is also available online on the City's website at:

http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/general-plan.

Public and agency comments related to air quality and emissions were received during the public scoping period in response to the Notice of Preparation (NOP). Issues raised in these comments include:

_	Increase to binds due to many tallow buildings and accomisted abadings along fusing seat
	from the proposed building heights.
	appropriate setback of new development, and potential impacts from shading resulting
	Analysis of impacts on San Lorenzo River habitat and wildlife, including establishing the

- Impacts to birds due to new taller buildings and associated shading, glare from east-facing windows, new lighting, and more people in the area.
- ☐ Evaluation of the "urban heat island" effect on riparian habitat.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. Public comments received during the public scoping period are included in Appendix B.

4.3.1 Environmental Setting

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 Fisheries (NOAA Fisheries) 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. A brief summary of relevant laws is provided below, and a full description is provided on pages 4.8-1-4,8-6 of the General Plan 2030 EIR (Draft EIR volume), which is incorporated by reference.

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 or take of a species listed as threatened or endangered. NOAA Fisheries 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. 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.

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" (U.S. Fish and Wildlife Service, September 2015). The overall goal of the Birds of Conservation Concern is to accurately identify the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the highest conservation priorities. The bird species included on the BCC lists include nongame birds, gamebirds without hunting seasons, ESA 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 California Department of Fish and Wildlife 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 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 Wildlife (CDFW) 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. Under state law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the CDFW. CESA authorizes that 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 CDFW certifies that the incidental take statement or incidental take permit is consistent with CESA (Fish & Game Code, Section 2080.1(a). 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).

Species of Special Concern and Fully Protected Species. In addition to lists of designated Endangered, Threatened, and Rare plant and animal species, the CDFW 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 CDFW 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.

Streambed Alteration Agreements. Jurisdictional authority of the CDFW 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.

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, except for some exemptions provided by the law.

The California Native Plant Society has prepared and regularly updated an "Inventory of Rare and Endangered Vascular Plants of California." In general, the CDFW 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 Regulations

Local Coastal Program (LCP). The Coastal Act defines an "environmentally sensitive area" as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments" (Coastal Act section 30107.5). The City's existing certified LCP identifies the following sensitive habitats: wetlands, riparian habitat, grasslands,

mima mounds¹ and habitats that support Ohlone tiger beetle, tidewater goby, burrowing owl, California brown pelican, Monarch butterfly, pigeon guillemot, black swift, Santa Cruz tarplant or American peregrine falcon (City of Santa Cruz, 1994-Map EQ-9). Existing LCP policies seek to preserve and enhance the character and quality of riparian and wetland habitats (EQ 4.2). A separate Creeks Management Plan and policies related to the San Lorenzo River also are part of the LCP as further described below.

General Plan 2030. Four 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. The General Plan sets forth protocols for evaluation of sensitive habitat and sensitive species. For riparian areas, this includes compliance with the *City-Wide Creeks and Wetlands Management Plan*.

Management Plans. Resource management and park plans have been adopted by the City for management of City-owned open space areas. Two plans are pertinent to the project area. The City-Wide Creeks and Wetlands Management Plan was adopted by the City in 2007 and approved 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. Policies developed from recommendations in this plan were included in the LCP as a Coastal Commission-approved LCP amendment in 2004.

The City-Wide Creeks and Wetlands Management Plan was adopted by the City Council to provide a comprehensive approach to managing all creeks and wetlands within the City. Long-term goals to manage these resources include reduction and/or elimination of pollutants; improvement of water quality; improvement and restoration of natural habitat; and increased public awareness of the value of watershed quality. The Management Plan recommends development setbacks along each watercourse in the City based on biological, hydrological, and land use characteristics for various watercourse types. The recommended setbacks within a designated management area includes a riparian corridor, a development setback area, and an additional area that extends from the outward edge of the development area. The riparian corridor² 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

-

Downtown Plan Amendments

¹ Mima mounds are A land form of small, distinct raised hummocks amidst shallow depressions, usually supporting native grasslands (City of Santa Cruz, 1994).

² 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.

development setback area³ 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.⁴ All distances are measured from the centerline of the watercourse outward as shown on the above schematic. The *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.

The San Lorenzo Urban River Plan (SLURP) is the outcome of a planning process initiated by City Council in 1999 to update previous plans for the San Lorenzo River that guided flood control, vegetation restoration and public access improvements along the San Lorenzo River. Only the lower portion of the river is within the coastal zone. 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 contains recommendations for habitat enhancement, as well as public access and ideas to promote river-oriented development. 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 SLURP includes the Lower San Lorenzo River and Lagoon Management Plan as an appendix, which 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.

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.

³ 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.

⁴The 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.

Study Area

The project area consists of the downtown area generally covered by the Downtown Recovery Plan (DRP) and the Central Business District zone, and specifically the lower downtown area generally between Soquel Avenue and Laurel Street on the north and south, and Cedar Street and the San Lorenzo River on the west and east. (Locations are shown on Figures 1-2 and 2-1 in Section 3, Project Description.) The proposed project includes an amendment to the land use designation text for the downtown portion of Regional Visitor Commercial land use designation. The study area includes properties adjacent to the western San Lorenzo River levee.

Existing Habitat Areas

The downtown area, including the project area, is developed and does not support special status species or sensitive habitat. However, the eastern edge of the project area is situated along the western San Lorenzo River levee. The San Lorenzo River and associated habitats in the project area are described in the following section. Properties designated RVC in the City's General Plan are located within developed areas and are not within sensitive habitat areas.

San Lorenzo River Setting

The San Lorenzo River is the major watercourse through the City and a major physical feature in the City. The river originates in the Santa Cruz Mountains and traverses through the center of the City. The study area is located adjacent to an approximate .26-mile segment of the river between Soquel Avenue and Broadway.

Following severe flooding in downtown Santa Cruz in the winters of 1938, 1941, and 1955, the ACOE completed a flood control project along San Lorenzo River in 1959 that straightened and confined the river within its current configuration. The project created a channelized flood control channel for the river's lower 2.5 miles below Highway 1. The project included rip-rap levee banks, removal of all vegetation from the banks, and dredging of the river channel bottom with an excavated channel. Operation and maintenance for the original project included annual excavation of the channel, but this proved to be economically and environmentally infeasible for the City (Dudek, August 2016). Significant flood improvements along the river were completed in 2000 as part of the ACOE's San Lorenzo River Flood Control and Environmental Restoration Project. This project raised the river levee heights, provided landscaping and improved the pedestrian/bicycle path on the levee, and rehabilitated three of the four downtown bridges (over the San Lorenzo River) to increase flood flow capacity. The habitat enhancement efforts focused on the land side of the levees in the study area which were landscaped with native trees, shrubs, and groundcover.

The project area is within the "Transitional Reach" of the San Lorenzo River as described in the SLURP. This reach includes the area from Laurel Street Bridge to the Water Street Bridge. Water

levels in this area are influenced by seasonal closures at the downsteam river mouth. When a sandbar creates a closed lagoon at the river mouth, this reach fills with freshwater; at times when there is no sandbar closure, extreme tides can bring saltwater into this reach. During most of the year, this reach is freshwater and includes important riparian habitat areas along San Lorenzo Park to the north of the study area (City of Santa Cruz, June 2003).

San Lorenzo River Habitats

The habitat types most common along the San Lorenzo River within the City of Santa Cruz are ruderal grassland, mixed riparian forest, willow thickets, freshwater marsh, and brackish water tule marsh. The three most prevalent plant communities along the river in the project area are urban landscape, ruderal grassland and mixed riparian forest (City of Santa Cruz, June 2003, Appendix C).

Native riparian tree species present include arroyo willow (Salix lasiolepis), white alder (Alnus rhombifolia), yellow willow (Salix lucida ssp. lasiandra), black cottonwood (Populus trichocarpa), redwood (Sequoia sempervirens) and box-elder (Acer negundo). Broadleaf cattail (Typha latifolia), floating primrose (Ludwigia peploides ssp. peploides), and longroot smartweed (Persicaria amphibia) are most common in the freshwater marsh habitats in the upstream area, and California bulrush (Schoenoplectus californicus) becomes the dominant marsh plant along the water's edge in the downstream areas subject to tidal influence and brackish lagoon conditions. The levee crests are paved and the levee-top ruderal community is regularly mowed and weed-whipped for fire suppression and offers relatively little habitat value (Kittleson Environmental Consulting, January 2016).

Waterside levee slopes throughout the project area are dominated by ruderal grassland with scattered coyote brush (*Baccharis pilularis*), red valerian (*Centranthus ruber*), fennel (*Foeniculum vulgare*), field mustard (*Brassica rapa*) and ice plant (*Carpobrotus edulis*). Dominant species include perennial ryegrass (*Festuca perennis*), wild oat (*Avena fatua*), Himalayan blackberry (*Rubus armeniacus*) and ripgut brome (*Bromus diandrus*). Rip-rap, rock slope protection underlies the waterside levee embankments and is exposed in many places just below the levee crest. Soils placed by the ACOE contractors over newly placed rip-rap on the east side levee have partially eroded in the 15 years since placement, and rock is now visible within the ruderal grasses on the upper slope. Abundant California ground squirrels (*Spermophilus beecheyi*) are present throughout the levees (Kittleson Environmental Consulting, January 2016).

Landside levee slopes were landscaped with a broad assemblage of native trees, shrubs and forbs during the 1999-2003 San Lorenzo River Flood Control Improvement Project. Fence line trees and adjacent landscape shrubs represent a broad mix of native and introduced species (Kittleson Environmental Consulting, January 2016).

San Lorenzo River from the Soquel Avenue Bridge to the Railroad trestle bridge near the river mouth covers approximately 47 acres and is characterized by a single, wide channel that is less heavily vegetated with willow riparian vegetation on its margins and is characterized by

relatively abundant bulrush occurring in a narrow band along both sides of the water's edges. In addition to the numerous ruderal species mentioned above, weedy species such as kikuyugrass (*Pennisetum clandestinum*) and yellow sweet clover (*Melilotus albus*) are prevalent along much of the waterside levee toe (Kittleson Environmental Consulting, January 2016).

The river supports fish species, and a variety of wildlife species utilize the river habitats, particularly avian species. A fall bird survey conducted in 2015 reported that 103 species of birds were observed between the river mouth and Highway 1 during September, October and November 2015. A total of 9,036 birds were identified and counted, representing a wide range of year-round resident waterfowl, wading birds, raptors, songbirds, and migratory species (Kittleson Environmental Consulting, January 2016).

San Lorenzo River Maintenance

The City of Santa Cruz conducts annual vegetation thinning and periodic sandbar "ripping" in certain areas to minimize channel roughness and to facilitate sediment transport though the reach. The City holds a ACOE Section 404 nationwide permit (NWP File 268761S) and obtains CDFW Streambed Alteration Agreements for these activities. River channel maintenance also is permitted by a 5-year Streambed Alteration Agreement (SAA) issued by the CDFW. The SAA allows for routine maintenance activities, including removal of sediment, vegetation and logs in channel beds and vegetation control on banks. The SAA includes 66 "avoidance and minimization measures" to avoid or minimize adverse impacts to fish and wildlife resources, including tree and vegetation replacement under specified conditions. The annual maintenance program limits the size of riparian trees to less than four inches in diameter at breast height, and creates 4 to 10foot wide riparian strands of immature willow, alder, cottonwood, and California sycamore (Platanus racemosa) at the levee toes and on the edges of instream islands. This annual maintenance activity significantly limits bird nesting opportunities by creating sparse riparian patches. The semi-annual bed-ripping activities required to maintain hydraulic capacity in this reach also result in dry sand and gravel bar habitats in the areas upstream of the Water Street Bridge (Kittleson Environmental Consulting, January 2016). Within the project area, typical maintenance is limited to vegetation thinning, mowing, and landscaping of landside levee slopes.

Sensitive Habitat Areas

Sensitive habitats generally include riparian habitat and corridors, wetlands, habitats for legally protected species and CDFW 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), managed by CDFW, 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.

The project area is currently developed. According to maps developed for the City's General Plan 2030 and included in the General Plan EIR, the project area is not within a mapped sensitive

habitat area (City of Santa Cruz, April 2012, DEIR volume). However, the project area is located adjacent to the San Lorenzo River levees, and the river is mapped as a sensitive riparian habitat in the General Plan 2030. The river also supports special status species as described in the following section. The southern portion of the project study area is located within the coastal zone. The segment of the San Lorenzo River adjacent to the project area also is mapped as sensitive riparian habitat in the City's LCP (City of Santa Cruz, 1994, Map EQ-9).

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. California "Species of Special Concern" are given special consideration by the CDFW 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) (City of Santa Cruz, April 2012, DEIR volume).

No plant species listed as threatened or endangered by the USFWS or the CDFW are expected to occur in the study area. No species ranked by the California Native Plant Society (CNPS) on List 1 were observed or are expected to be present.

Special status wildlife species known to occur or have potential to occur within the San Lorenzo River and lower San Lorenzo River adjacent to the Main Beach include steelhead (*Oncorhynchus mykiss*), coho salmon (*Oncorhynchus kisutch*), tidewater goby, western pond turtle (*Emys marmorata*), tricolored blackbird (*Agelaius tricolor*), and yellow warbler (*Setophaga petechia*). These species are found within the San Lorenzo River habitats. Steelhead and coho salmon are anadromous fish, spending time in both freshwater and saltwater. The coho salmon population in the San Lorenzo River is identified as being nearly extirpated, however the watershed is identified as a focus population for recovery by the NOAA Fisheries (Dudek, August 2016).

Some bird species are only occasional visitors, such as osprey (*Pandion haliaetus*), a CDFW Watch List (WL) species; olive-sided flycatcher (*Contopus cooperi*), a Species of Special Concern (SSC); and migrating willow flycatchers (*Empidonax traillii*), which are state-listed as endangered (SE), but only where they nest. Others use the area for foraging but do not nest there (e.g., merlin (*Falco columbarius*; WL), peregrine falcon (*Falco peregrinus*; state fully protected and federally delisted), and Vaux's swift (*Chaetura vauxi*; CSC). Brown pelican (*Pelecanus occidentalis*), double-crested cormorant (*Phalacrocorax auritus*), and yellow warbler (*Dendroica petechia brewsteri*), all Species of Special Concern have been reported along the river (City of Santa Cruz, April 2012, DEIR volume).

9711.0003

The California red-legged frog (*Rana draytonii*) is a federally listed threatened species that was historically widely distributed in the central and southern portions of California. The species requires still or slow-moving water during the breeding season, where it deposits large egg masses, usually attached to submergent or emergent vegetation. Breeding typically occurs between December and April, depending on annual environmental conditions and locality. CRLFs are known to exist in the upper San Lorenzo River watershed in Bean Creek and Mountain Charlie Gulch approximately 8 miles north but are not known to occur at proposed project site. The closest known breeding site is the pond at the University of California Santa Cruz (UCSC) Arboretum approximately 1.9 miles west of the project area. The Arboretum pond is in the headwaters of the Moore Creek watershed, which drains the far west side of the city of Santa Cruz. CRLFs are also known to occur in the lower Moore Creek Preserve and the upper reaches of Antonelli Pond, approximately 2.5 miles southwest of the proposed project site (Dudek, August 2016).

CRLFs are not known to occur in the San Lorenzo River or the nearby Neary Lagoon Wildlife Preserve. Other studies in the project area indicate that the species appears to have been extirpated from the lower San Lorenzo River drainage, and the area was excluded from the USFWS critical habitat designation (City of Santa Cruz, July 2005). Additionally, scouring flows that occur during winter and into early spring probably make the river unsuitable for breeding.

Discussion of special status species known to occur in the project area is provided below.

Central California Coast (CCC) Steelhead (Oncorhynchus mykiss). The Central California Coast (CCC) steelhead is a federally-listed threatened species. The CCC steelhead ESU (Evolutionarily Significant Unit) includes steelhead in coastal California streams from the Russian River to Aptos Creek, and the drainages of Suisun Bay, San Pablo Bay, and San Francisco Bay, California. CCC steelhead occur in the San Lorenzo River; the river, including the project area, is designated as critical habitat for CCC steelhead. "Critical habitat" is habitat key to the survival of threatened and endangered species, which may require special management considerations or protection. Essential features of critical habitat for steelhead in the project area are estuarine areas free of obstruction and excessive predation with water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater; natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders and side channels; and juvenile and adult forage, including aquatic macroinvertebrates and fishes, supporting growth and maturation (Hagar Environmental Science, March 2015). Although variation occurs in coastal California, steelhead usually live in freshwater for one to three years in central California, then spend an additional one to three years in the ocean before returning to their natal stream to spawn.

Steelhead are present in the project area throughout the year and use the reach for migration to and from the upper watershed during winter and spring, typically from

December through mid-June. The project area provides habitat for migrating steelhead adults and smolts, and the reach to the east of the project area serves as juvenile rearing habitat when lagoon habitat conditions are favorable in summer and fall.

In general, the reach downstream of Soquel Avenue Bridge has limited willow riparian habitat and has narrow tule stands along the edge of water. The riverbed is generally flat and composed primarily of sand with some gravel. Depths are less than 2 feet, but vary with the tides when the lagoon is open. Large instream woody debris, overhanging riparian trees and other potential fish cover are limited in the project reach.

☐ Central California Coast (CCC) Coho Salmon (Oncorhynchus kisutch). The Central California Coast (CCC) coho salmon is a state and federally-listed endangered species. The CCC coho salmon ESU (Evolutionarily Significant Unit) ranges from Punta Gorda in southern coastal Humboldt County to Aptos Creek in Santa Cruz County, and the drainages of San Francisco Bay, California. CCC coho salmon historically have occurred in San Lorenzo River. The San Lorenzo River, including the project area, is designated as critical habitat for CCC coho salmon. For coho salmon, essential habitat types in the project area include: juvenile (smolt) migration corridors and adult migration corridors.

The San Lorenzo River is at the extreme southern end of the range of coho salmon. Recent information documents CCC coho salmon abundance is very low. A self-sustaining run of wild coho has been presumed to be extirpated from the San Lorenzo River since the drought of the late 1980s. Small numbers of adult coho salmon have been observed in the San Lorenzo River in recent years during trapping operations conducted at the Felton Diversion Dam by the Monterey Bay Salmon and Trout Project. The number of coho captured peaked at 183 adults in 1989-1990. In most years, however, few coho have been captured. Possible origins for these fish include: straying from more hospitable nearby drainages including San Vicente, Scott and Waddell Creeks; return of hatchery reared fish released in various locations in the San Lorenzo drainage; and returns from natural production in the basin. No juvenile coho salmon were captured during electrofishing surveys conducted throughout the San Lorenzo River watershed (including both mainstem and tributary locations) between 1994 and 2002 (Hagar Environmental Science, March 2015). The coho salmon population in the San Lorenzo River is identified as being nearly extirpated, however the watershed is identified as a focus population for recovery by the National Marine Fisheries Service (Ibid.).

Tidewater Goby. Tidewater goby (Eucyclogobius newberryi) is a federally-listed endangered species, but has been proposed for reclassification as threatened. Tidewater goby also is a State Species of Special Concern. The San Lorenzo River, including the project area, is not within the designated critical habitat for tidewater goby. The tidewater goby is a small, short-lived species that inhabit coastal brackish water habitats entirely within California, ranging from Del Norte County near the Oregon border to northern San Diego County. The species is uniquely adapted to coastal lagoons and the

uppermost brackish zone of larger estuaries, rarely invading marine or freshwater habitats. Tidewater gobies are known to be preyed upon by native species such as small steelhead, prickly sculpin (*Cottus asper*), and staghorn sculpin (*Leptocottus armatus*) (Hagar Environmental Science, March 2015).

Certain physical or biological features and habitat characteristics are believed to be required to sustain the species' life-history processes. These include persistent, shallow (in the range of approximately 0.3 to 6.6 feet), still-to-slow-moving lagoons, estuaries, and coastal streams with salinity up to 12 ppt, that contain one or more of the following:

- a) Substrates (e.g., sand, silt, mud) suitable for the construction of burrows for reproduction;
- b) Submerged and emergent aquatic vegetation that provides protection from predators and high flow events; or
- c) Presence of a sandbar(s) across the mouth of a lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, thereby providing relatively stable water levels and salinity (Hagar Environmental Science, March 2015).

Tidewater goby are present in the San Lorenzo Lagoon and have been observed ion the project area. Tidewater goby was identified in the San Lorenzo Lagoon and lower Branciforte Creek Flood Control Channel in 2004. Prior to that time, the species was not known to occupy the San Lorenzo River or Lower Branciforte Creek. During dewatering for major embankment construction by the ACOE, 11 tidewater goby were found in the San Lorenzo River lagoon and, later that fall, numerous tidewater gobies were found in the lower, tidally influenced reach below Ocean Street in the Branciforte Creek concrete channel. Tidewater goby were observed as far upstream as the Water Street Bridge during instream debris removal activities in 2016 (Kittleson, personal communication, 2017).

California Species of Special Concern. Western pond turtle (Emys marmorata) and yellow warbler are California "species of special concern," which 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) (City of Santa Cruz, September 2011). Western pond turtles are known to occur in the San Lorenzo River adjacent to the project area, although they are not known to breed in the project area (Kittleson, personal communication, May 2017). At least one individual Western pond turtle has been observed in the upper transitional reach of the river, in 2015, 2016, and 2017. No western pond turtle records are known from the lower transitional reach in the project area, but suitable habitat exists throughout the lower San Lorenzo River.

Yellow warbler is a potential nesting bird species that occurs in occasional high numbers in migration seasons. Yellow warblers seem to favor willow riparian woodlands in the project area and an average of 3.6 yellow warblers per visit were observed in the fall 2015 surveys. No breeding records are known from the project impact area, but that may reflect a paucity of breeding season observations (Kittleson Environmental Consulting, June 2016).

Tricolored blackbird is a potential nesting bird species that utilizes dense wetland vegetation like that found along San Lorenzo River north of the Water Street Bridge. There are no records of tricolored blackbird nesting activity in the lower San Lorenzo River or elsewhere in the San Lorenzo Watershed (Kittleson Environmental Consulting, June 2016).

Wildlife Movement and Breeding

San Lorenzo River provides habitat for migrating steelhead adults and smolts. For coho salmon, essential habitat types include juvenile (smolt) and adult migration corridors. Although variation occurs in coastal California, steelhead usually live in freshwater for one to three years in central California, then spend an additional one to three years in the ocean before returning to their natal stream to spawn. Steelhead may spawn one to four times over their life. Adult CCC steelhead typically immigrate from the ocean to freshwater between December and April, peaking in January and February, and juveniles migrate as smolts to the ocean from January through May, with peak emigration occurring in April and May (Dudek, August 2016).

Wildlife corridors are segments of land that provide a link between these different habitats while also providing cover. 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 (City of Santa Cruz, April 2012, DEIR volume). Three main corridors have been identified within the City 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). 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 (Ibid.).

There are areas along the San Lorenzo River of known bird nesting sites. Native cliff swallows (Petrochelidon pyrrhonota), northern rough-winged swallows (Stelqidopteryx serripennis) and black phoebes (Sayornis nigricans) nest on the bridges that cross the San Lorenzo River. Nonnative rock pigeons (Columba livia) and house sparrows (Passer domesticus) also make use of

9711.0003 July 2017 4.3-14 the bridges. Other native bird species including pie billed grebe (*Podilymbus podiceps*), marsh wren (*Cistothorus palustris*), song sparrow (*Melospiza melodia*), Anna's hummingbird (*Calypte anna*) and hooded oriole (*Icterus cucullatus*) have been observed nesting in the emergent marsh wetland and willow/cottonwood riparian habitats in the transitional reach of the San Lorenzo River. While killdeer (*Charadrius vociferus*) are known to nest downstream in Mike Fox Park, no ground nesting birds are known to successfully nest in the project area, due to regular human disturbance on the levee slopes and limited available habitat between the levees.

San Lorenzo River Plans

The City-wide Creeks and Wetlands Management Plan establishes requirements for structural setbacks and development standards and guidelines that would be applicable to future development along watercourses within the City. Properties within the "management area" defined in the Plan must comply with provisions of the Plan regarding riparian and development setbacks unless an area is governed by a specific management plan. Within the project area, the eastern edges of some properties on the east side of Front Street between Laurel Street and Soquel Avenue are within the defined management area of the San Lorenzo River. Riparian and development setbacks for the San Lorenzo River are not established in the Creeks Plan, but rather, according to the Creeks Plan, all projects in this area are subject to provisions of the SLURP.

The project area is within the "Transitional Reach" of the San Lorenzo River in the SLURP. This reach includes the area from Laurel Street Bridge to the Water Street Bridge. Recommended improvements in the study area include:

- Front Street Plaza at Cathcart or Maple Lane: Construction river view plaza; add riverway makers, directional and interpretive and public art opportunities
- Mimi de Marta Park:
- Urban Interface Connections the goal of the urban interface connections in the Transitional Reach is to provide features that connect downtown areas with the river via "green corridors" of trees and landscaping via Cathcart St and Maple Lane to the River.

The project area also is located along the "Front Street Riverfront Area" identified in the SLURP as a significant riverfront area that is a prime opportunity site to engage the community with the river with improved public access being a primary goal of the SLURP. Twelve existing specific recommendations for this area are included in the SLURP; those pertinent to the discussion of biological resources include:

☐ Maintain maximum heights to 50 feet with development above 35 feet in height stepping back at least 10 feet at an angle not to exceed 42 degrees.

☐ Maintain the ten-foot setback area between residential and commercial uses adjacent to the levee trail from the western edge of the trail. The setback area should be filled to raise the adjacent ground-level use to the same elevation as the levee trail. This area should also incorporate outdoor public seating or visually accessible garden space for

residential development. Trees planted as part of the San Lorenzo Flood Control Improvement Project should be maintained and incorporated into new development.

4.3.2 Impacts and Mitigation Measures

Thresholds of 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 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 Wildlife or US Fish and Wildlife Service;
- 3b 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 Wildlife or U.S. Fish and Wildlife Service;
- 3c 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;
- 3d 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;
- 3e Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- 3f 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;
- 3g Substantially reduce the habitat of a fish or wildlife species;
- 3h Cause a fish or wildlife population to drop below self-sustaining levels; or
- 3i Threaten to eliminate a plant or animal community.

Analytical Method

The proposed project consists of amendments to the City's Downtown Recovery Plan, General Plan, Local Coastal Plan and Zoning Code regarding development in the downtown area and Central Business District. The proposed project would not directly result in new development. However, the proposed Downtown Plan amendment would expand areas for potential additional building height that could accommodate intensified redevelopment of existing developed sites.

The proposed General Plan amendment would increase FAR in downtown areas designated as RVC in the General Plan. The proposed LCP and Zoning Code amendments would not result in changes that could indirectly lead to intensified development. The impact analysis is based on review by local biologist, Gary Kittleson (Kittleson Environmental Consulting) in consultation with Dudek biologists, including review of existing data and studies.

Impacts and Mitigation Measures

The proposed Downtown Plan and General Plan amendments would expand areas for potential additional building height that could accommodate intensified redevelopment of existing developed sites. Thus, future development would not remove or alter sensitive habitat (3b, 3g) or result in permanent fill of wetlands or future development with wetlands or waters of the U.S., and thus would not result in direct or indirect impacts to wetland habitat (3c). The project area is within an existing developed area, and future redevelopment would not affect wildlife movement along the river corridor as future development would be within the existing development footprint in the downtown area. Therefore, adoption and implementation of the proposed plan amendments would not directly or indirectly substantially interfere with wildlife movement or with established wildlife corridors (3d). The proposed amendments to not conflict with policies or regulations protecting biological resources (3e) and there are no Habitat Conservation or Natural Community Plans in the area (3f). The proposed project would not directly or indirectly cause a fish or wildlife species to drop below self-sustaining levels or threaten to eliminate a plant or animal community (3h, 3i).

A comment was raised regarding the potential for subsequent development under the proposed Plan amendments to create an "urban heat island" that would affect riparian vegetation. The phrase "urban heat island" refers to the effect of urbanized areas on surface and air temperature compared to their rural surroundings. Buildings, roads, and other "hardscape" create an island of higher temperatures within the regional landscape. This is addressed in Section 4.2, Air Quality and Greenhouse Gas Emissions.

The following impact analyses address potential indirect impacts to special status species (3a) and sensitive habitat (3b) within the San Lorenzo River corridor, potential impacts to nesting species (3d).

Impact 4.3-1: Indirect Impacts to Special Status Species and Aquatic Habitat. Future development of taller buildings as a result of the proposed Downtown Plan amendments could result in indirect to impacts to riparian and aquatic special status species due to increased shading due to increased building heights, but would not substantially affect habitats (3a). This is considered a *less-than-significant* impact

Additional building height and the resultant increase in shade is not likely to impact the established native riparian tree species in the area. Arroyo willow, white alder, black

cottonwood, and box-elder are all shade-tolerant tree species that are scattered singly along the linear landside slope of the levee and along the water's edge. The maturing landside riparian trees were planted for habitat enhancement and landscape value during the 1999-2003 levee raising project, and some are now greater than 50 feet in height. The waterside riparian trees in lower San Lorenzo River are all subject to regular vegetation management, which limits the size of both individual trees and the width of the riparian buffer zone on the riverbank. Riparian species along the project reach are deciduous and lose leaves during the winter.

Under the proposed building height increases, adjacent riparian habitat will receive less sunlight in late afternoon in winter months, when the potential impact to trees is lessened by their deciduous state. Shading would not substantially change during other times of the year as shown on Figure 4.3-1, which illustrates the change in shadows created by taller buildings with the proposed additional height. As a result, no adverse impacts related to shading are anticipated to either the landside or waterside riparian species.

Cattail, matted water primrose, water smartweed, and tule/bulrush are the dominant marsh plants along the water's edge, which will receive less sunlight in late afternoon in winter months. Due to the distance from proposed structures, increased shade is not anticipated to affect the marsh vegetation. The levee crests are paved and the levee-top ruderal community is regularly mowed and weed-whipped for fire suppression and offers relatively little habitat value under existing or proposed conditions (Kittleson Environmental Consulting, January 2016).

Water temperatures in the lagoon are unlikely to be impacted by the additional building heights. The existing lack of shaded riverine aquatic habitat in the lower San Lorenzo River results in high water temperatures in the lagoon system, particularly in the late summer and fall. These high temperature conditions can be deleterious to salmonid species. High water temperatures and poor water quality conditions are exacerbated by seasonal lagoon closures and low flow conditions into the lagoon. Increased building shadows will not affect direct mid-day solar inputs during any season. High water temperatures are not an issue during winter when added late-afternoon shade may fall on the project reach.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact 4.3-2: Indirect Impacts to Sensitive Riparian Habitat. Future development of taller buildings as a result of the proposed Downtown Plan amendments could result in indirect impacts to birds in the area that could lead to bird mortalities (3b). This is a potentially significant impact

The proposed project would not result in new development, and potential future development that could occur as a result of the proposed plan amendments would not be located within riparian or other sensitive habitat areas. Thus, there would be no direct removal of habitat.

Future buildings would be set back from the western edge of the river levee by at least 10 feet which is consistent with City plans. The City-wide Creeks and Wetlands Management Plan references the SLURP as the guiding management plan for the area. The SLURP recommends a 10-foot setback between development and the western edge of the river levee, which also is a SLURP LCP policy. Both the existing and proposed Downtown Plan and LCP policies maintain this setback area, although the LCP policy includes minor language revisions related to use of publicly accessible lands (see revisions in Appendix C). The SLURP recommendations also seek to improve and enhance public access/use of the levee and adjacent areas. The proposed DRP amendment requires that residential and outdoor commercial uses adjacent to the Riverwalk not be sited closer than 10 feet from the western edge of the physical walkway, except where "peopleoriented" commercial uses incorporate public access points to the Riverwalk. Therefore, future development accommodated by the Plan amendments would be sited to be consistent with the required setbacks.

The project will result in amendments to the DRP that would allow additional building heights under specified conditions. The proposed project includes both expansion of the Additional Height Zone south of Soquel Avenue along the river and elimination of the SLURP LCP policy to limit heights to 50 feet in the Front Street/Riverfront area. This policy is proposed to be eliminated due to the proposed additional height allowance. The policy was taken from the SLURP, which was intended as a resource protection programmatic guide and not a land use planning document. (See Section 4.9, Land Use, for further discussion.)

Generally building heights along the San Lorenzo River between Soquel Avenue and Broadway could increase from 50 feet under existing plans to 70 feet with the proposed amendments. The extent of the potential increase height would be limited; the proposed Downtown Plan amendments require the top floor of Front Street properties to not exceed 60% of the floor below and 60% of the building length, thereby avoiding a linear wall of building mass. The Downtown Plan allows for consideration or an exception to these standards when a publicly accessible accessway is included as part of the project site upon approval by the City Council upon a positive recommendation by the Planning Director. Additionally, along the west side of the Riverwalk along San Lorenzo River, a 10-foot setback from the exterior building face would be required for development above 50 feet, and the 10-foot setback would be required for at least 50% of the building frontage along Front Street above a height of 50 feet. However, the proposed amendments allow up to 25% of the Riverwalk building frontage to encroach into the required 10-foot setpback area to provided massing variation. The proposed amendments also permit top floor cantilevered portions of the building to encroach over the property line a maximum of 5 feet in order to provide architectural interest to the façade, which shall not exceed 25 percent of the total building frontage along the riverfront. Nonetheless, the potential additional building would not likely result in full coverage of additional floors.

Concerns have been raised regarding potential hazards taller buildings may pose hazards to birds due to placement of reflective windows and/or lighting. Glass windows on buildings of all kinds are a known hazard to birds and cause the deaths of as many as a billion birds a year in the

9711.0003 July 2017 4.3-19 United States alone (Klem, March 2009). Individual buildings have been estimated to cause one to ten deaths per building per year, while at least one study documented commercial buildings at one location to cause as many as 55 deaths per year (Klem, March 2009, Hager et al., September 2008). The hazard of buildings to birds can vary depending on several aspects of building design, including the amount of glass used, the type of glass used, and the proportion of windows reflecting surrounding vegetation (American Bird Conservancy, 2015, Klem et al., March2009). The two primary hazards of glass for birds are reflectivity and transparency. Viewed from outside buildings, transparent glass often appears highly reflective. Reflective glass presents birds with the appearance of safe routes, shelter, and food. Buildings surrounded by lush landscaping may attract more birds, and reflections of vegetation in windows adjacent to these habitats may lure birds. Green spaces inside buildings, too, may entice birds to inaccessible habitat.

Windowed courtyards and open-topped atria can be hazardous, especially if they are landscaped. Birds fly into developed spaces, and when flushed may attempt try to leave by flying directly toward reflections. Glass skywalks, handrails and building corners with glass are also dangerous because birds can see through them to sky or habitat on the other side. As the amount of glazing increases on a building, the threat also increases. A study in New York found a 10% increase in the area of reflective and transparent glass on a building façade correlated with a 19-32% increase in the number of fatal collisions, in spring and fall, when visiting migrants are present (Klem et al, March 2009).

At night, artificial light degrades the quality of migratory corridors. Flood lights on tall buildings or intense lights that emit light fields that entrap birds reluctant to fly from a lit area into a dark one. This type of lighting has resulted in documented mass mortalities of birds (Evans Ogden, September 1996). Lights disrupt birds' orientation. Birds may cluster around such lights, increasing the likelihood of collisions with the structure or each other. In addition to the hazard from collisions, vital energy stores are consumed in such nonproductive flight. The combination of fog and light doubly affects birds' navigation and orientation (Ibid.). Migrating birds typically fly at heights over 500 feet, but often descend to lower altitudes during bad weather, where they may encounter artificial light from buildings. Water vapor in fog or mist refracts light, greatly increasing the illuminated area around light sources. Birds circle in the illuminated zone, appearing disoriented and unwilling or unable to leave (Evans Ogden, September 1996). They are likely to succumb to lethal collisions, exhaustion, and predators.

A notable, established monitoring program of bird-building collisions is NYC Audubon's Project Safe Flight in Manhattan. Project Safe Flight documented over 5,400 collisions between 1997-2008. Another study (Gelb and Delacretaz, 2009) analyzed this data to determine the critical contributing factors for the structures with the largest number of bird fatalities. The study looked at the 10 most deadly collision sites and found the combination of open space, vegetation, and large windows (greater than 1 meter x 2 meter) to be more predictive of death than building height. The frequency of collisions is highest along façades that have lush exterior vegetation and either reflective or transparent windows. The majority of the collisions occurred

during the daytime and involved migrant species. High-rise buildings and night lighting presented less risk than windows adjacent to open spaces two and half acres or greater in size. The majority of collisions are likely due to high collision sites that feature glass opposite exterior vegetation. The most dangerous building in this study was not a high-rise, but instead was a 6-story office building adjacent to densely vegetated open space.

Increasing the limits on building heights adjacent to the San Lorenzo River could result in impacts to birds from two causes: (1) an increase in the area of glass that would result in mortality to birds mistaking the reflective glass as safe passage to habitat beyond, and (2) an increase in the amount of lighting and the resultant potential for mortality of birds related to disorientation during migration. Most strikes to buildings due to reflective windows are thought to occur closer to the ground (American Bird Conservancy, 2015). Therefore, effects from reflective glass may be lower below 50 feet than above. Also, effects from reflective glass above 50 feet would be partly minimized by the proposed setback requirements that floors above 50 feet occupy no more than 60% of the area of the floor below and no more than 60% of the building length, and that floors above 50 feet be restricted by a 10-foot setback from the building face where it fronts the Riverwalk along the San Lorenzo River. Because of these restrictions, particularly the setbacks from the building face, relatively little surrounding vegetation would be reflected in these upper floors, a factor that should further limit bird mortality, based on data presented in Klem et al. (March, 2009), which showed the proportion of glass reflecting vegetation was a significant predictor of glass strikes.

However, even given these considerations, the generally accepted notion that greater amounts of glass at any height, during any season, and during day or night results in higher mortality from glass strikes, suggests that the increase in the amount of glass along the San Lorenzo River would likely result in an increase in bird mortality. Additional lighting may also result in increased bird mortality from the increased limit on building height. Therefore, the effects of the increased limit on the heights of buildings along the San Lorenzo River because of increased area of reflective glass and an increase in night-time lighting is a *potentially significant impact*.

Mitigation Measures

Implementation of the following mitigation measure will reduce the impact to a less-than-significant level.

MITIGATION 4.3-2:

Revise Downtown Plan to include standard for design guidance for bird-safe structures along the San Lorenzo River, including:

- Minimize the overall amount of glass on building exteriors facing the San Lorenzo River.
- Avoid mirrors and large areas of reflective glass.
- Avoid transparent glass skyways, walkways, or entryways, free-standing glass walls, and transparent building corners.

- Utilize glass/window treatments that create a visual signal or barrier to help alert birds to presence of glass. Avoid funneling open space to a building façade.
- Strategically place landscaping to reduce reflection and views of foliage inside or through glass.
- Avoid or minimize up-lighting and spotlights.
- Turn non-emergency lighting off (such as by automatic shutoff), or shield it, at night to minimize light from buildings that is visible to birds, especially during bird migration season (February - May and August -November).

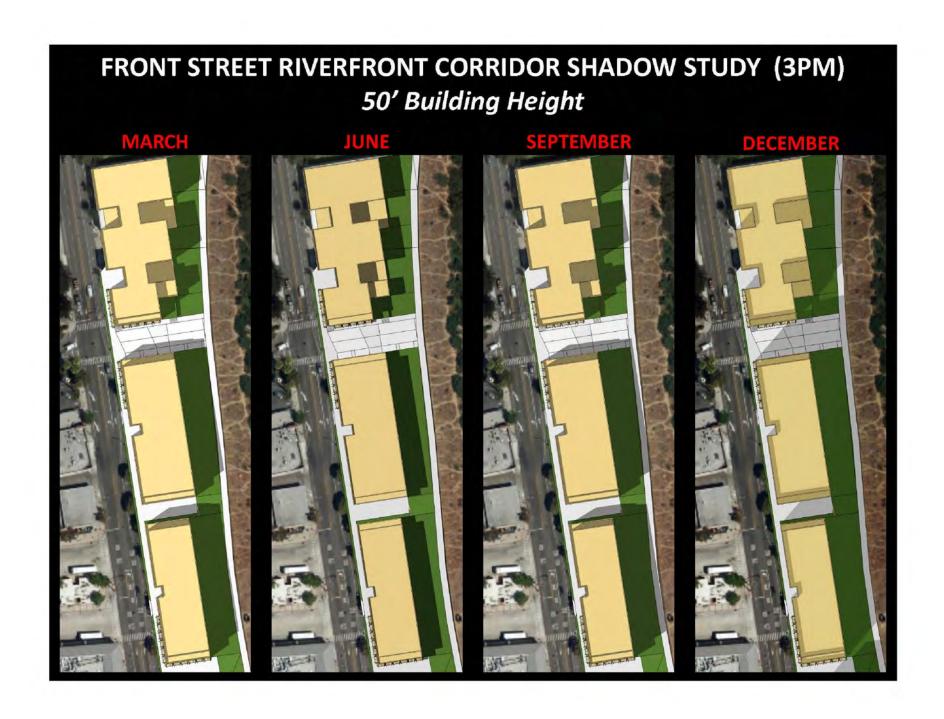
Impact 4.3-3: Indirect Impacts to Nesting Birds. Future development as a result of the proposed Downtown Plan amendments could result in disturbance to nesting birds if any are present in the vicinity of construction sites along the San Lorenzo River (3d). This is a *potentially significant* impact

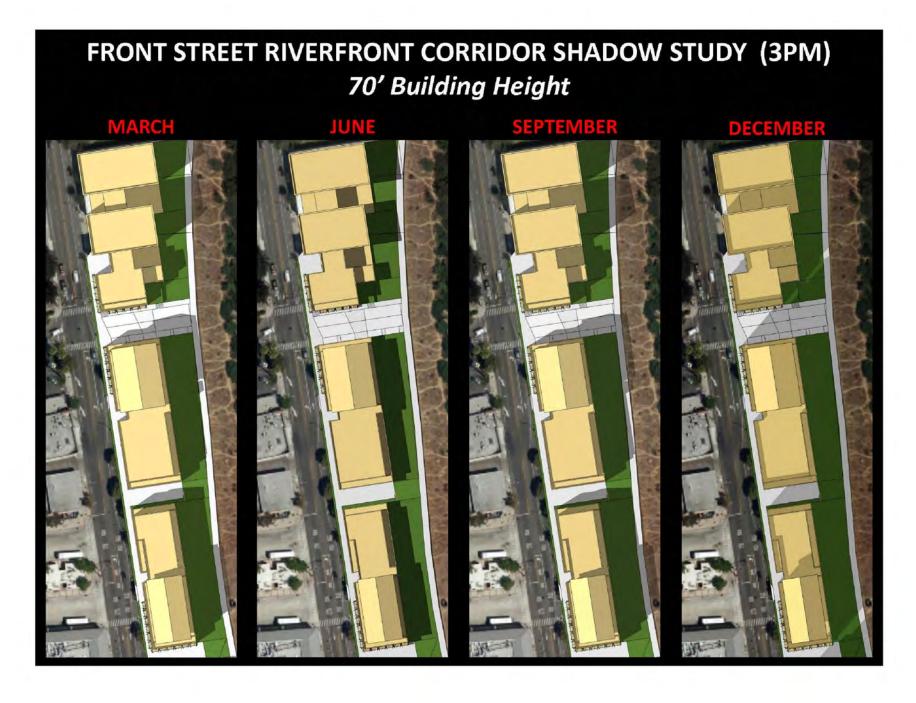
While the project will not directly result in new construction that would affect nesting birds, future development accommodated by the proposed amendments could result in impacts to nesting birds at the time of construction. However, measures in the City-wide Creeks and Wetlands Management Plan include pre-construction surveys where construction may affect nesting birds in order to prevent disturbance if nesting is occurring when construction is initiated. Tree removal during the breeding season (generally March 1 to August 1) also could result in direct mortality to nesting avian species protected under the Migratory Bird Treaty Act (MBTA) due to destruction if active nest sites are present. Construction activity for a prolonged period could affect nesting adults and result in nest abandonment or failure. This is considered a potentially significant impact. Implementation of the pre-construction nesting surveys as set forth in the adopted Creeks Plan would reduce impacts to a less-than-significant level.

Mitigation Measures

Implementation of the following mitigation measure will reduce the impact to a less-than-significant level.

MITIGATION 4.3-3:Require that a pre-construction nesting survey be conducted by a qualified wildlife biologist if construction, including tree removal, adjacent to the San Lorenzo River is scheduled to begin between March and late July to determine if nesting birds are in the vicinity of the construction sites. If nesting raptors or other nesting species protected under the MBTA are found, construction may need to be delayed until late-August or after the wildlife biologist has determined the nest is no longer in use or unless a suitable construction buffer zone can be identified by the biologist. (Citywide Creeks and Wetlands Management Plan Standard 12).





4.4 CULTURAL AND TRIBAL CULTURAL RESOURCES

This section analyzes impacts of the proposed project on cultural resources based on a review of existing city plans. 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 (City of Santa Cruz, April 2012, DEIR volume).

This section draws from the City of Santa Cruz *General Plan 2030* EIR (SCH#2009032007), which was certified on June 26, 2012, regarding background information on cultural resources within the City. The General Plan EIR is incorporated by reference in accordance with section 15150 of the State CEQA Guidelines. Relevant discussions are summarized in subsection 4.4.1. The General Plan EIR is available for review at the City of Santa Cruz Planning and Community Development Department (809 Center Street, Room 107, Santa Cruz, California) during business hours: Monday through Thursday, 8 AM to 12 PM and 1 PM to 5 PM. The General Plan EIR is also available online on the City's website at:

http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/general-plan.

Public and agency comments related to visual impacts were received during the public scoping period in response to the Notice of Preparation (NOP). Issues raised in these comments include:

Concern regard	ing potential	degradation	of the historic district.	

Concern regarding displace	ement and/o	r loss of	organizations	supporting	arts	and	local
cultural events.							

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. The concern regarding possible displacement of organizations that support arts, music, dance and other cultural programs is not an environmental issue pursuant to CEQA. Public comments received during the public scoping period are included in Appendix B.

4.4.1 Environmental Setting

Regulatory Setting

The following overview of prehistory and history is summarized from the General Plan 2030 EIR (pages 4.9-2 - 4.9-5), which is incorporated by reference.

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.

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. They are places where nationally significant historical events occurred, that are associated with prominent Americans that represent pivotal ideas that shaped the nation, that teach Americans about their ancient past, or that are premier examples of design or construction.

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 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).

In addition to meeting these criteria, the California Register requires that sufficient time must have passes to allow for scholarly perspective, which is generally 50 years 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." 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. Senate Bill 18 (SB 18; Government Code Sections 65352.3, 65352.4) requires that prior to the adoption or amendment of a general plan proposed on or after March 1, 2005, a city or county must consult with Native American tribes with respect to the possible preservation of, or the mitigation of impacts to, specified Native American places, features, and objects located within that jurisdiction. The project requires an amendment to the City's General Plan and the City has complied with the requirements of SB 18.

Assembly Bill 52 (AB 52) went into effect July 1, 2015, and requires lead agencies to consult with all California Native American tribes that have requested formal consultation at the onset of a project, or when a NOP is released. AB 52 also establishes a new class of resources to be evaluated – Tribal Cultural Resources.

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.

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." Unauthorized disturbance or removal is a misdemeanor.

California Environmental Quality Act. State CEQA Guidelines Section 15064.5 defines a "historical resource." If a 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)).

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).

Study Area

The project area consists of the downtown area generally covered by the Downtown Recovery Plan (DRP) and the Central Business District zone, and specifically the lower downtown area generally between Soquel Avenue and Laurel Street on the north and south, and Cedar Street and the San Lorenzo River on the west and east. (Locations are shown on Figures 1-2 and 2-1 in Section 3, Project Description.) The proposed project includes an amendment to the land use designation text for the downtown portion of Regional Visitor Commercial land use designation. The study area includes properties adjacent to the western San Lorenzo River levee.

Historical Background

The following overview is summarized from the General Plan 2030 Draft EIR (pages 4.9-6-4.9-16), which is incorporated by reference. (For details on the prehistory and history of the area see pages 4.9-6-4.9-9.)

Archaeological Resources

Archaeological Resources

A total of 27 documented archaeological sites have been identified within the City's 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 (City of Santa Cruz, April 2012, DEIR volume). 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) sacred lands file did not list cultural resources in the City (Ibid.).

According to maps included in the General Plan EIR (Figure 4.9-1) and included in the General Plan, all of the project study area is identified as being within a "sensitive" archaeological area in which exemptions to archaeological investigations may apply for specified types of projects. This designation applies to parcels that do not have recorded archaeological sites, but are located within sensitive areas based on review and analysis conducted for the General Plan 2030.

State Assembly Bill 52, effective July 1, 2015, recognizes that California Native American prehistoric, historic, archaeological, cultural, and sacred places are essential elements in tribal cultural traditions, heritages, and identities. The law establishes a new category of resources in the California Environmental Quality Act called "tribal cultural resources" that considers the tribal cultural values in addition to the scientific and archaeological values when determining impacts and mitigation. Public Resources Code section 21074 defines a "tribal cultural resource" as either:

- (1) Sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Nature American tribe that is either listed, or determined to be eligible for listing, on the national, state, or local register of historic resources, or
- (2) A resource determined by the lead agency chooses, in its discretion and supported by substantial evidence, to treat as a tribal cultural resource.

The California Public Resources Code section 21084.2 now establishes that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." The Public Resources Code requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project.

Native American Consultation

To date, the City has not been contacted by Native American tribes requesting notification of projects.

Prior to the adoption or amendment of a general plan, 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.

On behalf of the City of Santa Cruz, Dudek contacted Native American tribes and tribal organizations pursuant to the requirements of California Government Code Section 65352.3 (implementation of Senate Bill 18) as part of the preparation of this EIR. On May 24, 2017, a letter was sent to the Native American Heritage Commission (NAHC) in Sacramento requesting a Senate Bill 18 consultation list. NAHC responded that the NAHC Sacred Lands File was completed for the project area, and none were identified. Letters were sent 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. No responses to this notification have been received by the City.

Historic Archaeological Resources

Most of the City has the potential to contain historical archaeological deposits. However, 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.

Historic development trends affect whether historical archeological deposits may be present. 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. The second period began in 1848 when California was ceded to the United States under the Treaty of Guadalupe Hidalgo.

According to maps included in the General Plan EIR (Figure 4.9-2) and included in the General Plan, all of the project study area is identified as being within a "sensitive" historical archaeological area the area that was associated with the American Period of development with the area along Ocean Street also associated with the Mission Period. Within this designation, exemptions to archaeological investigations may apply for specified types of projects. One area at Front and Cathcart Streets is identified as a highly sensitive historical archaeological area.

Historic 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.

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).

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. There are two existing 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 (City of Santa Cruz, April 2012, DEIR volume). While a portion of downtown is located within the Downtown Neighborhood historic district, the project study that is subject to Additional Height Zones is not located within this district.

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 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, Santa Cruz Historic Building Survey Volume III).

In 1989, Volume II of the City Historic Building Survey was produced, which catalogues a total of 330 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 250 of properties in Volume II of the Survey have been listed officially as historic resources (City of Santa Cruz, Santa Cruz Historic Building Survey Volume II). Additionally, as part of the development of Volume II, some of the properties were removed from the master list of historic properties because of demolition that occurred due to damage from the Loma Prieta Earthquake.

In 2013, Volume III of the City Historic Building survey was completed. Volume III of the Survey was prepared for the City under the direction of Leslie Dill, historic architect. The prior survey volumes were used as a framework, and the Historic Context Statement (City of Santa Cruz, 2000) as the guide, in helping identify properties that are worthy of consideration for inclusion in the City's list of historic resources. The Historic Context Statement for the City of Santa Cruz prepared by historian Susan Lehmann describes three themes for understanding the historic development of Santa Cruz: economic development from 1850 to 1950; residential, commercial and institutional architecture from 1850 to 1950; and institutions from 1850 to 1950. Volume III of the survey applies these themes to specific neighborhoods.

The establishment of the California Register of Historical Resources in 1993, and the adoption of guidelines to the California Environmental Quality Act in 1999 that pertain to historic resources, has resulted in a more rigorous framework for the identification and evaluation of historic properties by local jurisdictions. The methods for conducting surveys are specified in National Register Bulletin 24, Guidelines for Local Surveys: a Basis for Preservation Planning. The Secretary of the Interior, through the National Park Service, has developed the National Register program and prepared a number of associated bulletins that address the study and registration of the full range of cultural resources that community planners may encounter. Surveys were prepared consistent with the Secretary of Interior's Standards for Identification.

The City of Santa Cruz has adopted criteria under Municipal Code Section 24.12.440 for listing properties as historic resources. The property can be a building, site, or object, and to be considered, must meet one seven criteria. A historic district must meet two additional criteria. These criteria were also used in the preparation of the surveys.

In 2013, approximately 150 properties were considered, photographed, and given consideration for further research and evaluation. At the direction of City Council an opt-out option was provided for property owners. Of the 139 properties approved by City Council to be included in the Historic Building List, 55 property owners chose to opt-out.

Currently, 623 buildings (569 from Survey I/II and 54 from Survey III), 27 walls, stairways, steps or curbs, as well as 5 hitching posts, hitching rails or mounting blocks are listed in the City's Historic 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 24 designated landmarks in the City. Fourteen properties are listed on the National Register of Historic Places and the following three sites are listed in the California Historical Landmarks: Site of Mission Santa Cruz, Site of Center of Villa Branciforte and the Santa Cruz Beach Boardwalk.

The following locally listed structures are located within the project study area:

112 Elm Street (Survey I/II)
117 Elm Street (Survey I/II)
418 Front Street (Survey III)
428 Front Street (Survey III)
429 Front Street (Survey III)
514-518 Front Street (Survey III)
216 Laurel Street (Survey I/II)
115 Maple Street (Survey I/II)
811 Pacific Avenue (Survey I/II)
1120-1126 Pacific Avenue (Survey I/II)
1132 Pacific Avenue (Survey I/II)
1134 Pacific Avenue (Survey I/II)

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 (City of Santa Cruz, April 2012, DEIR volume).

As shown on Figure 4.9-5 of the General Plan (City of Santa Cruz, April 2012, DEIR volume), the project area is underlain with Holocene alluvium. 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 (City of Santa Cruz, April 2012, DEIR volume).

4.4.2 Impacts and Mitigation Measures

Thresholds of 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 Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 or to a unique archaeological resources to tribal cultural resources (see definitions below);
- 4b Disturb any human remains, including those interred outside of formal cemeteries;
- 4c 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);
- 4d Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- 4e Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or b) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

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)).

CEQA (Public Resources Code section 21974) defines a "tribal cultural resource" as either of the following:

- (1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
 - (A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
 - (B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
- (2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1.

State CEQA Guidelines Section 15064.5 defines a historical resource as:

California Register of Historical Resources, including:

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 CaliforniaGenerally, 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

☐ A resource listed in, or determined to be eligible for listing in, the California

- 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).

Analytical Method

The proposed project consists of amendments to the City's Downtown Recovery Plan, General Plan, Local Coastal Plan and Zoning Code regarding development in the downtown area and Central Business District. The proposed project would not directly result in new development. However, the proposed Downtown Plan amendment would expand areas for potential additional building height that could accommodate intensified redevelopment of existing developed sites. The proposed General Plan amendment would increase FAR in downtown areas designated as RVC in the General Plan. The proposed LCP and Zoning Code amendments would not result in changes that could indirectly lead to intensified development. The following impact analyses is based on review of existing data and studies. The analyses are based on review of existing studies and City requirements for evaluation of cultural resources.

Impacts and Mitigation Measures

The following impact analyses address potential impacts to archeological and tribal cultural resources (4a, 4b, 4e), historic resources (4c), and paleontological resources (4d).

Impact 4.4-1: Archaeological and Tribal Cultural Resources. Future development accommodated by the proposed plan amendments could result to impacts to archaeological, historical archaeological, human remains, and/or tribal cultural resources. However, City requirements for cultural resource investigations would ensure that future development projects assess and mitigate potential impacts (4a, 4b, 4e). This is a *less-than-significant* impact.

The proposed project would not result in new development, but could result in intensified development in the project study area. Potential redevelopment of existing properties could occur without the proposed project. The City's General Plan includes a policy that requires preparation of archaeological investigations for any project located within a sensitive

archaeological area (HA1.2.2). The investigation must include archival research, site surveys and necessary supplemental testing as may be required, conducted by a qualified archaeologist, and the significance of identified resources shall be ascertained in accordance with CEQA definitions. The measure requires that the report identify significant impacts and outline mitigation measures 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. This General Plan Action also allows exemption for minor project that generally involve spot excavation to a depth of 12 inches or less below existing grade. Exempt projects may include: building additions, outdoor decks, or excavation in soil that can be documented as previously disturbed.

Additionally, the City's accidental discovery procedures (Municipal Code Section 24.12.430) would also apply to properties in the study area in the event construction encounters 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.

Future development projects within sensitive archaeological areas are required to prepare these investigations prior to project approval, and any recommendations are included as Conditions of Approval. Therefore, the City's policies and regulations ensure that archaeological and tribal cultural resources are addressed and mitigated as part of further development proposals. Thus, the project would not indirectly lead to potentially significant impacts. Additionally, it is noted that redevelopment of properties in the study area could occur without the proposed project.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact 4.4-2: Historic Resources. Future development accommodated by the proposed plan amendments could result in impacts to historical resources (4c), however, site-specific redevelopment could occur under existing conditions without the proposed plan amendments (4c). Therefore, this is a *less-than-significant* impact.

The proposed project would not result in new development, but could result in intensified development in the project study area with future development. Potential redevelopment of existing properties could occur without the proposed project. There are 12 structures within the study area that are listed in the City's Historic Building Survey, and may be considered a historic resource. Future development projects would be subject to conducting historical evaluations to determine whether the structure is a historic resource that could be significantly impacted under the definition of CEQA. If a significant impact is identified, appropriate mitigation measures would be required and/or a project-specific CEQA review to consider substantial alteration or

demolition of a historic resource that would substantially and materially alter the significance of the resource. Since redevelopment of properties could occur without the proposed project, the proposed amendments would not lead to development that might not otherwise occur, but only allow for some intensification of development. Therefore, the proposed project would not result in new impacts.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact 4.4-3: Paleontological Resources. Future development accommodated by the proposed plan amendments could result to impacts to unknown paleontological resources discovered during construction. However, adherence to City procedures would not result in significant impacts (4d). Therefore, this is a *less-than-significant* impact.

According to maps developed for the City's *General Plan 2030* and included in the General Plan EIR, the project study area is mapped as Holocene Alluvium geologic formation. Although this formation is generally considered too young to contain paleontological resources, it is considered moderately sensitive for paleontological resources because it is underlain by sedimentary geologic units that have a high paleontological sensitivity (City of Santa Cruz, April 2012, DEIR volume). The General Plan Action HA1.2.3 requires the City to 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 would require 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

Therefore, the City's policies ensure that paleontological resources are addressed and mitigated as part of further development proposals. Thus, the project would not indirectly lead to potentially significant impacts. Additionally, it is noted that redevelopment of properties in the study area could occur without the proposed project.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

4.5 HYDROLOGY AND WATER QUALITY

This section analyzes impacts of the proposed project related to hydrology and water quality based on a review of existing city plans and other exiting data. This section also draws from the City of Santa Cruz *General Plan 2030* EIR (SCH#2009032007), which was certified on June 26, 2012, regarding background information on regulatory setting and surface and groundwater hydrology. The General Plan EIR is incorporated by reference in accordance with section 15150 of the State CEQA Guidelines. Relevant discussions are summarized in subsection 4.3.1. The General Plan EIR is available for review at the City of Santa Cruz Planning and Community Development Department (809 Center Street, Room 107, Santa Cruz, California) during business hours: Monday through Thursday, 8 AM to 12 PM and 1 PM to 5 PM. The General Plan EIR is also available online on the City's website at:

http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/general-plan.

Public and agency comments related to hydrology and water quality were received during the public scoping period in response to the Notice of Preparation (NOP). Issues raised in these comments include:

- ☐ Potential risks of flood hazards, impacts from flooding and requirements for buildings to be elevated if located within a floodplain.
- ☐ Use of Low Impact Development Best Management Practices and standards should be evaluated in the EIR to reduce or eliminate runoff and pollution discharges into the River.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. Public comments received during the public scoping period are included in Appendix B.

4.5.1 Environmental Setting

Regulatory Setting

The following overview summarizes key regulations regarding hydrology and water quality. See the General Plan 2030 EIR (DEIR volume, pages 4.7-1 - 4.7-5), which is incorporated by reference, for further discussion on regulations.

Federal and State Regulations

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.

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management. The Clean Water Act of 1972 (CWA, codified at 33 United States Code Sections 1251-1376) is the primary federal law that 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. Section 404 of the CWA requires a permit for the discharge of dredged fill material into navigable waters at specified disposal site. 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). Various elements of the CWA address water quality, and they are discussed below.

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 of 1969, codified in Division 7 of the California Water Code). Under the Act, the State must adopt water quality policies, plans, and objectives that protect the State's waters for the use and enjoyment of the people. Such "waters of the State" include streams, groundwater, isolated wetlands, and other bodies of water that are not under federal jurisdiction as "waters of the United States" (under the Clean Water Act). The Act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update water quality control plans (Basin Plans). Basin Plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The Act also requires waste dischargers to notify the RWQCBs of their activities through the filing of Reports of Waste Discharge (RWD) and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), National Pollutant Discharge Elimination System (NPDES) permits, Section 401 water quality certifications, or other approvals.

Urban runoff and other "non-point source" discharges are regulated by the 1972 Federal Clean Water Act (CWA), through the National Pollutant Discharge Elimination System (NPDES) permit program that has been implemented in two phases through the California Regional Water Quality Control Boards (RWQCB). Phase I regulations, effective since 1990, require NPDES

permits for stormwater discharges for certain specific industrial facilities and construction activities, and for municipalities with a population size greater than 100,000. Phase II regulations expand the NPDES program to include all municipalities with urbanized areas and municipalities with a population size greater than 10,000 and a population density greater than 1,000 persons per square mile. Phase II regulations also expand the NPDES program to include construction sites of one to five acres (City of Santa Cruz, April 2012, DEIR volume).

Construction activity on projects that disturb one or more acres of soil must obtain coverage under the State's 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. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must list best management practices (BMPs) that the discharger will use to protect stormwater runoff and the placement of those BMPs.

Local Regulations

Stormwater Management Program. The City of Santa Cruz (City) has developed a Storm Water Management Program (SWMP) in order to fulfill the requirements of 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's comprehensive SWMP is designed to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP) and to protect water quality (City of Santa Cruz, April 2012, DEIR volume).

In 1998, the City of Santa Cruz adopted an ordinance for "Storm Water and Urban Runoff Pollution Control" (Chapter 16.19 of the city's Municipal Code) as part of its Storm Water Management Program in accordance with the RWQCB's requirements. The ordinance identifies prohibited discharges and required Best Management Practices (BMPs) for construction and new development.

As indicated above, construction activity on projects that disturb one or more acres of soil must obtain coverage under the State's General Permit for Discharges of Storm Water Associated with preparation and implementation of a SWPPP and BMPS to protect water quality during construction. The proposed project would result in grading and development that would disturb over one acre, and thus, the project would be subject to preparing a SWPPP. The City's regulatory requirements and BMPs, as detailed in the "Stormwater Best Management Practices Manual" published by the City's Public Works Department, must be implemented.

The project is subject to the Central Coast Post-Construction Requirements that were enacted by the CCRWQCB in July 2013. Based on the amount of impervious area created by the project, which is greater than 22,500 SF, the project has to meet Tiers 1 thru 4 (Site Design, Water Quality Treatment, Runoff Retention and Peak Flow Management).

Municipal Code Requirements. The Zoning Ordinance, Title 24 of the Municipal Code, currently contains provisions to ensure that new development is 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. Section 24.14.050 requires 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.

Section 24.14.060 requires preparation and implementation of an erosion control plan for all projects within or adjacent to an erosion hazard area and for development proposals located on slopes in excess of 10 percent. The section sets forth the requirements for the plan.

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. Section 18.45.110 also provides erosion control requirements for cut/fill slopes in addition to the requirements outlined in Section 24.14.060.

Study Area

The project area consists of the downtown area generally covered by the Downtown Recovery Plan (DRP) and the Central Business District zone, and specifically the lower downtown area generally between Soquel Avenue and Laurel Street on the north and south, and Cedar Street and the San Lorenzo River on the west and east. (Locations are shown on Figures 1-2 and 2-1 in Section 3, Project Description.) The study area includes properties adjacent to the western San Lorenzo River levee. Since the proposed project includes an amendment to the land use designation text for the Regional Visitor Commercial land use designation, the study area also includes downtown lands located within this designation.

Regional Hydrological Setting

The City of Santa Cruz encompasses approximately 12 square miles between the Monterey Bay and the Santa Cruz Mountains and lies on a narrow coastal plain at the mouth of the San Lorenzo

River. A total of 39 miles of watercourses occur within the City (City of Santa Cruz, April 2012, DEIR volume).

The San Lorenzo River originates in the Santa Cruz Mountains and is the largest drainage in the region. The river flows southward from the Santa Cruz Mountains, traverses through the center of the City, and forms a major physical feature of the region. The downtown area of the City of Santa Cruz is situated on the floodplain of the lower San Lorenzo River.

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. The lower 2.5 miles (south of Highway 1) are channelized in a levee flood control project developed in cooperation with the U.S. Army Corps of Engineers (ACOE) in the late 1950s (City of Santa Cruz, April 2012, DEIR volume). Significant flood improvements along the river were completed in 2000 as part of the ACOE's San Lorenzo River Flood Control and Environmental Restoration Project. This project raised the river levee heights, provided landscaping and improved the pedestrian/bicycle path on the levee, and rehabilitated three of the four downtown bridges (over the San Lorenzo River) to increase flood flow capacity. The habitat enhancement efforts focused on the landside of the levees in the study area which were landscaped with native trees, shrubs, and groundcover.

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 (City of Santa Cruz, April 2012, DEIR volume).

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 (City of Santa Cruz, April 2012, DEIR volume).

State and federal storm water regulations require development and remodeling projects to incorporate design standards BMPs in order to reduce pollutant and storm water discharges to the Maximum Extent Practicable. All future development projects will be subject to the City's mandatory BMPs, including the use of Low Impact Development (LID). LID is a site design approach that uses techniques to slow and infiltrate storm water, mimicking the natural, predevelopment hydrology. LID design strategies can be applied to most new or redevelopment projects to meet storm water regulations, reduce downstream flooding and protect natural resources (City of Santa Cruz (City of Santa Cruz, 2014).

The project study areas are primarily located with "Urban Sustainability Areas" defined in the City's BMP Manuals. These areas encompass the City's business centers and primary transportation corridors where the City's General Plan 2030 vision is to promote "Smart Growth" concepts of high density mixed-use development. Certain exemptions to stormwater retention requirements are allowed for high-density projects that meet specified requirements.

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, April 2012, DEIR to treat stormwater runoff in compliance with federal and state laws.

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 (Ibid.). As previously indicated, the City's SWMP is a comprehensive program to reduce the amount of pollutants discharged in urban runoff and to improve and protect water quality that includes requirements for stormwater treatment in development projects in accordance with the federal state requirements.

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, one of which is the San Lorenzo River. The San Lorenzo River is listed for: sediment, nutrients and pathogens. The City's SWMP addresses the primary pollutants of concern through City measures and BMPs to the Maximum Extent Practicable.

Flood Hazards

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 2013).

The City of Santa Cruz Climate Adaptation Plan considers flooding and severe coastal storms to be a considerable, potential risk to the city and its residents. Intense, increased rainfall may lead

to larger flood flows. Noted in the CAP are the potential for greater storm surges, wind speeds and resultant coastal erosion. These events are predicted to occur more frequently due to climate change impacts, including the impacts from sea level rise (City of Santa Cruz, 2013).

Flood Hazards

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.

The downtown area and a portion of the beach area are located within the 100-year floodplain of the San Lorenzo River. 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. 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 (City of Santa Cruz, 2013).

The City of Santa Cruz has worked to improve the flood capacity of the San Lorenzo River levees over the past twenty years. In 2002, 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 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 (City of Santa Cruz, 2013).

The City's adopted "Local Hazard Mitigation Plan, 2012-2017" includes measures that the City intends to implement in response to flood hazards. The City addresses land use within the flood plain in the General Plan as well as actively enforcing building and zoning codes, and other land use regulations concerning development within the 100-year flood plain. The City will continue to work with FEMA and the Army Corps of Engineers to minimize impacts of flooding in Santa Cruz.

High Tide intrusion into the San Lorenzo River and Downtown. The downtown area is situated on the San Lorenzo River floodplain that is underlain by permeable sands and gravels so that the groundwater level beneath the City is essentially the same as the river level. During high tides, and when the San Lorenzo River has been dammed by the sand bar that typically forms across the river mouth in mid- to late summer, the impounded water level rises, at times extending upstream as far as the Highway One bridge. There appears to be a direct connection between the elevation of the water table and the level of the San Lorenzo River. The resulting elevated water table historically led to ground water seeping into the basements of the downtown buildings, resulting in the need for pumping and dewatering during construction. The City Public Works Department pumps ground water as much as 15 hours a day from beneath the

Locust Street parking garage when the river backs up in the summer months (Griggs, Haddad, January 2011).

Due to sediment accumulation in the San Lorenzo River flood control channel, many of the gravity outlets that were constructed to carry water from the low lying areas next to the levees back into the river began to be covered over years ago. The City has replaced flap gates with these new valves on the San Lorenzo River.

Tsunami Hazards

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. 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, although there has been minimal damage and loss of life in Santa Cruz during recorded history (City of Santa Cruz, 2013). 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. The National Oceanic and Atmospheric Administration operates a tsunami warning system, giving several hours' notice to allow evacuation of threatened areas to prevent injuries.

There are two primary types of tsunami vulnerability in Santa Cruz. The first is a distant source tsunami from elsewhere in the Pacific Ocean. This type of tsunami is capable of causing significant destruction in Santa Cruz. However, this type of tsunami would usually allow time for the Tsunami Warning System for the Pacific Ocean to warn at risk and threatened coastal areas in time for evacuation (City of Santa Cruz, 2013). The more vulnerable risk to the City of Santa Cruz is a tsunami generated as the result of an earthquake along one of the many earthquake faults in the region. A local source tsunami generated by an earthquake on any of the faults affecting Santa Cruz would arrive just minutes after the initial shock. The lack of warning time from such a nearby event would result in higher causalities than if it were a distant tsunami (Ibid.). The City's mitigation strategy includes continuation of an up-to-date Emergency Operations Plan, an effective public information program and continuing collaborative efforts with the County, other Cities, agencies and community organizations to facilitate collaborative efforts in providing up-to-date tsunami mapping, preparation, information, warning dissemination and education.

According to maps prepared for the *General Plan 2030* and included in the General Plan EIR, the downtown and beach areas are located within a potential tsunami inundation area, as are most of the downtown and beach areas of Santa Cruz (City of Santa Cruz, April 2012, DEIR volume-Figure 4.7-2).

Sea Level Rise Hazards

The rise in global sea level is attributed to the thermal expansion of ocean water and the melting of mountain glaciers and ice sheets around the globe. Sea level rise will result in direct and indirect impacts including increased risk of flooding, storm surges and inundations, erosion, and shoreline retreat. Average global sea level has risen between five to nine inches during the 20th century as reported by the International Panel on Climate Change (IPCC), nearly one-tenth of an inch each year (California Environmental Protection Agency, August 2013). Along California's coast, sea level already has risen by an average of seven inches over the last century – three inches at Los Angeles, eight inches at San Francisco, and an estimated six inches at La Jolla near San Diego (Ibid.).

Although sea level rise is not a new phenomenon, having been a major natural component of coastal change throughout time, the current concern is that with increased global warming and melting of ice sheets on Greenland and West Antarctica, the rate of change may increase. The "State of California Sea-Level Rise Guidance Document" (March 2013) provides guidance for incorporating sea-level rise projections into planning and projects in California in response to Governor Schwarzenegger's Executive Order S-13-08, issued on November 14, 2008 that directed state agencies to plan for sea level rise and coastal impacts. According to this document¹, sea level rise is projected (using the year 2000 as a baseline) as: 0.13-0.98 feet between 2000 and 2030; 0.39-2.0 feet between 2000-2050; and 1.38-5.48 feet between 2000 and 2100 (see Table 4.5-1). Impacts of sea level rise in California include flooding and inundation, increased coastal erosion, changes in sediment supply and movement, and saltwater intrusion to varying degrees along the California coast (California Coastal Commission, August 2015).

Portions of downtown and beach areas have been mapped as being within areas of sea level rise. As sea level continues to rise, seawater could extend farther upstream in the San Lorenzo River flood control channel more frequently, and rising gradually to higher elevations. This would lead to a rise in the water table beneath downtown, likely resulting in the need for more pumping and implementation of other adaptation strategies (Griggs, Haddad, January 2011).

In response to impacts of climate change, including rising sea levels, the City has prepared a "Climate Adaptation Plan" with funding from FEMA. 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 potential risks were identified in a "Vulnerability Study", prepared as a collaborative effort between the City's Adaptation Team and

Downtown Plan Amendments

9711.0003

¹ The State of California supported the preparation of the 2012 National Research Council's Report, Sea-Level Rise for the Coasts of California, Oregon and Washington: Past, Present, and Future, which is currently considered the best available science on sea level rise for California (California Coastal Commission, August 2015). This is estimate is current reference by California: a) March 2013-"State of California Sea Level Rise Document"; b) August 2013-"Indicators of Climate Change in California"; and c) August 2015-"California Coastal Sea Level Rise Policy Guidance."

University of California (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, Haddad, January 2011). The study also addressed coastal storm and cliff erosions hazards, as well as the potential for increased precipitation and flooding.

TABLE 4.5-1: Sea Level Rise Projections for California

TIME PERIOD	NORTH OF CAPE MENDOCINO	SOUTH OF CAPE MENDOCINO
By 2030	2 – 9 in	2 – 12 in
	(-4 – +23 cm)	(4 – 30 cm)
By 2050	-1 – 19 in	5 – 24 in
	(-3 – + 48 cm)	(12 – 61 cm)
By 2100	4 – 56 in	17 – 66 in
	(10 – 143 cm)	(42 – 167 cm)

SOURCE: National Research Council, 2012 as cited in State of California Sea Level Rise Document, 2013

Based on the Vulnerability Study, the Climate Adaptation Plan identifies 41 priorities and actions to respond to specific risks and hazards related to climate change. Priority actions include #A-9 to protect downtown and the beach area from San Lorenzo River flooding. Activities under consideration for this priority action include evaluation of levees and/or dredging the river to improve water flow. Climate change mitigation and adaptation planning also was identified as a critical action item in the City's Local Hazard Mitigation Plan. FEMA reviews and approves LHMPs and requires an update on a five-year cycle.

4.5.2 **Impacts and Mitigation Measures**

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 Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river in a manner that could result in substantial off-site erosion or siltation;
- 5b Substantially increase the rate or amount of surface runoff, which would exceed capacity of existing or planned storm drain facilities, cause downstream or off-site drainage problems, or increase the risk or severity of flooding in downstream areas;
- 5c Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality;
- 5d 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;
- 5e Locate structures within a 100-year flood hazard area that would impede or redirect flood flows;
- 5f 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;
- 5g Expose people or structures to a significant risk of loss, injury or death as a result in inundation by seiche, tsunami, or mudflow.

Analytical Method

The proposed project consists of amendments to the City's Downtown Recovery Plan, General Plan, Local Coastal Plan and Zoning Code regarding development in the downtown area and Central Business District. The proposed project would not directly result in new development. However, the proposed Downtown Plan amendment would expand areas for potential additional building height that could accommodate intensified redevelopment of existing developed sites. The proposed General Plan amendment would increase FAR in areas designated as RVC in the General Plan, but would not lead to development on sites not already considered in the General Plan and General Plan EIR. The proposed LCP and Zoning Code amendments would not result in changes that could indirectly lead to intensified development. The following impact analyses are based on review of existing data and studies.

Impacts and Mitigation Measures

The following impact analyses address potential stormwater impacts (5a, 5b), water quality impacts (5c), and exposure to flood (5d-f) or tsunami (5g) hazards.

Impact 4.5-1: Stormwater Drainage. Future development accommodated by the proposed plan amendments could result in stormwater runoff, but would not substantially alter the existing drainage pattern of the area, substantially increase the rate or amount of surface runoff, exceed the capacity of existing or planned storm drain facilities, cause downstream or off-site drainage problems, or increase the risk or severity of flooding in downstream areas (4a, 4b). This is considered a *less-than-significant impact*.

The proposed project would not directly result in new development, but could lead to intensified development in the project study area. The study area is currently developed or paved, and stormwater runoff would not be expected to substantially increase as the area already is developed with impervious surfaces. Stormwater runoff from future development sites would be conveyed to existing storm drainage facilities that ultimately discharge into the San Lorenzo River. Existing City regulations will serve to manage stormwater runoff from future development accommodated by the proposed Plan amendments. Additionally, General Plan policies and

actions require that new development maintain pre-development runoff levels (CC5.1.8). Therefore, the compliance with the City's stormwater regulations will required of future developments that may result from the proposed project. Thus, the project would not indirectly lead to potentially significant stormwater or drainage impacts. Additionally, it is noted that redevelopment of properties in the study area could occur without the proposed project.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact 4.5-2: Water Quality. Future development accommodated by the proposed plan amendments could result in water quality degradation to San Lorenzo River from automobile oils and greases carried in stormwater runoff. Project grading could also result in erosion and potential downstream sedimentation if not properly managed (4c). However, with compliance with City stormwater regulations and implementation of required controls, this is considered a *less-than-significant impact*.

As indicated in the Impact 4.5-1 discussion, the proposed project would not directly result in new development, but could lead to intensified development in the project study area. The study area is currently developed, and it is expected future development would include enclosed parking garages instead of paved lots. Future development projects will be required to comply with the City's stormwater regulations and required BMPs, which require pre-treatment of runoff. Compliance with City regulations, which were adopted pursuant to federal and state requirements, would include the required measures to protect water quality as determined at the project level, and the proposed project would not indirectly result in a substantial degradation of surface water quality.

Grading for future development projects will be subject to City approval of a grading permit, which includes an approved erosion control plan. For projects over one acre in size, preparation of a Stormwater Pollution Prevention Plan (SWPPP) also is required pursuant to the State's NPDES program. The purpose of a SWPPP is to identify sources of sediment and other pollutants that affect the quality of stormwater discharges and to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges. For projects over one acre in size, a Notice of Intent also is filed with the SWPPP to the RWQCB. The project will be subject to these requirements. Preparation and implementation of the SWPPP and required erosion control plan will ensure that future development projects would not cause any increase in sedimentation, turbidity, or hazardous material concentrations within downstream receiving waters.

With compliance with City stormwater regulations and BMPs, and implementation of SWPPP and erosion control plans as may be required, potential water quality degradation would be controlled, resulting in a less-than-significant impact.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact 4.5-3: Flood Hazards. Future development accommodated by the proposed plan amendments could result in exposure to flood hazards, including watercourse flooding, sea level rise or tsunami. (5d-g). However, with compliance with federal flood requirements and implementation of City plans and programs, the proposed project would not lead to indirect impacts related to exposure to flood hazards (5d-g). This is considered a *less-than-significant impact*.

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. As sea level continues to rise, seawater could extend farther upstream in the San Lorenzo River flood control channel more frequently, and rising gradually to higher elevations. This would lead to a rise in the water table beneath downtown. This area of the City has always been vulnerable to an elevated water table but this will become a more significant issue in the future, likely resulting in the need for more pumping and implementation of other adaptation strategies (Griggs, Haddad, January 2011). Recommendations include continued monitoring of City pump stations along the San Lorenzo River with installation of additional monitoring wells and increase pumping capacity as necessary (Ibid.). The City's adopted Climate Adaptation Plan includes a high priority action to implement measures to protect downtown from flooding.

The proposed project would not lessen or worsen the potential for tsunami damage, although it would indirectly lead to intensified development with an increase in the number of people potentially exposed to a tsunami hazards. However, because dangerous tsunamis typically have originated at such a great distance, it is possible to issue fairly long-range warnings of their approach and evacuate people if necessary. Thus, the City's efforts to continue to periodically update its emergency evacuation procedures for tsunami hazard areas as well as coordination with other agencies as outlined in the City's adopted Hazard Mitigation Plan would respond to this concern.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

INTENTIONALLY LEFT BLANK

4.6 PUBLIC SERVICES

This section analyzes impacts of the proposed project on the following public services; water and wastewater utility service is addressed in section 4.8:

	Fire Protection Services
	Police Protection Services
	Parks and Recreation
	Schools
	Solid Waste Disposal
П	Energy – Electrical and Natural Gas Utilities

This section also draws from the City of Santa Cruz *General Plan 2030* EIR (SCH#2009032007), which was certified on June 26, 2012, regarding background information on regulatory setting. The General Plan EIR is incorporated by reference in accordance with section 15150 of the State CEQA Guidelines. Relevant discussions are summarized in subsection 4.3.1. The General Plan EIR is available for review at the City of Santa Cruz Planning and Community Development Department (809 Center Street, Room 107, Santa Cruz, California) during business hours: Monday through Thursday, 8 AM to 12 PM and 1 PM to 5 PM. The General Plan EIR is also available online on the City's website at:

http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/general-plan.

Public and agency comments were received during the public scoping period in response to the Notice of Preparation (NOP). No comments were received regarding public services. Public comments received during the public scoping period are included in Appendix B.

4.6.1 Environmental Setting

Regulatory Setting

There are a number of state laws and regulations governing the provision of specified services. These are discussed in the General Plan 2030 EIR (DEIR volume) on pages 4.6-1-4.6-2, 4.6-5-4.6-6, 4.6-20, 4.6-21-4.6-22, and 4.6-25, which is incorporated by reference. Key applicable regulations are summarized for each service in the following sections.

Study Area

The project area consists of the downtown area generally covered by the Downtown Recovery Plan (DRP) and the Central Business District zone, and specifically the lower downtown area generally between Soquel Avenue and Laurel Street on the north and south, and Cedar Street and the San Lorenzo River on the west and east. (Locations are shown on Figures 1-2 and 2-1 in

Section 3, Project Description.) The study area includes properties adjacent to the western San Lorenzo River levee.

Service providers include the City of Santa Cruz for all services, except for schools, which is provided by Santa Cruz City Schools.

Fire Protection Services

The City of Santa Cruz Fire Department is an all hazard emergency response and fire protection agency that serves the City, the University of California at Santa Cruz (UCSC), and participates in mutual aid responses within the County and State. The Fire Department also provides various contract services within the County. Agreements include a long-term contract for full fire protection services with UCSC, specialized arrangements for seasonal lifeguards with the City of Capitola and the Santa Cruz Port District, and an automatic aid agreement with County Fire/CalFire into Paradise Park. The City of Santa Cruz Fire Department maintains mutual aid agreements with all surrounding fire agencies to provide, and receive, aid on an as needed basis. The department is also a participant in the California Fire Assistance Agreement (CFAA) which allows for statewide mutual aid..

The Fire Department provides a variety of services which include fire protection, marine rescue, technical rope/cliff rescue, advanced life support/paramedic, and hazardous materials emergency response. In addition, the department serves the community through a wide array of non-emergency interactions by providing fire prevention, community risk reduction, public education, disaster preparedness training, and ongoing emergency management preparation.

Existing Facilities and Operations

The City of Santa Cruz Fire Department operates out of four fire stations, including a station at the University of California at Santa Cruz, and houses its administrative functions at a separate office downtown. The Department also maintains a Marine Rescue Headquarters (Station Five) on the Municipal Wharf. The Department has seven fire engines, two fire trucks, and other related vehicles and.

The Fire Department has 66 staff, including 21 firefighters/paramedics, 15 fire engineers, 15 fire captains, 3 battalion chiefs, 1 training chief, 1 marine safety office, 1 marine safety captain, 1 fire prevention technician, 1 fire inspector, 1 deputy fire marshal, 1 PMA/OES manager, and 2 administrative staff. Additionally, the Fire Department utilizes 70 seasonal and 20 year-round part-time staff within the Marine Safety Division. Each shift has 18 assigned personnel. The Fire Department has a minimum staffing standard of 15 firefighters and one battalion chief on duty per day.

The number of service calls received by the fire department in 2016 was approximately 8,200 calls. The majority of the calls are for non-fire emergencies, with about 65% of the calls being for

medical assistance. Average response times from each of the four fire stations is approximately 5 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.

Fire Station #1 at 711 Center Street is within the downtown area and closest to the project area. Discussions with Fire Department staff indicate that the facility size in inadequate for equipment, personnel, and storage (Frawley, personal communication, May 2017). The Department does not have a Training Facility, the construction of which was 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) (City of Santa Cruz, April 2012, DEIR volume).

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, neighborhood enforcement team, gang unit, dive team, hostage negotiation team, tactical team and School Resource officer. 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' existing facility and vehicles are adequate for the existing population, although additional storage space is needed (Martinez, personal communication, May 2017). The Department is currently staffed by 94 authorized sworn officer positions and 28 non-sworn (civilian) positions, including four community service officers and three administrative staff (City of Santa Cruz Police Department, 2015). The Department plans to begin a study on staffing levels, starting in the summer of 2017 (Martinez, personal communication, May 2017).

With a finite amount of resources, the city is divided into five patrol beats that are designed to maximize coverage and provide efficient response to calls for service: West, East, Beach, Central, and Downtown (City of Santa Cruz Police Department, 2015). The Department has divided the City into five main beats, and handled 103,592 calls in 2015 (Ibid.). Approximately 40% of the annual calls are for service in the Downtown area 2017 (Martinez, personal communication, May 2017). 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.

9711.0003 July 2017 4.6 - 3

Parks and Recreation

Santa Cruz offers residents and visitors a wide range of parks, open space, beaches, trails, and recreational opportunities. The operates and maintains 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.

The City has responsibility for manages, maintains and operates more than 1,700 acres of parks and open space lands, including various community/recreational facilities. In addition to maintaining the existing park system, the City must develop new parks or add amenities within existing parks to meeting community recreational needs. The City also manages the Heritage Tree Program, Urban Forest Program, as well as maintains street and median landscaping within public rights-of-way. Within the City limits, open space and beaches are also provided on Stateowned lands, including three State Park units and the University of California campus.

The General Plan 2030 established per capita goals for neighborhood and community parks to ensure adequate parks throughout the City. The City's standard is provide neighborhood parks at a ratio of 2.0 acres per 1,000 people with a service radius of ½ mile. The City's goad for community parks is 2.5 acres per 1,000 people with a service radius of 1.5 miles. The City is currently underserved for neighborhood and community parks and requires a total of 57 acres to meet these goals (City of Santa Cruz, February 2017). The City is in the process of preparing a Parks Master Plan; a draft plan was released in February 2017.

There are several neighborhorhood and community parks within proximity to the downtown area. The Mimi de Marta Dog Park is located in the vicinity of the project area. In the project area, the San Lorenzo Riverwalk also provides opportunities for access and recreation. Public access is provided by a continuous paved pathway/service road on each side of the levee, extending approximately 2.5 miles on each levee from Highway 1 southward. A new pedestrian-bicycle path and bridge over Branciforte Creek is being constructed. The Riverwalk's multi-use paved trails not only promote connectivity to and from the project area, but also provide opportunities for running, walking, bicycling, or bird watching. According to the Draft Parks Master Plan,

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 riveroriented development, site specific recommendations for public areas along the river, and restoration recommendations. The SLURP provides recommendations for locations and designs of plazas, unpaved nature loops, interpretive signage and bird viewing locations. Lighting along

the Riverwalk and exercise equipment on the west side of the river south of Laurel Street were recently added. The existing Downtown Recovery Plan also identifies opportunities for public space within the downtown area to include areas along Cedar Street, near the Civic Center and along the San Lorenzo River.

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 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). Projects that have dedicated land or fees in accordance with Municipal Code Chapter 23.28 requirements for subdivisions are exempt from this tax.

Schools

Schools and educational services are provided to City residents by the Santa Cruz City Schools (SCCS), as well as a number of private schools, for grades K through 12. SCCS 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 in County locations including Davenport and Soquel. It includes six schools serving approximately 2,000 students. The second district includes two middle schools, three high schools, an independent studies program and a home school program serving a population of 4,660 students (Santa Cruz City Schools, 2017).

The proposed project would be served by SCCS schools including Westlake Elementary, Mission Hill Middle School, and Santa Cruz High School. The capacity of each school serving the project is provided in the City's General Plan EIR (City of Santa Cruz 2012). The SCCS study found that enrollment was under capacity and that enrollment is forecasted to decline over the next ten years (Decision Insite, 2016). The study incorporated current enrollment capacity, feeder district data, county birth rates and plans for new housing in the forecasting methodology.

Current enrollment data as reported by the State Department of Education was compared to capacity as reported in the City's General Plan, which is summarized on Table 4.6-1. The middle school and high school have enrollments that are under capacity based on data reported by the state (California Department of Education, 2017). However, Westlake Elementary is very close to capacity.

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. The Santa Cruz City Elementary and High School Districts currently charge school impact fees.

9711.0003 July 2017 4.6-5

TABLE 4.6-1: Scl	hool Capacities	and Enrollments
-------------------------	-----------------	-----------------

School	Capacity ¹	Current Enrollment
Westlake Elementary	604	569
Mission Hill Middle	690	594
Santa Cruz High	1,362	1,027
Total	2,656	2,190

Source: City of Santa Cruz 2012, Decision Insite, 2016 and California Department of Education, 2017.

1. As reported in the City's General Plan (City of Santa Cruz 2012).

Solid Waste 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, green waste 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 approximately 70 acres available for disposal use, and the City's RRF. 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.

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, but the lifespan has been increased through implementation of additional waste reduction measures (City of Santa Cruz, April 2012, DEIR volume).

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 (City of Santa Cruz, April 2012, DEIR volume).

The City of Santa Cruz 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 and the implementation of expanded curbside recycling programs. In the year 2000, the City established a Zero-Waste goal with the ultimate intention of eliminating the City's need for a landfill. As of

2015, the City had achieved a diversion rate of 65-68%, which exceeds the state requirements (City of Santa Cruz, April 2012, DEIR volume).

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 2056 (City of Santa Cruz, April 2012, DEIR volume). 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 around the year 2043.

Electrical and 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 (City of Santa Cruz, April 2012-DEIR volume). It currently provides service to approximately 16 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 106,681 circuit miles of electric distribution lines, 18,466 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, 2017).

The state's per capita electrical use has been the lowest or one of lowest of any state in the nation (California Energy Commission, 2017, U.S. Energy Information Administration, 2017). California is among the top states in the nation in net electricity generation from renewable resources. The state leads the nation in net electricity generation from solar, geothermal, and biomass. California is also a leading producer of electricity from conventional hydroelectric power and from wind, ranking fourth in the nation in both. In 2014, California became the first state in the nation to get more than 5% of its utility-scale electricity generation from its solar resource (U.S. Energy Information Administration, 2017). In 2015, California ranked fourth in the nation in conventional hydroelectric generation, second in net electricity generation from all other renewable energy resources, and first as a producer of electricity from biomass, geothermal, and solar energy (Ibid.).

In 2015, the latest year for which data are available, residential, commercial and industrial energy users in the City of Santa Cruz consumed about 245 million kilowatt-hours of electricity and about 12 million therms of natural gas from PG&E. PG&E's power mix in 2015 included 30% from renewable sources, 25% from natural gas, 23% from nuclear, 17% from unspecified sources and 6% large hydropower plants.

There are also over 2,000 residential solar PV systems and about 60 commercial solar PV systems that provide renewable electricity within the City. All residential, commercial, and industrial PG&E electricity accounts will be opted into Monterey Bay Community Power's (MBCP) community choice energy program in Spring 2018. At that time, switching the City's overall electricity procurement to MBCP will increase the proportion of electricity supplied from renewable sources from 30% (with PG&E) to 50% and eventually consumers may elect to pay a premium for electricity from 100% renewable sources.

In 2015, the latest year for which data are available, the City of Santa Cruz's municipal operations consumed about 14 million kilowatt-hours of electricity (~5.7% of overall City use) and about 433,000 therms of natural gas (~3.7% of overall City use). The power mix for municipal operations includes 43% natural gas (from PG&E), 29% electricity (from PG&E), 23% from methane capture and conversion to electricity at the wastewater treatment facility, and 5% solar PV. Methane capture and conversion to electricity and solar PV are considered renewable energy sources. The City plans to install solar PV to increase the proportion of overall energy use met by solar PV from 5% in 2016 to 11% by 2018 and 16% by 2020.

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, October 2012). 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.
- information 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 kilowatt hours (kWh) for municipalities; 17,697,292 kWh the hospitality industry; and 1,293,653 kWh for residential uses (City of Santa Cruz, April 2012, DEIR volume).

4.6.2 Impacts and Mitigation Measures

Thresholds of 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 Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- 6e Result in the wasteful or inefficient use of energy.

Analytical Method

The proposed project consists of amendments to the City's Downtown Recovery Plan, General Plan, Local Coastal Plan and Zoning Code regarding development in the downtown area and Central Business District. The proposed project would not directly result in new development. However, the proposed Downtown Plan amendment would expand areas for potential additional building height that could accommodate intensified redevelopment of existing developed sites. City staff estimates that the proposed amendments could indirectly lead to development, resulting in a potential net increase of 711 new residential units and 2,200 square feet of office space with a net decrease of approximately 14,700 square feet of commercial building space over existing conditions within the downtown area. The proposed General Plan amendment would increase FAR in downtown areas designated as RVC in the General Plan. The proposed LCP and Zoning Code amendments would not result in changes that could indirectly lead to intensified development. Future service demands and impacts resulting from the project are assessed based on review existing plans and consultation with staff of agencies responsible for provision of services addressed in this section.

Impacts and Mitigation Measures

The project does not include facilities or require construction or expansion of recreational facilities (6c). The following impact analyses address potential indirect impacts to public services (6a), neighborhood and community parks (6b), landfill capacity (6d), and energy usage (6e).

Impact 4.6-1a: Fire Protection. Adoption of the proposed plan amendments could indirectly result in increased population density associated with potential new development accommodated by the Plan that would result in increased fire protection and emergency service demands. Existing and future development and growth within the City would result in the need to construct new or expanded fire stations, however, the impacts of fire station construction or expansion are not expected to be significant (6a). Therefore this is considered is a *less-than-significant* impact

The proposed project would not directly result in new development, but could lead to intensified development in the project study area with an increased downtown population. According to the City's Fire Department, the existing downtown fire station is inadequate in terms of space and equipment to meet existing needs, which would be further impacted by development and growth that would be accommodated by the proposed project. Should expansion be proposed, it is likely that expanded or new fire facilities would be within developed downtown and/or eastside locations. Expansion or new construction would be considered infill development on sites surrounded by development. New development and growth accommodated by the draft plan would not reduce response times. However, existing and future growth would require new or physically altered fire protection facilities (Frawley, personal communication, May 2017), but

9711.0003 July 2017 4.6-10 locations for expansion or construction are within developed areas and are not expected to 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 of consolidating 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 are no significant impacts are expected to occur, as the site is within a developed urban area.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact 4.6-1b: Police Protection. Adoption of the proposed plan amendments 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 facilities (6a). This Therefore this is considered is a *less-than-significant* impact

The proposed project would not directly result in new development, but could lead to intensified development in the project study area with an increased downtown population. According to the City's Police Department, there are adequate police protection facilities to serve the potential development and growth accommodated by the proposed project and plan amendments. No additional equipment or facilities will be needed to maintain acceptable response times and service levels (Martinez, personal communication, May 2017). New development and growth accommodated by the proposed project would not reduce response times or require new or physically altered police protection facilities that could result in significant physical impacts (Ibid.). Furthermore, it is expected that the change in use and redevelopment will lead to a reduction in crime and calls for service in the project area (Ibid.).

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact 4.6-1c: Schools. Adoption of the proposed plan amendments could indirectly result in increased population associated with potential development that would generate elementary school student enrollments that could exceed capacity of existing schools (6a). This is considered is a *potentially significant* impact.

The proposed project would not directly result in new development, but could lead to intensified development in the project study area, resulting in increased student enrollments. To

9711.0003

determine whether the project would result in increased demand for school facilities, potential new enrollment as a result of the project was estimated using Census tract data for downtown Santa Cruz. Project school generation was then compared to existing enrollment and capacity.

American Community Survey 5-year Census data provides information on the number of households with children and enrollment. Based on data for the Census tract that contains the project, 11% of households have children and the average household size is 1.83 (American Community Survey 5-year 2011-2015 Table S1101). Census enrollment data shows that the split of enrollment between elementary, middle, and high school is 51%, 27%, and 23% respectively in this Census tract (American Community Survey 5-year 2011-2015 Table S1401). Given the small household size in the project area, it was assumed that households with children are likely to have one child. Applying this information to the project yields a result of 79 new children. It was assumed that all these children would be enrolled in school, which is a conservative assumption as some of these children would be below school-age. Using these assumptions and the Census data split for enrollment the project would generate 40 new elementary school students, 21 middle school students and 18 high school students.

Based on this approach, it is anticipated Santa Cruz High and Mission Hill Middle Schools would remain under capacity with the project. Westlake Elementary School may exceed capacity with the project as shown on Table 4.6-2. However, the development that may occur as a result of the proposed project plan amendments would occur over time; redevelopment of the study area is estimated to occur over 25+ years. School enrollment associated with future development also would increase over time.

TABLE 4.6-2: School Capacities & Projected Enrollments

School	Capacity ¹	Current Enrollment	Enrollment from Project	Percent Capacity with Project
Westlake Elementary	604	569	40	101 – 111%
Mission Hill Middle	690	594	21	89 – 98%
Santa Cruz High	1,362	1,027	18	77 – 92%
TOTAL ALL GRADES	2,656	2,190	79	

Source: City of Santa Cruz 2012, Decision Insite 2016, and California Department of Education 2017. **Notes:**

1. As reported in the City's General Plan (City of Santa Cruz 2012).

The General Plan 2030 (2012) 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 including 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 General Plan also encourages joint-use facilities that combine educational and community uses (CC8.2.1). SCCS staff indicated that enrollment resulting from growth accommodated by the City's General Plan 2030 could be accommodated within existing

9711.0003

school facilities, including using Natural Bridges Elementary School, if needed. Additionally, 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 project would not directly result in new development, but increased population resulting from development accommodated by the project could increase student enrollments in grades K-12, which could exceed existing school facility capacities at one school depending on the timing and rate of growth. 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.

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.

Impact 4.6-2: Parks and Recreation. Adoption of the proposed plan amendments could indirectly result in increased population associated with potential development that could be accommodated by the Plan that would result in increased demand for parks and recreational facilities that could result in some deterioration of existing parks and recreational facilities (6b). Therefore this is considered is a *potentially significant* impact.

The proposed project would not directly result in new development, but could lead to intensified development in the project study area, resulting in increased population and in increased demands for park and recreational facilities. Census data for the tract that contains the downtown project study area shows an average household size of 1.83 (American Community Survey 5-year 2011-2015, Table S1101). Based on this data the proposed project could indirectly result in an increase in the downtown residential population, which currently houses approximately 1,300 people. As previously discussed, the City currently does not meet the desired level of service for neighborhood and community parks and is deficient by approximately 57 acres. Thus, existing developed neighborhood parks could be considered at capacity use, in general, based on the City's park service standards. Based on the City's parks standards set forth in the General Plan, the indirect population that could result from the project would result in the need for approximately 4.5 acres of additional park land.

The proposed project consists of a series of plan amendments and no specific development projects are proposed at this time. At a program level, the City has embarked on the preparation of a Parks Master Plan to identify park needs and improvements. It is expected that this plan will be considered by the City Council in late 2017. Additionally, the City's 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. The policies, which are summarized on Table 4.6-3, 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 General Plan seeks to update and modify park system and park 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). While specific new park locations are not 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 plan also seeks to ensure that 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).

TABLE 4.6-3: General Plan 2030 Policies & Actions that Reduce Parks Impacts

Policies / Actions		
Provide & manage parks: PR1.1		
 Develop and maintain city Master Parks Plan: PR1.1.2, Pr1.1.4 (plan 		
for adequate parks and recreation facilities)		
 Level of Service standards: PR1.3, PR1.3.2, PR1.3.3 		
• Evaluate lands for small parks: PR1.1.3		
 Coordinate with schools to expand parks: PR1.2.1, PR1.2.3 		
Examine developing new or expanding existing athletic fields: PR1.2.2		
 Development park dedication or in-lieu fees: PR1.7, 1.7.1 		
 Maintain a Parks and Recreation Facilities excise tax on new 		
construction: PR1.9, PR1.9.1, PR1.9.2		
Acquire parcels that provide access to City-owned open space lands		
and coast: PR3.2		
• Ensure ongoing maintenance: PR1.3.4		
 Identify maintenance funding sources: PR1.10 		
 Protect & Manage open space: LU2.3 LU2.3.1, LU2.3.2, LU2.3.3, 		
LU2.3.4 (UCSC), LU3.11		
Greenbelt Management: LU2.3.3, LU3.11.3, NRC6.3		
 Assure access to open space lands and coast: PR1.6.5, PR3.1 		
Coastal access: PR3.2, PR3.3, PR3.3.5		
Access to river & riparian: NRC1.1, NRC1.1.2		
 Provide and maintain Integrated trail system: PR4.1, PR4.1.1 		
Provide and maintain trails in parks: PR4.2, PR4.2.1, PR4.2.2		
 Require development to dedicate trails or easements along planned trail routes: PR4.2.3 		

Downtown Plan Amendments

9711.0003

July 2017

Furthermore, 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). Projects that have dedicated land or fees in accordance with Municipal Code Chapter 23.28 requirements for subdivisions are exempt from this tax.

Mitigation Measures

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 4.6-2 and required payment of park fees, the proposed project's indirect impact on parks and recreational facilities would be considered lessthan-significant.

Impact 4.6-3: **Solid Waste.** Adoption of the proposed plan amendments could indirectly result in increased population associated with potential development that could be accommodated by the Plan, which could result in indirect generation of solid waste that could be accommodated within the remaining landfill capacity (6d). This Therefore this is considered is a less-than-significant impact.

The proposed project would not directly result in new development, but could lead to intensified development in the project study area, resulting in increased residential and employee population and that would result in increases in solid waste generation. This would be offset by an estimated decrease in existing commercial uses by approximately 14,000 square feet. The City's population is estimated to increase by approximately 1,300 residents as a result of the proposed plan amendments. No development projects are proposed at this time, but development indirectly accommodated by the proposed project is estimated by City staff to occur over 25 years. Thus, impacts to the City's landfill are not expected to be significant as the landfill has been estimated to have a remaining capacity through the year 2058 (City of Santa Cruz, April 2012, DEIR volume).

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact 4.6-4: **Energy Use.** Adoption of the proposed plan amendments could indirectly result in increased population associated with potential development that could be accommodated by the Plan, which could result in indirect increased energy demands, which would not be wasteful or an inefficient use of resources (6e). This is considered is a *less-than-significant* impact.

9711.0003 4.6-15 July 2017

Future development would be accommodated by the proposed Plan amendments could result in increased development with consumption of electricity and natural gas for 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 Section 4.2, Air Quality and Greenhouse Gas Emissions. The analysis indicates that residential and commercial uses that comply with the 2016 California Title 24 are 28% and 5% more efficient, respectively, than the 2013 Title 24, and energy efficiency will increase as older buildings are replaced.

Overall, the future consumption of electrical and natural gas resources would not represent unnecessary, inefficient, or wasteful use of resources given the ongoing implementation of the City's Climate Action Plan and General Plan 2030 policies that address lighting and energy conservation measures. Specifically, General Plan 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.

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.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

9711.0003 July 2017 4.6-16

4.7 TRAFFIC & TRANSPORTATION

This section analyzes traffic and transportation impacts of the proposed project based on the trip generation, distribution and level of service analyses prepared by Kimley-Horn (May 2017) that was reviewed by the City of Santa Cruz Public Works Department staff and consulting traffic engineer, Ron Marquez. A summary of the methodology is included in Appendix F of this document.

Public and agency comments related to traffic and transportation were received during the public scoping period in response to the Notice of Preparation (NOP). Issues raised in these comments include:

☐ Traffic should be considered in the EIR.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. Public comments received during the public scoping period are included in Appendix B.

4.7.1 Environmental Setting

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 transportation 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 address roadway and intersection improvements needed as a result of impacts of new development, the City has developed a "Traffic Impact Fee" (TIF) program. The TIF is applied to new development and redevelopment and is collected at the time of issuance of building permits (see discussion below in the "Planned Transportation Improvements" subsection for more details). The City also is active in acquiring transportation funding from federal, state, and local sources.

Other local and regional agencies responsible for transportation services and/or transportation planning are summarized below.

The Association of Monterey Bay Area Governments (AMBAG) is the federally designated Metropolitan Planning Organization (MPO) for transportation planning activities in the tri-county Monterey Bay region (Santa Cruz, Monterey and San Benito counties). 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 conducts regional transportation planning activities through its Metropolitan Transportation Plan (MTP), the Metropolitan Transportation Improvement Program

(MTIP), maintenance of a regional travel demand model and demographic forecasts. 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.

- □ The Santa Cruz Regional Transportation Commission (SCCRTC) is the State designated Regional Transportation Planning Authority (RTPA) for transportation planning activities in Santa Cruz County. SCCRTC oversees planning and funding programs for local and countywide 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 some City transportation projects are funded through grant programs administered by the SCCRTC.
- □ *The Santa Cruz Metropolitan Transit District* (SCMTD) provides transit services throughout Santa Cruz County.

Study Area

The project area consists of the downtown area generally covered by the Downtown Recovery Plan (DRP) and the Central Business District zone, and specifically the lower downtown area generally between Soquel Avenue and Laurel Street on the north and south, and Cedar Street and the San Lorenzo River on the west and east. (Locations are shown on Figures 1-2 and 2-1 in Section 3, Project Description.) The study area includes properties adjacent to the western San Lorenzo River levee.

Since the proposed project includes an amendment to the land use designation text for the Regional Visitor Commercial land use designation, the study area also includes lands located within this designation. In addition to the downtown area, the Regional Visitor Commercial (RVC) land use designation is applied to sites in the Beach area and upper Ocean Street adjacent.

The City's "Transportation Impact Study Guidelines" (2011), requires a traffic impact analyses to be conducted where a project would result in an increase of 50 or more trips during the weekday PM peak hour. In the City of Santa Cruz, the PM peak hour (between 4 PM and 6 PM) generally has the highest number of trips compared to the AM peak hour (between 7 AM and 9 AM) or the midday peak hour (City of Santa Cruz, April 2012-DEIR), and is considered the peak hour period for traffic impact studies in the City.

Based on the Transportation Impact Study Guidelines and the trip generation of the project, study intersections were selected for evaluation by the City Public Works Department and include those listed below. AM and PM peak traffic count data was collected on Thursday, May 22, 2014 and Tuesday November 17, by Kimley-Horn Associates.

- 1. Front Street / Laurel Street
- 2. Pacific Avenue / Laurel Street
- 3. Front Street / Cathcart Street
- 4. Front Street / Metro Station Driveway
- 5. Pacific Avenue / Metro Station Driveway
- 6. Pacific Avenue / Maple Street
- 7. Pacific Avenue / Front Street / Mission-Water Street
- 8. Front Street / Soquel Avenue
- 9. Pacific Avenue / Cathcart Street
- 10. Soquel Avenue / Pacific Avenue
- 11. Ocean Street / Water Street
- 12. Highway 1 / Highway 9
- 13. Chestnut Street / Mission Street / Highway 1

Roadway Network

Local Streets and Roads

Project site access will be provided primarily from Pacific Avenue, Front Street, Laurel Street and Soquel Avenue. Other local streets and roads include Maple Street, Elm Street and Cathcart Street.

Pacific Avenue is a north-south street and is classified as arterial in the City of Santa Cruz General Plan (City of Santa Cruz, June 2012). Between Laurel Street and Cathcart Street it is a two lane divided roadway. North of Cathcart Street, Pacific becomes a one-way roadway. There is two hour metered on-street parallel parking and sidewalks are present on both sides of the street. SCMTD buses use Pacific Avenue to enter Pacific Station, a large transit center providing regional service to the City of Santa Cruz.

Front Street is a north-south two lane arterial with left turn pockets. Between Cathcart Street and Soquel Avenue, Front Street becomes three lanes. Sidewalks and bicycle lanes are present on both sides of the street. Metered on-street parallel parking is provided on the east side of the street as well. Front Street provides direct access to three surface parking lots and one parking structure. SCMTD buses use Front Street to enter and exit the Metro Station transit center.

Laurel Street is an east-west arterial with left turn pockets. Bicycle lanes and sidewalks are present on both sides of the street. There is no on-street parking allowed on Laurel Street in the study area.

Soquel Avenue is an east-west arterial that provides a major east-west connection over the San Lorenzo River to downtown and to the eastern portion of the City. Near the study area it is a four lane roadway with sidewalks and bicycle lanes on both sides of the street. Limited, metered, parallel parking is provided on both sides of the street between Pacific Avenue and Front Street.

Water Street is an east-west four lane arterial with left turn pockets between Center Street and Branciforte Avenue east of the study area. At its intersection with Center Street, Water Street becomes Mission Street. Between Chestnut Street Extension and Center Street, Mission Street is a two lane arterial. There are bicycle lanes on both sides of the street and crosswalks at every intersection within the study area. There is on-street twelve hour metered parallel parking on the north side of the street between Center Street and River Street. East of Pacific Avenue twelve hour metered on-street parallel parking is available on the south side of the street until River Street.

Cedar Street is a north-south two lane arterial parallel to Pacific Avenue. There are bicycle lanes on both sides of the street and crosswalks at every intersection in the study area. Metered onstreet parallel parking is provided as well as access to several paid surface parking lots and parking structure. At its intersection with Laurel Street, vehicles are restricted to right turns only southbound.

River Street is a north-south arterial that parallels the San Lorenzo River. It connects to State Route 9 at its northern terminus with State Route 1. South of Water Street it splits into River Street and S. River Street. River Street terminates at Front Street and S. River Street terminates at Soquel Avenue. Bicycle lanes are provided on both sides of the roadway on River Street between Front Street and State Route 9. While there is no bicycle facility on S. River Street the San Lorenzo Riverwalk runs parallel to it. (See below for more information on the San Lorenzo Riverwalk.) There are textured colored crosswalks connecting to the pedestrian bridge over the San Lorenzo River at the Regal Cinemas theater. Twelve hour metered on-street parallel parking is provided on the west side of S. River Street and on the east side of River Street between Front Street and S. River Street.

State Highways

State highways that are in the vicinity of the project site include segments of State Routes 1 and 17; State Route 1 is located approximately 1/2 mile driving distance northwest of the project site. 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 (City of Santa Cruz, April 2012, DEIR volume).

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 mph along Mission Street, 45 mph along the expressway section, and 55 and 65 mph on the freeway sections. 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 (City of Santa Cruz, April 2012, DEIR volume).

Highway 9 is a multi-lane highway between Highway 1 and Encinal Street. It is two-lanes north of Encinal Street that connects the City of Santa Cruz with the San Lorenzo Valley, and eventually, Saratoga and Los Gatos.

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 as a route 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 (City of Santa Cruz, April 2012, DEIR volume).

Other Transportation Modes

Pedestrian and Bicycle Facilities

Pedestrian facilities within the study area include sidewalks, crosswalks, ADA ramps and pedestrian signal heads. The sidewalks on Pacific Avenue are 10 to 25 feet wide and crosswalks with ADA ramps are provided at every intersection. The sidewalks on Front Street are generally 8 to 10 feet wide and crosswalks are provided at intersections as well as in front of the Pacific Station transit center. Bicycle amenities include bicycle parking (located at Pacific Station), Class II facilities (bicycle lanes) and the San Lorenzo Riverwalk.

The San Lorenzo Riverwalk is a north-south bicycle and pedestrian path that follows the San Lorenzo River in Santa Cruz for approximately 2.5 miles. The paved trail is on the river levee on both the east and west sides of the river, except for a short segment in the vicinity of the County Building north of Soquel Avenue, which is currently under construction. A pedestrian/bicycle bridge north of Soquel Avenue connects both sides of the levee trail system, and can be accessed from River Street, approximately 750 feet north of the project site.

Public Transit Service

Public transit service in the City and County of Santa Cruz is provided by the Santa Cruz Metropolitan Transit District (SCMTD). Pacific Station, located on the east side of Pacific Avenue between Elm Street and Maple Street, is the largest transit center for SCMTD bus service. There are four bus departure lanes and a staffed customer service information booth. All routes except 33-34, 55, and 72-79 service the station. In September 2016, SCMTD implemented a large service reduction to address funding shortfalls. This reduction affected some of the routes servicing Pacific Station, however it is still provides high frequency service.

Existing Traffic Conditions

According to City data, from the years 2010 to 2014, 63% of commuters within the City drove alone, 11% walked, 10% bicycled, 8% carpooled, 6% took the bus, and 2% used other modes such as taxi, motorcycle (City of Santa Cruz, 2016 Annual Traffic Safety Report). This data shows significant progress towards the City's Climate Action Plan goals to increase biking and walking and decrease single-occupancy vehicle use within the City. Santa Cruz has one of the highest bicycle mode splits in the country, and a lower "Drive Alone" mode split than most California cities (Ibid.).

Vehicle Traffic

Vehicle traffic conditions are measured by average daily traffic (ADT), peak hour traffic volumes, level of service (LOS), average delay, and/or volume to capacity (V/C) ratio. 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) (City of Santa Cruz, April 2012, DEIR Volume).

To evaluate the performance of roadways and levels of traffic congestion, many jurisdictions, including the city of Santa Cruz, use LOS. "Level of Service" is a qualitative measure that describes the level of traffic congestion and delay at intersections based on the amount of vehicle traffic that a roadway or intersection can accommodate and factors such as maneuverability, driver dissatisfaction, and delay. Traffic flow along roadways is typically controlled by the volume and capacity of the nearest intersection, therefore intersections are analyzed using LOS as an indicator of congestion. Intersections are rated based on a scale of LOS "A" through LOS "F," with LOS A representing free-flowing conditions and LOS F representing congested conditions. The intermediate levels of service represent incremental levels of congestion and delay between these two extremes. Table 4.7-1 relates the operational characteristics to each associated LOS category for signalized and unsignalized intersections.

The signalized intersection LOS methodology addresses the LOS for the intersection as a whole, whereas LOS methodology for unsignalized intersections computes delay for the minor

movements. The critical volume to capacity ratio (V/C) is another measure of the operating conditions of an intersection as opposed to LOS. It is not the average of all the movements at the intersection and is not used as a measure to define the levels of service.

The City of Santa Cruz General Plan 2030 seeks to maintain LOS D or better at signalized intersections during the PM peak hour (Action M3.1.3). However, the General Plan also accepts 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 (Action M3.1.4).

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.).

TABLE 4.7-1: Intersection Level of Service Definitions

Level of Service	Description	Signalized (sec/veh.)	Unsignalized (sec/veh.)*
Α	Free flow with no delays. Users are virtually unaffected by others in the traffic stream.	<u><</u> 10	<u><</u> 10
В	Stable traffic. Traffic flows smoothly with few delays.	>10 – 20	>10 – 15
С	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	>20 – 35	>15 – 25
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	>35 – 55	>25 – 35
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.	>55 – 80	>35 – 50
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	> 80	> 50

^{*}Two-way stop control intersection

SOURCE: Transportation Research Board, *Highway Capacity Manual 2010*, National Research Council as cited in City of Santa Cruz General Plan 2030 EIR.

Intersection Levels of Service

Intersection turning movement counts were conducted on Thursday, May 22, 2014 and Tuesday November 17, 2015 at the study intersections during the PM peak period (4:00 pm to 6:00 pm). From these counts the peak one-hour period was identified. Figure 4.7-1 shows the traffic volumes during the PM peak one-hour period. LOS for the project traffic study intersections was calculated using methods defined in the *Highway Capacity Manual, 2010 and 2000* (HCM) and Synchro 8 traffic analysis software. HCM 2010 was used for all intersections except for the intersection of Pacific Avenue / Front Street / Mission-Water Street due to the presence of a fifth approach at this location, which HCM 2010 cannot analyze correctly. Therefore, HCM 2000 was used to analyze this study intersection. The delay and corresponding LOS for each of the study intersections was calculated.

Table 4.7-2 shows the resulting LOS based on approach to the intersection. All intersections operate at an acceptable LOS except Highway 1 / Highway 9 and Chestnut Street / Mission Street, which operate at LOS E.

State Highway Operations

Based on the most recent (2015) Caltrans Traffic Census Program (Caltrans 2015) data, the annual average daily traffic (AADT) on state highways within Santa Cruz is as follows:

- □ Highway 1
 - At Highway 17, AADT is approximately 61,000 to 86,000 trips with 4,950 to 6,300 trips occurring during the peak hour.
 - At Emeline Street Connection, AADT is approximately 85,000 to 86,000 trips with approximately 5,900 to 6,300 trips occurring during the peak hour.
 - At Morrissey Boulevard, AADT is approximately 85,000 to 94,000 trips with 5,900 to 6,300 trips occurring during the peak hour.
- □ Highway 17, at Pasatiempo (between Santa Cruz and Scotts Valley). AADT is approximately 67,000 to 70,000 trips with 5,700 to 6,000 trips occurring during the peak hour.
- □ Highway 9 within Santa Cruz City Limits. AADT is approximately 5,000 to 5,200 trips with 530 to 550 trips occurring during the peak hour as measured at the City limits, north of Encinal.

Review by the City's consulting traffic engineer, Ron Marquez, indicates that the highway segments in the vicinity of the project site are operating at LOS of C and D during the peak hour as summarized on Table 4.7-3.

TABLE 4.7-2: Existing Intersection Weekday PM Peak Hour Levels of Service

		Control Type	Jurisdiction	Threshold ²	Existing Conditions ¹		
#	Intersection				PM Peak Hour		
					Movement	Delay ³	LOS
1	Front Street / Laurel Street	Signal	Santa Cruz	D	Overall	30.8	С
2	Pacific Avenue / Laurel Street	Signal	Santa Cruz	D	Overall	17.9	В
3	Front Street / Cathcart Street	Signal	Santa Cruz	D	Overall	19.0	В
4	Front Street / Metro Station Access	Signal	Santa Cruz	D	Overall	4.9	А
	Pacific Avenue /	SSSC	Santa Cruz	D	Overall	1.1	Α
5	Metro Station Access	Worst Approach	Santa Cruz	D	WB	11.4	В
6	Pacific Avenue / Maple Street	AWSC	Santa Cruz	D	Overall	8.1	Α
7	Pacific Avenue / Front Street / Mission-Water Street	Signal	Santa Cruz	D	Overall	20.2	С
8	Front Street / Soquel Avenue	Signal	Santa Cruz	D	Overall	21.9	С
9	Pacific Avenue / Cathcart Street	AWSC	Santa Cruz	D	Overall	8.8	Α
10	Soquel Avenue /	SSSC Worst Approach	Santa Cruz	D	Overall	3.6	Α
10	Pacific Avenue		Santa Cruz	D	WB	10.3	В
11	Ocean Street / Water Street	Signal	Santa Cruz	D	Overall	35.3	D
12	Highway 1 / Highway 9	Signal	Caltrans	C-D	Overall	71.7	E
13	Chestnut Street / Mission Street / Highway 1	Signal	Caltrans	C-D	Overall	74.1	E

Source: Kimley-Horn May 2017.

Notes:

- Analysis performed using HCM 2010 methodologies, except for Intersection 7 where HCM 2000 methodology was applied.
- 2. The City of Santa Cruz has established LOS D as the minimum acceptable LOS for overall intersection operations during the AM and PM peak hours. Caltrans maintains a standard of between LOS C and D.
- 3. Delay indicated in seconds/vehicle.
- 4. Intersections that fall below the LOS threshold are shown in **bold**.

Downtown Plan Amendments

4.7-9

July 2017

TABLE 4.7-3: Existing Highway Traffic Volumes and Peak Hour Levels of Service

Segment	Direction	Number of Lanes	Volume	Max Flow Rate for C	Max Flow Rate for D	LOS
Route 1: Route 9 to Route 17	N	2	2,080	2,761	3,444	С
	S	2	3,120	2,761	3,444	D
Route 1: Route 17 to Emeline	N	2	2,820	2,761	3,444	D
	S	2	1,880	2,761	3,444	С
Route 17: Route 1 to Pasatiempo	N	3	3,300	3,888	5,165	С
	S	3	2,700	3,888	5,165	С
Peak hour volumes from Caltrans 2015 Peak hour factor92, free flow speed – 55, heavy vehicle factor985 (Exhibit 11-17 HCM 2010)						

SOURCE: Ron Marquez, Traffic Engineer Consultant

Planned Transportation System Improvements

Metropolitan Transportation Improvement Program

AMBAG, as an MPO, is required by state and federal laws to develop and adopt a Metropolitan Transportation Improvement Program (MTIP), a multi-year transportation project program that includes multi-modal projects, including but not limited to major highway, arterial, transit, bikeway and pedestrian projects. The 2016 MTIP is a four-year program that covers the federal fiscal years from October 1, 2016 through September 30, 2020. The MTIP implements the 2035 Monterey Bay Area Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) adopted by the AMBAG Board of Directors in June 2014. The 2035 MTP/SCS is a financially constrained document and includes identified transportation improvement projects for the region. Once the projects are included in the MTP, they become eligible for inclusion in the MTIP and FSTIP. The projects included in the 2016 MTIP are consistent with the 2035 MTP/SCS (AMBAG, September 2016). Planned projects in the vicinity of Ocean Street and Ocean Street Extension include improvements to the Highway/9 intersection, Highway 1 auxiliary lanes (Soquel Avenue to 41st Avenue), and High Occupancy Vehicle (HOV) lanes between the Morrissey and San Andreas interchanges.

City of Santa Cruz Planned Improvements

The City's adopted Capital Improvements Program (CIP) 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 maximize benefit and address the most critical needs. Major improvements on the current 2018-2020 CIP include: Highway 1 / Highway 9-River Street intersection improvement (programmed for 2018/19) described below; intersection improvements at the Ocean Street/Water Street intersection (programmed for completion in 2018); Branciforte Creek bike/pedestrian bridge path connection on the San Lorenzo River levee (under construction); and preliminary work to replace the Highway 1 bridge over the San Lorenzo River.

9711.0003 July 2017 4.7-10 The City of Santa Cruz has adopted a "Traffic Impact Fee" (TIF) program based on future projected trips generated for each new development or redevelopment project. The TIF program, originally adopted in June 2005, evaluated over 60 intersections and identified numerous projects within the City which were needed in order to address the effects of cumulative development, and established fees. The fees are used to fund planned improvements at intersections and roadways included in the program. New development and redevelopment projects are required to pay traffic impact fees, which are paid at the time of building permit issuance. The TIF was updated in November 2012 to reflect traffic conditions associated with buildout accommodated by the City's General Plan as identified in the City's General Plan 2030 EIR. All of the projects noted above are TIF program intersections, except for the Highway 1 bridge project. The program also funds bike and pedestrian projects (15% of fees collected) and neighborhood improvement projects adjacent to significant development (5% of fee collected).

Bicycle and Pedestrian Improvements

The City's recently adopted Active Transportation Plan (2017) includes the following paths that are included in the FY2018-2020 CIP: Branciforte Creek Connection to complete the levee path over Branciforte Creek and under the Soquel Bridge, Monterey Bay Sanctuary Scenic Trail Network Segment 7 along the railroad track on the west side of the City, and the San Lorenzo River Trestle Bridge trail widening project. The Plan also includes numerous other infill and improvements to existing bike and pedestrian facilities.

Regional Transportation Plan Improvements

The SCCRTC periodically completes a Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) according to state guidelines to guide short- and long-range transportation planning and project implementation for the county. This 2014 RTP provides guidance for transportation policy and projects through the year 2035. Projects identified in the RTP that are within the project vicinity include:

- Highway 1/Highway 9 Intersection Modifications (also on City CIP and MTIP).
- Highway 1 bridge replacement over San Lorenzo River (also on City CIP).
- Highway 17: Preparation of study to determine long-range solutions to access, operations and safety on this route.
- Branciforte Creek multi-use path and bridge (also on City CIP and under construction)
- Ocean Street Widening from Soquel to East Cliff
- Hwy 1/Mission St at Chestnut/King/Union Intersection Modification
- Pacific Station: Bike Station
- River St/River Street South Intersection Modification
- Water Street Signal Synchronization
- Soquel/Branciforte/Water (San Lorenzo River to Branciforte) Bike Lane Treatments

Planned State Highway Improvements

Highway 1. As indicated above, improvements for the Highway 1 Soquel to Morrissey Auxiliary Lanes Project are complete. In addition, the SCCRTC has been working with Caltrans and the Federal Highway Administration since 1986 on studies for longer-term improvements to Highway 1. The current Caltrans Route Concept Report for Highway 1 includes the addition of HOV lanes to Highway 1 to reduce congestion, encourage carpooling, expand express bus service, and improve safety in the Watsonville to Santa Cruz corridor. (Caltrans, April 2006). This project will add a lane in each direction from Morrissey Boulevard in the City of Santa Cruz to San Andreas/Larkin Valley Road. Caltrans' 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 2011).

A Draft EIR for the Highway 1 Corridor Investment Program was prepared and released for public review and comment in November 2015 (Caltrans and FHWA, November 2015). The Draft EIR considers three alternatives including an HOV Lane alternative with auxiliary lanes and a Transportation System Management alternative without HOV lanes. A final decision on the preferred alternative has not been made yet. The Draft EIR provides a program level analysis of the Highway 1 corridor alternatives using a two tiered approach. Tier I is a long term, programlevel analysis for the future of the Highway 1 corridor between Santa Cruz and Aptos. The Tier I concept for the corridor would be built over time through a series of smaller incremental projects (referred to as Tier II projects). The Tier II analysis includes project-level analysis of smaller incremental projects within the Tier I corridor which would move forward based on available funding. Each of the Tier II projects would undergo separate environmental and public review. Caltrans received a total of 263 letters, emails, and recorded comments from public agencies, organizations and individuals, on the Draft EIR. Based on review of the comments received, the project team has identified a need to update the air quality, natural environment, and traffic operations studies, as well as reporting of the cumulative impacts of the project alternatives prior to completion and release of a Final EIR.

Caltrans has prepared and approved 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. The following strategies will be used to manage State Route 1 over the next 20 years:

- Cost-effective maintenance and preservation of the roadway.
- Support improvement of transit service, including new express bus service on HOV lanes if implemented in the Santa Cruz corridor.
- Support land use and transportation planning efforts through participating in local development review and regional planning efforts.
- Reduce congestion through transportation demand management to increase the use of transit, improve bicycle and pedestrian programs, and encourage programs such as carpools, ridesharing, telecommuting, and park-and-ride facilities.

- Implement Intelligent Transportation Systems/Traveler Information/Traffic Management to improve incident management and provide real time traveler information which helps reduce delay.
- Increase modal options such as Caltrain and integrate transit, bicycle and pedestrian transportation into a coordinated multimodal system.
- Collaborate with local partners on a ramp metering plan.
- Operational Improvements, including auxiliary lanes, intersection improvements, and other system refinements to enhance existing services and reduce delay.
- Upgrade intersections to maximize throughput on the State highway and parallel routes.
- Increase the capacity, operational efficiency and connections on parallel roads to reduce local traffic demand on Highway 1.
- Improve mobility, accessibility, reliability, reduce congestion and improve safety by improving capacity on the existing system (Caltrans, October 2011).

Highway 17. 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. The highway 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 (City of Santa Cruz, April 2012-DEIR volume). According to the Transportation Concept Report for State Route 17 in District 5, (Caltrans District 5, January 2006), the target level of service for Highway 17 between Ocean Street and Scotts Valley is LOS E. The highway segment between Santa Cruz and Scotts Valley is considered to be a four-lane freeway (Caltrans, January 2006).

Highway 9. The current Caltrans Route Concept Report for Highway 9 includes recommendations to widen the shoulders to accommodate bicycle traffic, widening to four lanes from the junction of Highway 1 and Highway 9 to the Santa Cruz city limits, and other left turn improvements outside of the City of Santa Cruz (Caltrans, September 2007).

The Highway 1/Highway 9-River Street 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 continue to operate at LOS E during the existing PM peak hours, but the average delay would be reduced by approximately 20 seconds.

The following improvements are identified for the Highway 1/Highway 9-River Street intersection, and are included in the current City Traffic Impact Fee (TIF) Program:

- Northbound Approach: Modify the intersection to consist of one left/thru, one-thru, two
 right lanes and a bike lane; add one northbound lane on Highway 9 and a shoulder/bike
 lane.
- Southbound Approach: Modify the intersection to consist of two-left, one-left/thru, one-thru, one right lane and a bike lane.
- Eastbound Approach: Reconstruct to consist of two left, three through, and one right-turn lanes.
- Upgrade all sidewalks and access ramps to meet ADA requirements.

Currently, a Project Report, preliminary engineering and associated studies, and environmental review are complete. Construction is anticipated in 2018.

4.7.2 Impacts and Mitigation Measures

Thresholds of 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 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);
- 7b 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) or result in a change in LOS for a segment currently operating at a deficient level based on Caltrans significance criteria¹;
- 7c 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;
- 3d Substantially increase hazards due to a design feature (for example, sharp curves or dangerous intersections) or incompatible uses (for example, farm equipment);

_

¹ Caltrans. December 2002. "Guide for the Preparation of Traffic Impact Studies."

- 7e Result in inadequate emergency access; or
- 7f 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 General Plan 2030 strives to maintain a LOS of "D" or better as the acceptable level of service for intersections. 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 three percent at intersections currently operating at unacceptable levels (E or F), as further described below. This criteria is applied only to intersections within the City's jurisdiction, but not to Caltrans intersections. The City's General Plan 2030 also accounts 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 worsen measurably at the intersection as a result of the project. "Measurably worse" is considered to be a three percent increase in trips at the affected intersection. The City has used the three percent significance criterion for project trip contribution at existing impacted intersections, except for Caltransmaintained intersections (which are subject to the criteria in 3b above), 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 three percent 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, which identifies the standard deviation expected with regard to reliability of traffic count data. The standard deviation ranges indicate a 12 percent deviation at 10,000 vehicle trips, meaning that if a traffic count totals 10,000 vehicles per day, then approximately 90 percent of the time, the actual traffic counts will lie within a range of 8,800 to 11,200 vehicles. Thus, the three percent reflects this variation in daily traffic conditions (California Department of Transportation, June 2015).

Regarding Caltrans' intersections and other Caltrans maintained facilities, the Caltrans Traffic Impact Study Guidelines (Caltrans 2002) state that Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State highway facilities. As such, LOS C through D is considered to be acceptable traffic operations during the peak hour at intersections maintained by Caltrans. The Guidelines also state that if an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE (LOS) should be maintained (Caltrans, 2002).

Vehicle Miles Traveled

In September 2013 Governor Brown signed Senate Bill 743 which made significant changes to how transportation impacts are to be assessed under CEQA. SB 743 directs the Governor's Office of Planning and Research (OPR) to develop a new metric to replace LOS as a measure of impact significance and suggests vehicle miles travelled as that metric. According to the legislation, upon certification of the guidelines, automobile delay, as described solely by LOS shall not be considered a significant impact (Section 21009(a)(2)). SB 743 also creates a new CEQA exemption for certain projects that are consistent with the regional Sustainable Communities Strategy.

OPR has released draft CEQA Guidelines to address this requirement; however, at the time this analysis was completed the Guidelines have not been finalized or certified. It is anticipated that the revisions to the CEQA Guidelines will be finalized in 2017. According to the most recent draft CEQA Guidelines released by the OPR, lead agencies would have a grace period of two years to update and adopt new thresholds once the final Guidelines have been adopted. The City of Santa Cruz will update its transportation standards of significance to reflect SB 743 once the state has finalized the guidelines. Because there are no adopted thresholds and the revised State CEQA Guidelines' have not yet been certified, vehicle miles travelled is not utilized as a standard of significance in this EIR. However, VMT estimates are provided in the Impact 4.7-1 discussion as an informational item.

Analytical Method

The proposed project consists of amendments to the City's Downtown Recovery Plan, General Plan, Local Coastal Plan and Zoning Code regarding development in the downtown area and Central Business District. The proposed project would not directly result in new development. However, the proposed Downtown Plan amendment would expand areas for potential additional building height that could accommodate intensified redevelopment of existing developed sites. City staff estimates that the proposed amendments could indirectly lead to development, resulting in a potential net increase of 711 new residential units and 2,200 square feet of office space with a net decrease of approximately 14,700 square feet of commercial building space over existing conditions within the downtown area. The proposed General Plan amendment would increase FAR in areas designated as RVC in the General Plan, but would not lead to development on sites not already considered in the General Plan and General Plan EIR. The proposed LCP and Zoning Code amendments would not result in changes that could indirectly lead to intensified development.

A project traffic impact study was prepared for the project in accordance with City requirements. As indicated, above, the City of Santa Cruz uses LOS To evaluate the performance of roadways and levels of traffic congestion. The project traffic impact study was based on intersection turning movement counts taken on Thursday, May 22, 2014 and Tuesday November 17, 2015 at the study intersections during the PM peak period (4:00 pm to 6:00 pm), from which the PM peak hour was determined.

The traffic study computed intersection LOS using the 2010 and 2000 HCM methodology and Synchro 8 software. The result of the HCM calculations is an estimate of average control delay at the intersection which corresponds to an LOS grade as shown in Table 4.7-1 above. Project trip generation is provided in the traffic impact study, and traffic distributed on city streets utilizing the City's traffic model that was developed as part of the General Plan 2030 using Traffix software. AMBAG maintains a regional travel demand model, but it was not used as the City's model is more detailed and specific to conditions in the City. The study scenarios analyzed include existing conditions, existing with the project, and cumulative conditions, including the project. The traffic impact analysis also includes evaluation of other travel modes based on adopted regional plans and review with City of Santa Cruz staff.

Impacts and Mitigation Measures

As described in the Initial Study (see Appendix A), there are no adopted congestion management programs² for the project area (7c). The following impact analyses address impacts to City streets and intersections (7a) and state highways (7b), the potential to substantially increase hazards or result in inadequate emergency access (7d-e), and potential project conflicts with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or impacts to the performance of these facilities (7f).

Traffic Impacts

Impact 4.7-1: Circulation System Impacts. The project will result in an increase in daily and peak hour trips, but would not cause existing or planned intersections to operate at an unacceptable Level of Service (LOS) or further degrade intersections that already operate at an unacceptable LOS (7a). Therefore, the impact is *less than significant*.

A LOS analysis was completed to comply with City regulations, and as discussed above, LOS is the performance measure used to evaluate the effectiveness of the circulation system. In order to identify the potential traffic impacts of the project using LOS, a multi-step process was utilized. The first step is calculating trip generation, which estimates the total arriving and departing traffic during a peak hour and on a daily basis. Trip generation was estimated for the project by applying vehicle trip generation rates to the project development based on land use. Figure 4.7-2 shows the downtown project area zones and study intersections. Trip rates specific to the downtown area were used from the City of Santa Cruz General Plan EIR (City of Santa Cruz 2012). The project area was divided into zones and trip generation was calculated separately for each zone. Trip generation calculations include a 40 percent trip reduction due to proximity to the downtown transit center, mixed use development, bicycle use and walking trips. The project

² 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 (City of Santa Cruz, 2012).

would generate 293 weekday PM peak hour trips (188 in and 106 out) between 4 and 6 PM and 2,627 daily trips as summarized on Table 4.7-4.

TABLE 4.7-4: Project Trip Generation

				PM Peak Hour			
Land Uses	Size	Units	Daily Trips	Total Peak Hour	IN	ОИТ	
Trip Generation Rate	es ¹						
Commercial		1,000 Sq Ft	44.32	2.71	44%	56%	
Office		1,000 Sq Ft	11.01	1.49	17%	83%	
Townhomes ²		Dwelling Unit(DUs)	7.50	0.62	65%	35%	
Apartments		DUs	6.65	0.62	65%	35%	
Trips Generated							
Area X - Riverfront							
Commercial	11,171	Sq Ft	496	30	13	17	
Office	18,296	Sq Ft	202	27	5	22	
Townhomes	321	DUs	2,408	199	129	70	
Apartments	0	DUS	0	0	0	0	
Area X Total Trips			3,106	256	147	109	
40% Reduction for Do	wntown Area ³		(1,242)	(102)	(59)	(44)	
Area X Net Trips			1,864	154	88	65	
Area Y - E. Pacific/W.	Front Pacific St	ation					
Commercial	(27,864)	Sq Ft	(1,236)	(76)	(33)	(43)	
Office	(16,105)	Sq Ft	(178)	(24)	(4)	(20)	
Townhomes	0	DUs	0	0	0	0	
Apartments	370	DUs	2,462	229	149	80	
Area Y Total Trips	_		1,048	129	112	17	
40% Reduction for Do	wntown Area³		(419)	(52)	(45)	(7)	
Parking Garage				52	26	26	
Added Trips ⁴							
Area Y Net Trips			629	129	93	36	
Area Z - W. Pacific							
Commercial	2,000	Sq Ft	90	5	2	3	
Office	0	Sq Ft	0	0	0	0	
Townhomes	0	DUs	0	0	0	0	
Apartments	20,000	DUs	134	12	8	4	
Area Z Total Trips	3		224	17	10	7	
40% Reduction for Downtown Area ³			(90)	(7)	(4)	(3)	
Area Z Net Trips			134	10	6	4	
Total Project Trips			2,627	293	188	106	

Source: Kimley Horn, May 2017.

Notes

Downtown Plan Amendments

^{1.} Trip generation rates obtained from Appendix C of the City of Santa Cruz General Plan 2030 EIR.

^{2.} ITE Land Use 270 Rates used for Townhomes per City direction (email correspondence with Ron Marquez dated 04/22/16).

^{3. 40%} Reduction for mixed use development in Downtown Santa Cruz per City direction (email correspondence with Ron Marquez dated 04/22/16).

^{4.} Required parking per City Code= 414+880+871=2,165 spaces. With 20% reduction=1,732, so 259 additional spaces (1,991-1,732) that will generate traffic. 10% in the AM peak = 26 trips; 20% in the PM peak = 52 trips.

The second step of the forecasting process is trip distribution, which identifies the origins and destinations of inbound and outbound project traffic. These origins and destinations are typically based on demographics and existing or anticipated travel patterns in the study area. Figure 4.7-2 shows the trip distribution that was applied to the study area roadway network.

The third step is traffic assignment, which involves the allocation of project traffic to streets and intersections in the study area. Traffic distribution patterns are indicated by percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area. Figure 4.7-3 depicts project trip assignment.

With the forecasting process complete and project traffic assignments developed, the impact of the project is identified by comparing operational (LOS) conditions with and without the project at the study intersections. Table 4.7-5 summarizes the PM peak hour LOS at the study intersections for Existing Conditions with and without the project. See Figure 4.7-4 for intersection traffic volumes with the addition of project traffic.

As shown, traffic associated with the project will not degrade LOS to below acceptable levels at any of the study intersections under the jurisdiction of the City. The two Caltrans intersections of Highway 1 / Highway 9 and Chestnut Street / Mission Street would continue operate at LOS E as a result of the proposed project. There are improvements identified for the Highway 1/Highway 9-River Street intersection as discussed above, which are included in the current City Traffic Impact Fee (TIF) Program, and the Chestnut Street / Mission Street intersection is included in the RTIP. The improvements are already required under existing conditions without the project. Traffic associated with the project does not further degrade the LOS at the two Caltrans intersections, and would not substantially increase delay. Therefore, based on the significance criteria discussed above, traffic associated with the project would not cause existing or planned intersections to operate at an unacceptable Level of Service (LOS) or further degrade intersections that already operate at an unacceptable LoS. Therefore, the impact is less than significant.

For informational purposes, a per capita VMT resulting from potential development accommodated by the proposed plan amendments was estimated utilizing trip length information from the California Statewide Travel Demand Model and percentages for different trip types, i.e., home to work, included in the CalEEMod air emissions model. Estimated new net development, including reduction in commercial uses, is estimate to result in a total of weekday VMT of 14,059 trips. Based on U.S. Census data for the downtown area and employee projections in the City's General Plan 2030 EIR, total residential and employee population is estimated at approximately 1,280, which results in a weekday per capita VMT of 11.0. According to the Santa Cruz County Regional Transportation Commission, VMT per capita within Santa Cruz County is estimated to decrease by 17% from approximately 15.3 to approximately 12.5 between 2005 and 2035 (Santa Cruz County Regional Transportation Commission. Although no VMT standards have been developed within the City, this preliminary project per capita VMT

estimate shows that VMT would be below existing and projected county-wide estimates, which in large part is a reflection of the project's location downtown and in proximity to transit, bicycle and pedestrian facilities.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

TABLE 4.7-5: Intersection Weekday PM Peak Hour Levels of Service with Project

#	Intersection	LOS	Existing Conditions ²			Existing Plus Project Conditions ²			
# Thres			eshold ¹ PM Peak Hour			PM Peak Hour			
			Movement	Delay ³	LOS	Movement	Delay ³	LOS	
1	Front Street / Laurel Street	D	Overall	30.8	С	Overall	31.2	С	
2	Pacific Avenue / Laurel Street	D	Overall	17.9	В	Overall	18.5	В	
3	Front Street / Cathcart Street	D	Overall	19.0	В	Overall	18.9	В	
4	Front Street / Metro Station Driveway	D	Overall	4.9	Α	Overall	5.1	Α	
	Pacific Avenue /	D	Overall	1.1	Α	Overall	1.1	Α	
5	Metro Station Driveway	D	WB	11.4	В	WB	11.6	В	
6	Pacific Avenue / Maple Street	D	Overall	8.1	Α	Overall	8.2	А	
7	Pacific Avenue / Front Street / Mission-Water Street	D	Overall	20.2	С	Overall	21.1	С	
8	Front Street / Soquel Avenue	D	Overall	21.9	С	Overall	23.1	С	
9	Pacific Avenue / Cathcart Street	D	Overall	8.8	Α	Overall	8.9	Α	
10	Soquel Avenue /	D	Overall	3.6	Α	Overall	3.6	Α	
10	Pacific Avenue	D	WB	10.3	В	WB	10.3	В	
11	Ocean Street / Water Street	D	Overall	35.3	D	Overall	35.6	D	
12	Highway 1 / Highway 9	C-D	Overall	71.7	E	Overall	74.1	E	
13	Chestnut Street / Mission Street / Highway 1	C-D	Overall	74.1	E	Overall	73.8	E	

9711.0003 July 2017 4.7-20 Impact 4.7-2: Highway Segment Impacts. The project will result in an increase in daily and peak hour trips, but would not result in a change to an unacceptable LOS along state highway segments (7a). This is a *less-significant impact*.

The project will result in approximately 38 to 59 additional PM peak hour trips along Highway 1 and 20 additional peak hour trips along Highway 17, representing a 0.2 to 1.8 percent increase. All of the study highway segments would operate at acceptable levels of service according the LOS targets established by Caltrans as summarized on Table 4.7-6.

TABLE 4.7-6: Highway Traffic Volumes and Peak Hour Levels of Service

		Number	Max Flow	Max Flow	Existing		Existing plus Project			
Segment	Direction	of Lanes	Rate for C		Volume	LOS	Project Trips	Volume	Percent Change	LOS
Route 1: Route 9	N	2	2,761	3,444	2,080	С	38	2,118	1.8%	С
to Route 17	S	2	2,761	3,444	3,120	D	21	3,141	0.7%	D
Route 1: Route 17	N	2	2,761	3,444	2,820	D	24	2,844	0.9%	D
to Emeline	S	2	2,761	3,444	1,880	С	14	1,894	0.7%	С
Route 17: Route 1	N	3	3,888	5,165	3,300	С	7	3,307	0.2%	С
to Pasatiempo	S	3	3,888	5,165	2,700	С	13	2,713	0.5%	С

Peak hour volumes from Caltrans 2015

Peak hour factor-.92, free flow speed - 55, heavy vehicle factor-.985 (Exhibit 11-17 HCM 2010)

SOURCE: Ron Marquez, Traffic Engineer Consultant

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Access and Hazards

Impact 4.7-3: Project Access. The project will not result in creation of hazards due to design of the project circulation system or introduction of incompatible uses (7d). Therefore, the project would result in *no impact*.

The proposed project does not include any design features that would change vehicle circulation or access. The project includes some minor changes to clarify the locations of pedestrian access to open space and areas around downtown. However, these changes do not result in hazardous features such as sharp curves or dangerous intersections. Therefore, there is no impact as a result of the project.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact 4,7-4: Emergency Access. The project will not result in inadequate emergency access (7e). Therefore, the project would result in *no impact*.

There are no proposed changes to vehicle circulation and the proposed project does not modify emergency access from existing conditions. Therefore, there is no impact related to emergency access.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Transit, Pedestrian and Bicycle Travel

Impact 4.7-5: Transit, Pedestrian and Bicycle Travel. The project will not conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities (7f). Therefore, the project would result in *no impact*.

The Santa Cruz City Council recently accepted an Active Transportation Plan (ATP) (City of Santa Cruz, February 2017). The ATP includes a number of recommendations including programs and projects to create an integrated network of walkways and bikeways that connect neighborhoods to employment centers, commercial land uses, educational facilities, and recreational opportunities. The recommended projects in the ATP are prioritized and ranked based on a number of criteria including crash data, proximity to trip generators, traffic counts and public comments.

The SCMTD completes a Short Range Transit Plan (SRTP) every five years that contains a review of procedures and an analysis of existing services that results in service improvements and investments. The most recent SRTP (SCMTD 2013) contains a number of policy, practice, and service recommendations. Policy and practice recommendations primarily address SCMTD infrastructure. In 2016, SCMTD underwent a comprehensive operational analysis to reduce operating expenses in order to address a structural deficit of \$6.5 million. The operating analysis resulted in a number of service changes that help to reduce operating costs and superseded the recommendations in the SRTP.

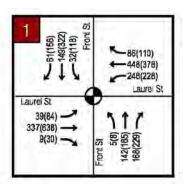
The Downtown Recovery Plan has a strong emphasis on pedestrian scale design and accessibility and includes a new pedestrian connection between Pacific Avenue and Front Street in the vicinity of Elm Street as well as bicycle access at the Elm Street extension to the San Lorenzo Riverwalk. None of the design features in the Downtown Recovery Plan conflict with the ATP or the SRTP and the design emphasis on pedestrians supports the objectives and goals of the ATP. Therefore, there is no impact related to conflicts with plans or programs related to active transportation and transit.

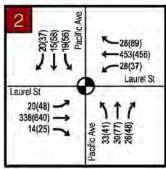
Mitigation Measures

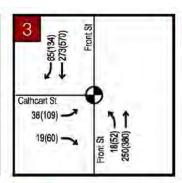
No mitigation measures are required as a significant impact has not been identified.

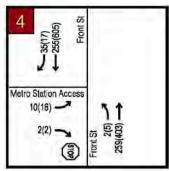
Downtown Plan Amendments

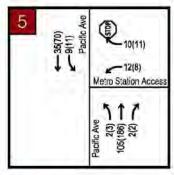
INTENTIONALLY LEFT BLANK

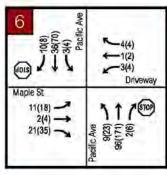


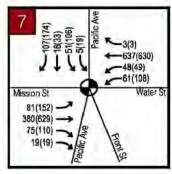


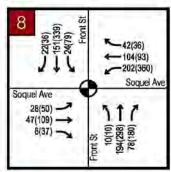




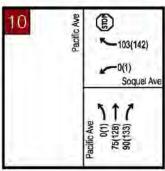


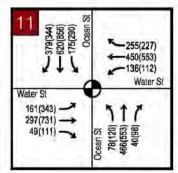


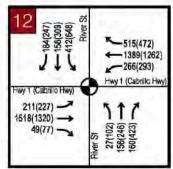


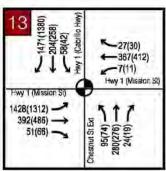












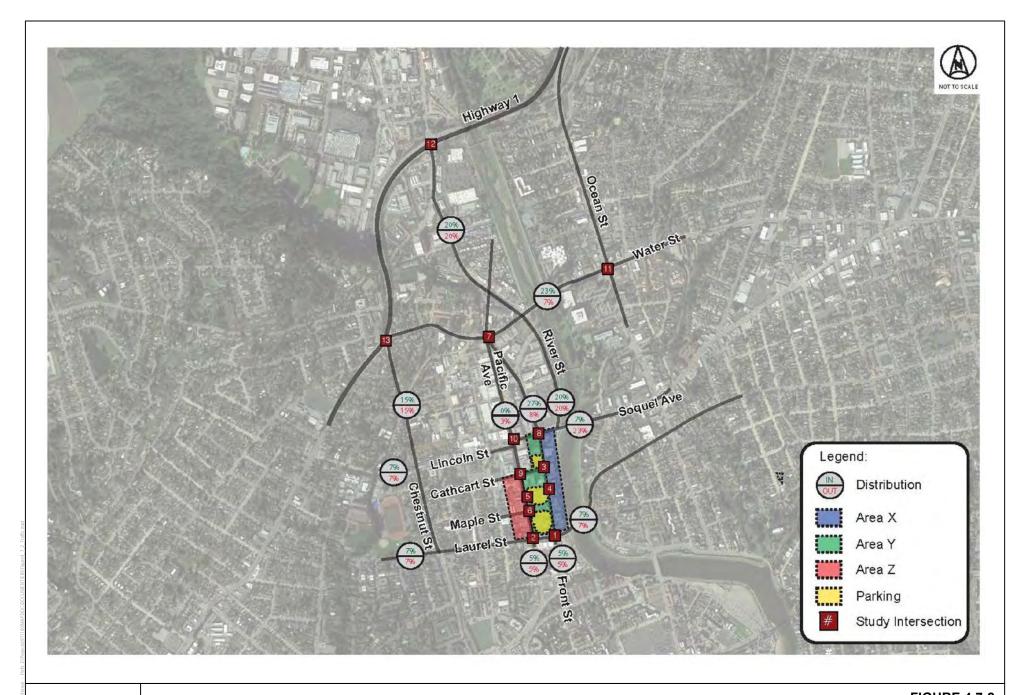




SOURCE: Kimley Horn

FIGURE 4.7-1

Existing PM Peak Hour Traffic Volumes

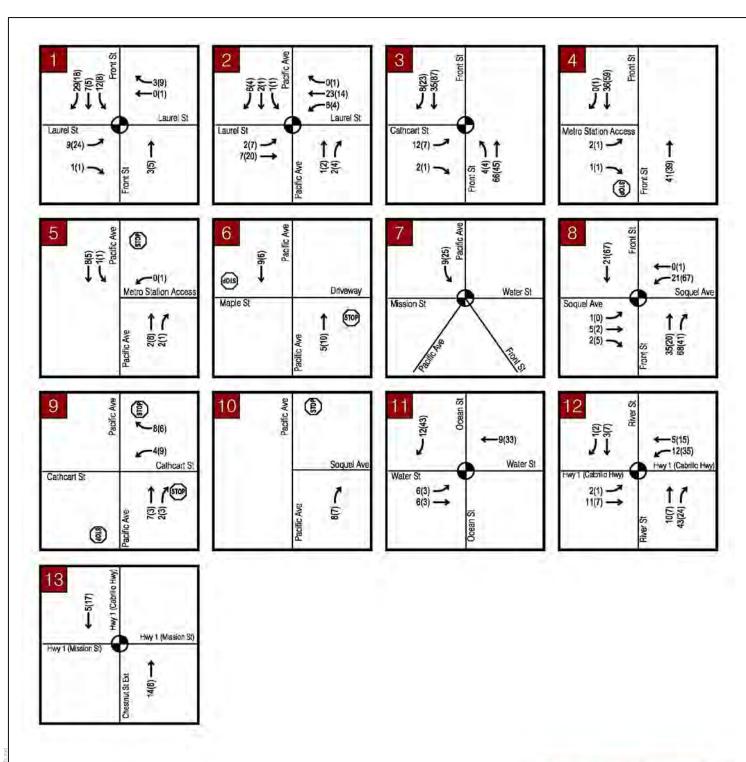


DUDEK

SOURCE: Kimley Horn

FIGURE 4.7-2

Project Trip Distribution



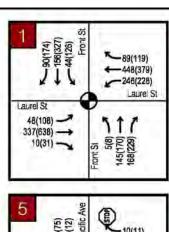


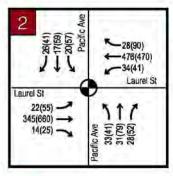




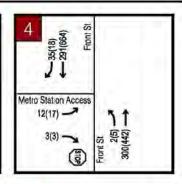
SOURCE: Kimley Horn

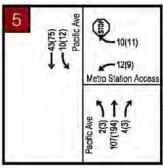
FIGURE 4.7-3
Project Trip Assignment



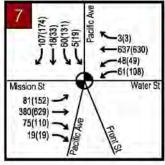


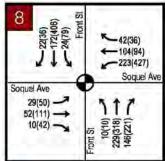


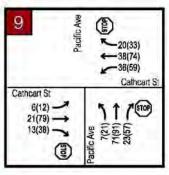


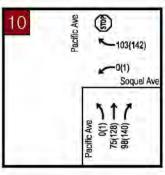


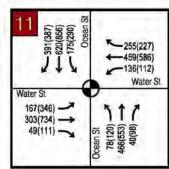


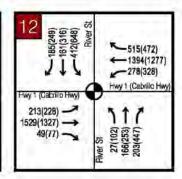


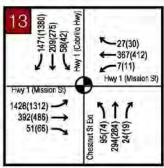
















SOURCE: Kimley Horn

FIGURE 4.7-4

Peak Hour Traffic Volumes with Project

4.8 WATER SUPPLY AND WASTEWATER TREATMENT

This section analyzes impacts of the project's potable water demand on municipal water supplies. This section draws from the City of Santa Cruz 2015 Urban Water Management Plan (UWMP), which was adopted in August 2016 in accordance with state law. The UWMP, which must be updated every five years, evaluates water supply and demand within the City's water service area over the next 20 years. The 2015 UWMP is incorporated by reference in accordance with section 15150 of the State CEQA Guidelines, and relevant discussions are summarized in section 4.8.1. The 2015 UWMP Plan is available for review at the City of Santa Cruz Water Department (212 Locust Street, Suite A, Santa Cruz, California) during business hours: Monday through Thursday, 8 AM to 12 PM and 1 PM to 5 PM. The plan also is available for review on the City's website at: http://www.cityofsantacruz.com/government/city-departments/water/2015-urban-water-mgmt-plan.

This section also draws from the City of Santa Cruz *General Plan 2030* EIR (SCH#2009032007), which was certified on June 26, 2012, regarding background information on the City's wastewater treatment facility. The General Plan EIR is incorporated by reference in accordance with section 15150 of the State CEQA Guidelines. Relevant discussions are summarized in subsection 4.3.1. The General Plan EIR is available for review at the City of Santa Cruz Planning and Community Development Department (809 Center Street, Room 107, Santa Cruz, California) during business hours: Monday through Thursday, 8 AM to 12 PM and 1 PM to 5 PM. The General Plan EIR is also available online on the City's website at:

http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/general-plan/draft-eir-for-the-draft-general-plan-2030.

Public and agency comments related to water supply / water service were received during the public scoping period in response to the Notice of Preparation (NOP). Issues raised in these comments include:

☐ Consideration of solving issues regarding water storage for drought years and sewage treatment for areas along San Lorenzo River served by septic systems.

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. Public comments received during the public scoping period are included in Appendix B. It is noted that the comment received in response to the NOP addresses a general issue and does not provide a specific comment regarding the scope of review for the proposed project in this EIR, and is noted. Background information on the City's water and wastewater systems are provided in this section.

4.8.1 Environmental Setting

Regulatory Setting

State Regulations

Water Supply Assessments. 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]; see also Section 15155 of the State CEQA Guidelines). Pursuant to SB 610, preparation of a "water supply assessment" (WSA) is required for projects subject to CEQA that meet specified criteria regarding project size: 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. The proposed project does not meet the above size requirements that would trigger the preparation of a WSA.

Sustainable Groundwater Management. In 2014, California enacted the "Sustainable Groundwater Management Act" to bring the state's groundwater basins into a more sustainable regime of pumping and recharge. The legislation provides for the sustainable management of groundwater through the formation of local groundwater sustainability agencies (GSAs) and the development and implementation of groundwater sustainability plans (GSPs), and requires GSAs and GSPs for all groundwater basins identified by the California Department of Water Resources (DWR) as high or medium priority. The law also authorizes the intervention of the State Water Resources Control Board in the event that no GSA, or equivalent local authority, is formed for a high- or medium-priority basin, or if an adequate GSP is not submitted for those basins. Additionally, it establishes criteria for the sustainable management of groundwater and authorizes DWR to establish best management practices for groundwater (California Department of Water Resources, December 2016).

The City of Santa Cruz is part of the Santa Cruz Mid-County Groundwater Basin formed pursuant to this legislation. The portion of the City's water service area not represented by the Agency is a remaining portion of the previously designated West Santa Cruz Terrace Basin and this basin is not currently managed by a GSA and may undergo further modification.

Wastewater Treatment. 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. The RWQCB regulates operations and discharges from sewage systems through the NPDES permit. Further discussion is provided on pages 4.6-21 to 4.6-22 of the General Plan 2030 EIR (DEIR volume), which is incorporated by reference.

Local Regulations

Water Supply. Title 16 of the City's Municipal Code addresses water, sewers, and other public services. Title 16 chapters relevant to water service include:

•	Chapter 16.01	Water Shortage Regulations and Restrictions
•	Chapter 16.02	Water Conservation
•	Chapter 16.03	Plumbing Fixture Retrofit Regulations
•	Chapter 16.04	Water Services
•	Chapter 16.05	Loch Lomond Recreation Area, Watershed Lands and Riparian
		Conservation Areas
•	Chapter 16.06	Regulation of Water Wells
•	Chapter 16.08	Sewer System: Graywater Systems (section 16.08.065)
•	Chapter 16.09	Water System Improvements
•	Chapter 16.10	Desalination Plant – Voter Approval
•	Chapter 16.11	Water Service Accounts
•	Chapter 16.13	Unified Utilities Billing System
•	Chapter 16.14	System Development Charges
•	Chapter 16.15	Water Use
•	Chapter 16.16	Water – Efficient Landscaping
•	Chapter 16.24	Utility Service Area Expansion

The City of Santa Cruz has enacted several ordinances regarding water conservation. 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 16.16 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, which 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.

Wastewater Treatment. 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.

Study Area

The project area consists of the downtown area generally covered by the Downtown Recovery Plan (DRP) and the Central Business District zone, and specifically the lower downtown area generally between Soquel Avenue and Laurel Street on the north and south, and Cedar Street and the San Lorenzo River on the west and east. (Locations are shown on Figures 1-2 and 2-1 in Section 3, Project Description.) The proposed project includes an amendment to the floor area ratio for the downtown portion of Regional Visitor Commercial land use designation. The study area includes properties adjacent to the western San Lorenzo River levee.

Service providers include the City of Santa Cruz for water supply and wastewater treatment.

City Water Service Area

The City of Santa Cruz Water Department serves approximately 24,535 connections in an approximate 20-square mile area. The service area includes the entire City of Santa Cruz, adjoining unincorporated areas of Santa Cruz County, a small part of the City of Capitola, and coastal agricultural lands north of the city. The current population residing in the Santa Cruz water service area is estimated to be 95,251 people. Approximately two thirds of the total population, almost 64,000, lives inside the City limits. Within the City, about 9,100 people including students, faculty, staff, and their families reside on the University of California Santa Cruz campus (City of Santa Cruz, August 2016).

City Wastewater Treatment Service Area

The City of Santa Cruz wastewater treatment facility (WWTF) serves the cities of Santa Cruz and Capitola and parts of unincorporated Santa Cruz County. In addition to the City of Santa Cruz, the WWTF serves the Santa Cruz County Sanitation District and Community Service Areas (CSA) 10 and 57; for further description, see pages 4.6-23 to 4.6-24 of the City's General Plan 2030 EIR (DEIR volume), which is incorporated by reference. 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.

4.8.1.1 Water Service

City Water Service System

Water Supply Sources

The City's water system is comprised of four main sources of supply: San Lorenzo River diversions (including the Tait wells); North Coast spring and creeks; Loch Lomond Reservoir; and the Beltz wells. Over the past decade, the North Coast sources represented 26 percent of the total water supply, the San Lorenzo River represented 55 percent, Newell Creek (Loch Lomond

Reservoir) represented 14 percent, and Beltz wells contributed the remaining 5 percent (City of Santa Cruz, August 2016).

The San Lorenzo River is the City's largest source of water supply. The main surface water diversion, known as the San Lorenzo River Diversion, is located adjacent to the coast pump station on Highway 9 near the City limits just north of Highway 1. Use of this source dates back to the 1870s and was consolidated under public ownership in 1917. The Tait Street Diversion is supplemented by shallow, auxiliary wells located directly across the river, the Tait wells. The other diversion on the San Lorenzo River is Felton Diversion, which is an inflatable dam and intake structure built in 1974, located about 6 miles upstream from the Tait Street Diversion. When the diversion is being operated, water is pumped from this diversion through the Felton Booster Station to Loch Lomond Reservoir. While the City is the largest user of water from the San Lorenzo River basin, two 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 (City of Santa Cruz, August 2016).

The North Coast water sources consist of surface diversions from three coastal creeks and a natural spring located approximately 6 to 8 miles northwest of downtown Santa Cruz. These sources are: Liddell Spring, Laguna Creek, Reggiardo Creek, and Majors Creek. The use of these sources by the City dates back as far as 1890 (City of Santa Cruz, August 2016).

Loch Lomond Reservoir is located near the town of Ben Lomond in the Santa Cruz Mountains. The reservoir was constructed in the 1960s and has a maximum capacity of 2,810 million gallons (mg). In addition to providing surface water storage, the reservoir and surrounding watershed are used for public recreation purposes, including fishing, boating, hiking, and picnicking (swimming and wading are prohibited). In addition to the City, the San Lorenzo Valley Water District is entitled by contract to receive a 314.4 acre-feet per year (AFY) of the water stored in Loch Lomond Reservoir (City of Santa Cruz, August 2016).

The Beltz well system consists of four production wells and two water treatment plants located in the eastern portion of the City water service area. The facilities were originally acquired by the City from the Beltz Water Company in 1964. The majority of the groundwater production of the City's Beltz well field is in a geographical area identified as the Santa Cruz Mid-county Groundwater Basin. Groundwater from this basin is used by the City, the Soquel Creek and Central Water Districts, several small water systems, and numerous private rural water wells. Even though groundwater constitutes only about five percent of the City's water supply, it is a crucial component of the water system for meeting peak season demands, maintaining pressure in the eastern portion of the distribution system, and weathering periods of drought (City of Santa Cruz, August 2016).

Water System Production and Operations

The Water Department follows a variety of policies, procedures and legal restrictions in operating the City's water supply system, and the amount of water produced from each of the City surface water sources is controlled by different water rights and operational agreements. A summary of water rights held by the City of Santa Cruz is provided on page 6-10 of the 2015 UWMP that is incorporated by reference. In general, the system is managed to use available flowing sources to meet daily demands as much as possible. Groundwater and stored water from Loch Lomond are used primarily in the summer and fall months when flows in the coast and river sources decline and additional supply is needed to meet higher daily water demands. In accordance with requirements of its water rights, the City releases a minimum flow of 1.0 cfs from storage in Loch Lomond Reservoir to support fishery resources beneath the dam (City of Santa Cruz, August 2016).

Water production has fluctuated over the past ten years; annual production has ranged from a high of nearly 3,800 million gallons per year (MGY) in 2006 to a low of approximately 2,500 MGY in 2015 (City of Santa Cruz, August 2016). The 2015 water production rate represents production volumes experienced under severe drought conditions during a second year of rationing with emergency water shortage regulations and state-mandated local restrictions in effect.

The 2015 UWMP estimates a 20-year water supply at about 3,200 MGY in the year 2035 based on deliveries for average years, projected water demands, and available surface water flows consistent with ecosystem protection goals regarding fish habitat.

Water is treated at the City's Graham Hill Water Treatment Plant (GHWTP), except for groundwater, which is treated as part of the Beltz well system. The GHWTP complies with all drinking water standards set by the US Environmental Protection Agency and the State Water Resources Control Board Division of Drinking Water (DDW). GHWTP is a conventional surface water treatment plant that was commissioned in 1960 with a capacity of 12 million gallons per day (MGD) plant and has undergone an expansion and numerous plant improvements over the last 55 years. Currently the plant can process up to 16 MGD and a year-round average production of 10 MGD. Continued investment in the plant through replacement and upgrade projects will enhance the water quality treatment process and respond to changes in regulation to maintain an adequate, safe, and reliable supply of water available to the service area. Groundwater treatment occurs within the Beltz well system, and the current operational capacity for production in the Beltz system is approximately 1 MGD when the City draws groundwater (City of Santa Cruz, August 2016).

Water Demand

Water demand in the City's water service area has fluctuated over the past 10 years. The 2015 UWMP indicates that water consumption in the service area ranged between nearly 3,800 MGY in 2006 to approximately 2,500 MGY in 2015 (City of Santa Cruz, August 2016). The 2015 water demand was during the second year of a severe drought with water use restrictions and rationing in place.

The adopted 2015 UWMP forecasts a 20-year water demand forecast at approximately 3,200 MGY. This is slightly reduced from the estimated 3,500 MGY forecast in the 2010 UWMP due to continuing conservation efforts (City of Santa Cruz, August 2016). Until recently, the general trend in system demand was one in which water use rose roughly in parallel with account and population growth over time, except during two major drought periods in the late 1970s and the early 1990s. Around 2000, this pattern changed and system demand began a long period of decline, accelerated by pricing changes, drought, economic downturn, and other factors (Ibid.). The UWMP predicts a decrease in water use of approximately 100 MGY over the next 20 years despite regional population growth forecasts.

Water Supply Reliability and Constraints

There are several constraints and challenges that affect the long-term reliability of the City's water supplies. The primary constraint relates to potential water shortfalls during multi-year droughts. In addition, the City also faces other challenges that potentially could affect water supplies, including: potential flow releases associated with a Habitat Conservation Plan (HCP) currently under development, the outcome of water rights petitions, groundwater availability and climate change issues.

Supply Variability and Availability During Droughts

The City's primary water supply reliability issue relates to potential shortfalls during dry and critically dry years. The City Council-appointed Water Supply Advisory Committee¹ issued the following problem statement, which also is included in the 2015 UWMP, that summarizes the key water supply issues within the City's water service area:

Santa Cruz's water supply reliability issue is the result of having only a marginally adequate amount of storage to serve demand during dry and critically dry years when the system's reservoir doesn't fill completely. Both expected requirements for fish flow releases and anticipated impacts of climate change will turn a marginally adequate situation into a seriously inadequate one in the coming years. Santa Cruz's lack of storage makes it particularly vulnerable to multi-year droughts. The key management strategy currently available for dealing with this vulnerability is

_

Downtown Plan Amendments

¹ See discussion in the following subsection regarding WSAC.

to very conservatively manage available storage. This strategy typically results in regular calls for annual curtailments of demand that may lead to modest, significant, or even critical requirements for reduction. In addition, the Santa Cruz supply lacks diversity, thereby further increasing the system's vulnerability to drought conditions and other risks. The projected worst-year gap between peak-season available supply and demand during an extended drought is about 1.2 billion gallons. While aggressive implementation of conservation programs will help reduce this gap, conservation alone cannot close this gap. The Committee's goal is to establish a reasonable level of reliability for Santa Cruz water customers by substantially decreasing this worst-year gap while also reducing the frequency of shortages in less extreme years.

As described above, the City's water supply is almost exclusively from local surface water sources whose yield varies from year to year depending on the amount of rainfall received. The water system is capable of meeting demands during normal and wet years, but is vulnerable to shortage in extended dry periods or critically dry periods. The City predicts that future water demand will be met for 90 percent of all normal water years and that existing and planned sources of water available to the City over the next twenty years will meet the predicted service area total annual water demand of about 3,200 to 3,300 MGY (City of Santa Cruz, August 2016).

The UWMP's projections for the year 2035 show a shortfall of approximately 40 MGY during normal periods, 528 MGY during single dry year periods, and 1,250 to 1,639 MGY during multiple dry year periods. The City has not previously seen shortages in normal water years, but expected reductions in water production for ecosystem protection are likely to result in small shortages (1-3 percent) prior to 2020. However, operationally the City predicts sufficient water supplies in normal years to meet demand even though a slight deficit seems to exist in the modelled projections (City of Santa Cruz, August 2016).

In an extreme multi-year drought, available water supplies are estimated to be 25 to 50 percent less than what is available during normal years depending on the severity and duration of the dry years. In multi-year or critical drought conditions, the combination of very low surface flows in the coast and river sources and depleted storage in Loch Lomond Reservoir reduces available supply to a level which cannot support average dry season demands. Compounding the situation is the need to retain a certain amount of water in the reservoir to provide supply if drought conditions continue into the following year. The existing system is not able to provide a reliable supply during multi-year droughts or prolonged periods of drier than normal hydrologic conditions (City of Santa Cruz, August 2016). As the City chose to create a representative average year by using the historic record, the inclusion of the dry years and critically dry years within the average may explain the predicted small deficit. It is important to note that the City predicts the supply and demand volumes to be in balance for 90% of all normal water years for 2020-2035.

Ecosystem Protection

The amount of North Coast water supply sources may change in the future depending on the outcome of a Section 10 Incidental Take Permit application and HCP under development. Since 2002, the City of Santa Cruz has been working toward the development of an HCP that covers effects on anadromous fish incidental to operation and maintenance of the water system, which may result in "take" of threatened and/or endangered species. An HCP is an operational avoidance and minimization and mitigation plan prepared under Section 10 of the Federal Endangered Species Act (FESA) and Section 2081 of the California Fish and Game Code for incidental take of federally or state-listed threatened and endangered species. The City initiated the HCP process because the streams from which the City diverts water currently support steelhead trout (*Oncorhynchus mykiss*), a federally-listed "threatened" species, and the San Lorenzo River and Laguna Creek support coho salmon (*Oncorhynchus kisutch*), a federally and state listed "endangered".

The City has been actively meeting with the federal and state agencies on HCP-related issues and has conducted a number of studies, but permitting has not yet been completed yet. These studies have evaluated what limiting factors may be affecting the threatened and endangered anadromous fish in these streams and measures that the City can take to avoid and minimize effects of its operations on these species. Because these studies indicate that habitat conditions in these streams could be improved with increased instream flows, the City began voluntarily diverting less flow in 2007 on an interim basis in connection with the pursuit of FESA and CESA take authorization as well Streambed Alteration Agreements for its diversion facilities. Although permit negotiations are ongoing, the City forecasts that ultimate compliance will result in less water being available from the City's surface water sources for supply in future years compared to the past. This, in turn, will place greater reliance on water stored in Loch Lomond Reservoir to meet the community's annual water needs and exacerbate the potential vulnerability to shortages described above (City of Santa Cruz, August 2016).

Water Rights Petitions

The City is addressing two water rights issues that may affect the City's water supply. In 2008, the City submitted petitions to the State Water Resources Control Board (SWRCB) to address a historical oversight in the language of the City's water rights documents for Newell Creek and the San Lorenzo River at Felton (Felton Diversion) and to request a time extension for the full development of the 3,000 acre-feet permit to divert water from the San Lorenzo River at Felton and to add the rights of direct diversion at Newell Creek and the Felton Diversion. The City's intent is to eliminate technical constraints for operations of its water supplies. Recently completed water supply planning work done by the Water Supply Advisory Committee (described in more detail below) identified water from the Felton Permits as being critical to meeting the City's projected future demand (City of Santa Cruz, August 2016).

Groundwater Availability and Management

The City has joined with the Soquel Creek and Central Water Districts, the County of Santa Cruz, and private well representatives to form the Santa Cruz Mid-County Groundwater Agency (MGA), the local GSA created pursuant to the requirements of the California Sustainable Groundwater Management Act. The MGA will oversee the preparation of a cooperative groundwater management plan for the now redefined Santa Cruz Mid-County Groundwater Basin, which includes the former Soquel Valley Basin and portions of three adjacent basins – the West Santa Cruz Terrace Basin, the former Santa Cruz Purisima Formation Basin, and the original Pajaro Valley Basin. The Soquel Valley Basin was identified by the State as a groundwater basin subject to critical conditions of overdraft (California Department of Water Resources, December 2016). Over-pumping in the Soquel-Aptos Basin resulted in a groundwater overdraft condition and seawater intrusion along the coast. The portion of the Purisima aquifer from which the City pumps has been recognized locally as being threatened by potential over-pumping with an ongoing risk of seawater intrusion that could jeopardize the future production of the City's groundwater sources (City of Santa Cruz, August 2016).

Climate Change

As the City of Santa Cruz water supply consists of only local sources maintained and recharged by natural processes, the potential effects related to climate change could greatly impact the sources of supply. According to the 2015 UWMP, it is widely accepted that climate change may make the future hydrology drier than the historical record maintained in the region, and general forecasts describe deviation in the seasonal patterns of rainfall with longer and more severe droughts. Additionally, the annual average temperature in the region may increase leading to variability in the rate of evaporative processes that can greatly impact local sources and watersheds. Climate change impacts are likely to be a contributor to a less reliable supply and also a driver for strengthening demand management planning (City of Santa Cruz, August 2016).

Water Supply Planning and Water Shortage Contingency Plan

Given water supply reliability issues discussed in the previous section, the City of Santa Cruz has actively considered and pursued water supply and demand management projects over the past 20 years to supply options and to enhance the reliability of the system. In October 2013, the City Council directed City staff to develop a detailed engagement program for a community examination of water supply issues. City staff developed a framework for a Water Supply Advisory Committee (WSAC), and the Council approved the 14-member WSAC in March 2014. The purpose of the WSAC, as established by Council-approved WSAC charter on June 24, 2014, was to "explore, through an interactive, fact-based process, the City's water profile, including supply, demand and future threats, and analyze potential solutions to deliver a safe, adequate, reliable and environmentally sustainable water supply, and develop strategy recommendations for City Council consideration". The WSAC completed their work in October 2015, and the City Council accepted their Final Report in late 2015 that included the following recommendations for water augmentation strategies:

L	million gallons of demand reduction by the year 2035.
	Passive recharge of regional aquifers by working to develop agreements for delivering surface water as an in lieu supply to the Soquel Creek Water District and/or Scotts Valley Water District so they can "rest their wells", help aquifers recover and store water that can become available to the City of Santa Cruz Water Department in drought years.
	Active recharge of regional aquifers by using existing and some potential new infrastructure in the regionally shared Purisima aquifer in the Soquel-Aptos basin and/or in the Santa Margarita/Lompico/Butano aquifers in the Scotts Valley area to store water that can be available for use by Santa Cruz in drought years.
C	A potable water supply using advanced treated recycled water as its source, as a supplemental or replacement supply in the event the groundwater storage strategies described above prove insufficient to meet the Plan's goals of cost effectiveness, timeliness and yield. In the event advanced treated recycled water does not meet the needs, desalination would become the last element (City of Santa Cruz, August 2016).
augment	ptance of the WSAC report by City Council, development began on the supply ion strategy work plan that further defines the components of the implementation meline included in the WSAC Final Report. The work plan is comprised of the following
	Water Conservation or Demand Management (Strategy 1)
	In lieu water transfers with neighboring agencies (Strategy 1 Element 1)
	Aquifer Storage and Recover (Strategy 1 Element 2)
	Advanced Treated Recycled Water or Seawater Desalination (Strategy 2 Element 3)
The initi:	phase of the supply augmentation strategy involves enhancement of the existing

The initial phase of the supply augmentation strategy involves enhancement of the existing conservation programs as well as evaluation of the feasibility alternative future supply projects focused on solving the 1.2 billion gallon annual (or 1,200 MGY) shortfall identified in the WSAC report under multiple year droughts. An updated Water Conservation Master Plan was completed in 2016 to define the next generation of water conservation activities. The draft plan includes 35 measures for implementation by 2021, many of which are already underway. The projected per capita water use in gallons per person per day (gpcd) is expected to decline to about 92 gallons per person per day, far below the City's 2020 target of 110 gpcd, and continuing to decline to a level of about 78 gpcd by 2035 (City of Santa Cruz, August 2016).

The City also is working with the Soquel Creek and Scotts Valley Water Districts (SqCWD, SVWD) on an in-lieu transfer project. In-lieu transfers include short-term and long-term projects that would deliver excess City water to SqCWD and/or the Scotts Valley Water District during winter

that would reduce pumping from regional aquifers and assist with groundwater recharge and recovery. The short-term project utilizes existing infrastructure that connects the SqCWD and the City water system and uses surplus water from the City's North Coast sources. A pilot program is in place to collect information related to physical operations, water quality, response of groundwater levels, and the potential to develop a larger and/or long-term project. The long-term project may include higher volumes of water transfers including those from the San Lorenzo River, which would require modifications to the City's water rights. An aquifer storage and recovery (ASR) study is also underway that is looking at regional options for groundwater injection, storage, and future extraction in order to actively recharge regional aquifers. A portion of the water delivered using in-lieu transfers or ASR facilities would be effectively banked in the aquifers to be extracted and returned to the City when needed in future dry years. The City's current work plan indicates that the feasibility of both in-lieu and ASR programs are projected to be understood by the end of 2020 (City of Santa Cruz, March 6, 2017).

Advanced treated recycled water or desalinated water would be developed as a supplemental or replacement supply in the event the groundwater storage strategies described above prove insufficient to meet the plan's goals of cost-effectiveness, timeliness and yield. If it is determined that recycled water cannot meet the City's shortfall needs, desalinated seawater would be used. A recycled water feasibility study is underway, and a desalination project feasibility update is expected to be initiated in May 2017. The City's current work plan indicates that both studies will be complete by the end of the year.

The City will determine which element or elements to pursue based on the outcome of the studies currently in progress.

Additionally, in 2009, the City of Santa Cruz completed a comprehensive update of its Water Shortage Contingency Plan. Since then, the City has had to declare a water shortage in five of the past seven years, including a Stage 3 Water Shortage Emergency in both 2014 and 2015. The City's Water Shortage Contingency Plan describes the conditions which constitute a water shortage and provides guidelines, actions, and procedures for managing water supply and demands during a declared water shortage. The primary focus of the plan is on measures that reduce customer demand for water, but it also covers actions that can be implemented to stretch or increase the water supply (City of Santa Cruz, August 2016).

4.8.1.2 Wastewater Treatment

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, April 2012, DEIR volume).

Treatment Levels and Plant Capacity

The City's WWTF was upgraded in 1998 to provide secondary treatment in order to meet state and federal waste discharge requirements, and 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 (City of Santa Cruz, April 2012, DEIR Volume).

The WWTF is not currently permitted for and does not now produce recycled water for offsite reuse. The current level of treatment is not sufficient for general irrigation without additional treatment and facility upgrades. 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, April 2012, DEIR volume). The City of Santa Cruz is actively investigating the feasibility of recycled water.

The WWTF has a permitted wastewater treatment capacity of 17.0 million gallons per day (mgd). In 2016, the WWTP treated 3.3 billion gallons of wastewater effluent at an average daily rate of 9.04 mgd (lbid.). 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.

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 pipe provides an initial dilution of greater than 139 parts seawater to one part wastewater (City of Santa Cruz, April 2012, DEIR volume). 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 pump stations and 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 (City of Santa Cruz, April 2012, DEIR Volume).

4.4.2 Impacts and Mitigation Measures

Standards of 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 insufficient water supplies available to serve the project from existing entitlements and resources, and/or require new or expanded entitlements to serve the project;
- 8b 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
- 8c Substantially deplete groundwater supplies or interfere substantially with groundwater recharge.
- 8d Result in wastewater flows exceed sewer line or treatment plant capacity or contribute substantial increases to flows in existing sewer lines that exceed capacity.

Analytical Method

The proposed project consists of amendments to the City's Downtown Recovery Plan, General Plan, Local Coastal Plan and Zoning Code regarding development in the downtown area and Central Business District. The proposed project would not directly result in new development. However, the proposed Downtown Plan amendment would expand areas for potential additional building height that could accommodate intensified redevelopment of existing developed sites. City staff estimates that the proposed amendments could indirectly lead to development, resulting in a potential net increase of 711 new residential units and 2,200 square feet of office space with a net decrease of approximately 14,700 square feet of commercial building space over existing conditions within the downtown area. The proposed General Plan amendment would increase FAR in areas designated as RVC in the General Plan, but would not lead to development on sites not already considered in the General Plan and General Plan EIR. The proposed LCP and Zoning Code amendments would not result in changes that could indirectly lead to intensified development. The following impact analyses are based on review of existing data and studies.

Project water demand is estimated based on water demand rates developed as part of the City's 2015 Urban Water Management Plan update. The impact analysis is based on findings of the 2015 UWMP and consultation with City of Santa Cruz Water Department staff. Wastewater generation was reviewed based on review of existing data in the General Plan and review with City staff.

Impacts and Mitigation Measures

No impacts were identified regarding existing or expanded water treatment facilities (8b) as explained below. As indicated in the Initial Study (Appendix A), the project would not affect groundwater recharge (8c). The following analysis assesses impacts to the City of Santa Cruz water supplies as a result of water demand associated with development of the proposed project (8a) and potential impacts to wastewater treatment (8d).

New or Expanded Facilities – No Impact. 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 (6b) (Goddard, City of Santa Cruz Water Department, personal communication, March 2017). The project would require new domestic, irrigation and fire service connections from existing infrastructure to serve the project, all of which are available. Therefore the project will result in no impacts from the construction of new or expanded water facilities.

Impact 4.8-1:

Water Supply. Adoption of the proposed plan amendments could indirectly result in intensified development with a demand for potable water in a system that, under existing conditions, has adequate supplies during average and normal years, but is subject to potential supply shortfalls during dry and critically dry years. The additional project demand would not result in a substantial increase during dry years and would not be of a magnitude to affect the level of curtailment that might be in effect (8a). Therefore, the impact is considered a *less-than-significant impact*.

The proposed project would not directly result in new development, but could lead to intensified development in the project study area, resulting in increased water demand over the next 25 years. Based on water demand rates documented in the City's adopted 2015 UWMP, the proposed project could result in a water demand of approximately 29 MGY based on City of Santa Cruz Water Department rates for multi-family dwelling units and office and commercial uses. This demand represents less than one-hundredth of one percent of the total estimated future water demand within the City's service area. Furthermore, the demand is within the amount of new multi-family dwellings considered in demand forecasts for the 2015 UWMP.

The 2015 UWMP documents a trend of declining water demand since the year 2000, and total water demand is projected to decline over the 20-year UWMP period due to continued implementation of conservation programs and other measures. However, as indicated above,

projections for the year 2035 estimate a shortfall of approximately 40 MGY during normal periods, 528 MGY during single dry year periods, and 1,639 MGY during multiple dry year periods (City of Santa Cruz, August 2016). Current water supplies are adequate during average and normal years to serve the project. During periods of dry years and drought, water customers would be subject to water curtailment as enacted by the City. A multiple dry year scenario would require more substantial curtailment of all water customers. However, the proposed project's minimal demand (less than one hundredth of one percent of the total water service area demand) would not have significant effects on the levels of water supply or curtailment that would be required throughout the service area. Therefore, the impact of increased water demand on water supplies due to the proposed project is considered less than significant as there are sufficient supplies from existing sources to serve the project.

Furthermore, the City continues to administer its water conservation program, has completed a Conservation Master Plan, and is implementing a water augmentation plan. The City is has defined water supply augmentation strategies that are being studied in order to provide increased production between 2020 and 2035 to address potential drought shortages. The plan includes the pursuit of the following portfolio of options: continued and enhanced conservation programs; passive recharge of regional aquifers; active recharge of regional aquifers; and a potable supply using advanced treated recycled wastewater or desalinated water if recycled water did not meet City needs. These prospective sources are still under evaluation. A water transfer pilot program is underway for the passive recharge strategy.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

Impact 4.8-2:

Wastewater Treatment. Adoption and implementation of the proposed plan amendments 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 (8d). Therefore, the impact is considered a less-than-significant impact.

The proposed project would not directly result in new development, but could lead to intensified development in the project study area, resulting in increased water demand over the next 25 years. The City Public Works Department generally estimates wastewater flows as a percentage of water use (City of Santa Cruz, April 2012, DEIR volume). Based on the water demand rates identified in in the Impact 4.8-1 discussion, it is estimated that development accommodated by the proposed project would equate to an average daily wastewater flow increase of approximately 0.060 mgd. 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).

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

4.9 LAND USE

This section reviews existing land uses in the vicinity, and applicable policies and regulations that pertain to the project as identified for review in the State CEQA Guidelines.

Public and agency comments related to land use were received during the public scoping period in response to the Notice of Preparation (NOP). Issues raised in these comments include:

The standard of review for Local Coastal Plan-Land Use Plan amendments is that they must be consistent with Chapter 3 policies of the Coastal Act.
The EIR should evaluate appropriate land use and zoning designations for the locations adjacent to and near the Riverwalk along Front Street, such as mixed-used zoning with visitor-serving and coastal recreational uses.
EIR should provide explanation of why San Lorenzo River Urban River Plan (SLURP) policies are being eliminated.
Potential conflicts with development patterns in the area due to changes in density resulting from the General Plan and zoning amendments at the City's "urban edge".

To the extent that issues identified in public comments involve potentially significant effects on the environment according to the California Environmental Quality Act (CEQA) and/or are raised by responsible agencies, they are identified and addressed within this EIR. Public comments received during the public scoping period are included in Appendix B. The comment regarding consideration of other land use and zoning designations is noted, but is not within the scope of the proposed amendments. It is noted, however, that both the Community Commercial General Plan designation and the Downtown Recovery Plan encourage mixed uses.

4.9.1 Environmental Setting

Regulatory Setting

The City of Santa Cruz General Plan 2030, the Local Coastal Plan, and Title 24 (Zoning) of the Municipal Code govern land use and development for parcels within City limits. The southern portion of the project area is located within the coastal zone as is the beach area that would be affected by the proposed General Plan amendment.

Vicinity Land Uses

The project area is located within downtown Santa Cruz and is located to the west of the San Lorenzo River. The area is characterized by a mix of primarily commercial buildings, some of which have upper floor office and residential units. The area supports a mix of both pre- and post- Loma Prieta earthquake constructed structures with a variety of architectural styles and

building heights. Most of the buildings constructed after the earthquake are located north of Cathcart Street.

The project area subject to changes in building height is located along Pacific Avenue and Front Street generally between Laurel Street on the south and Cathcart Street on the north, with the west side of Front Street up to Soquel Avenue. The area is characterized by a mix of commercial structures, some of which have upper floor office uses. South of Cathcart, residential uses are limited primarily to the building at 1010 Pacific Avenue. Buildings along Front Street are a mix of mostly older buildings of varying architectural styles, sizes and heights. The older buildings along Front Street are generally one story and approximately 16-20 feet in height. Buildings are a mix of two and three stories along Pacific Avenue and generally one story in height along Front Street. There is less street tree landscaping along lower Front Street. Photos of representative views in the project area and downtown are shown on Figure 4.1-1.

Relevant Plans and Zoning Regulations

General Plan

All areas within the project study area are designated "RVC" (Regional Visitor Commercial) with a 0.25 to 3.5 floor area ration (FAR) in the City's existing *General Plan 2030*. This designation 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.

Local Coastal Plan

A portion of the downtown and project study area lies within the coastal zone. Pursuant to the California Coastal Act, the City has a Local Coastal Plan (LCP) that was certified by the California Coastal Commission (CCC). The LCP consists of a land use plan, implementing ordinances and maps applicable to the coastal zone portions of the City, and applies to all private and public projects located within the coastal zone. The Land Use Plan consists of: text; policies, programs and maps; Area Plan coastal policies and maps; and a Coastal Access Plan. The Implementation Plan consists of ordinances and regulations used to implement the Land Use Plan, including sections in the Zoning Code. The City is in the process of updating and revising the LCP Land Use Plan as a separate document from the General Plan. The LCP applies to private and public projects located within the coastal zone. Additionally, Chapter 4 of the Downtown Recovery Plan is incorporated by reference in the CBD zone district, and the district is part of the implementation section of the LCP.

In addition to the development standards of Chapter 4, there are several LCP policies that are proposed to be modified. Since the original certification of the City's LCP in 1985, additional plans have been prepared and policies incorporated into the LCP as amendments. The City adopted the San Lorenzo Urban River Plan (SLURP) in 2003 as a resource management protection plan for the river. Subsequent to the City Council approval, several resource-related and land use policies were included in the LCP and approved by the CCC as an amendment to the City's LCP. There are nine coastal policies based on the SLURP that pertain to development along Front Street within the coastal zone.

Downtown Recovery Plan

The Downtown Recovery Plan (DRP) was adopted in 1991 to guide reconstruction of the 1989 Loma Prieta earthquake as the earthquake destroyed significant portions of downtown Santa Cruz. The intent was to establish policies, development standards and guidelines to direct the recovery process toward the rebuilding after the earthquake. In addition to an Introduction, Summary, and Implementation Strategy, the DRP includes the following components:

Land Use Plan for four subareas (Chapter 3),
Development Standards and Design Guidelines (Chapter 4)
Circulation and Parking Plan (Chapter 5)
Streetscape and Open Space Plan (Chapter 6).

The DRP has been modified several times over the past 25 years with the most recent change in 2016 to relocate the downtown sign regulations from the DRP to Chapter 24 of the Zoning Code. Implementation of the DRP also included amendments to the Zoning Code. Specifically, DRP Chapter 4—Development Standards and Design Guidelines—is incorporated by reference in Part 24 of the Zoning Code, the Central Business District (CBD).

Zoning Code

The downtown areas are zoned "Commercial Business District" (CBD). This district implements the Land Use Plan, Development Standards and Design Guidelines of the DRP. It is intended to refine the Plan in the area of land use and regulations. It supports the purpose of the DRP, in the context of the General Plan, which aims to make downtown the urban center of the city, with the many functions a city center serves. This section of the Zoning Ordinance is also part of the Local Coastal Implementation Plan. The DRP and CB is divided into four subareas, in order to enhance the character of each by special consideration of the character of each. The Lower Pacific Avenue subdistrict has been added and consists of the CBD District South of Laurel Street. The Lower Pacific Avenue subdistrict is intended to implement the policies of the South of Laurel Plan and is separate from the Downtown Recovery Plan. The project study area is located with the Pacific Avenue Retail subdistrict and the Front Street/Riverfront subdistrict.

4.9.2 Impacts and Mitigation Measures

Thresholds of 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. Physically divide an established community;
- 9b. 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
- 9c. Conflict with any applicable Habitat Conservation Plan or Natural Community Conservation Plan.

Analytical Method

Site visits of the project vicinity were conducted to ascertain surrounding land uses and development. Relevant City plans were reviewed with regards to land use concerns or policy issues with which the project might result in potential conflicts.

Impacts and Mitigation Measures

As described in the Initial Study (see Appendix A), the project site is located within the developed downtown area of the City, as well as the developed beach area and upper Ocean Street area. The proposed development would not physically divide an established community (9a). There are no adopted Habitat Conservation or Community Conservation Plans in the project area (9c).

The following impact analyses address potential project conflicts with any applicable land use plan, policy, or regulations adopted for the purpose of avoiding or mitigating an environmental effect (9b).

Impact 4.9-1: Conflicts with Policies and Regulations. The proposed project will not conflict with policies or regulations adopted for the purpose of avoiding or mitigating an environmental effect, and therefore, will result in *no impact*

related to consistency with local plans and policies.

The following discussion provides an overview of consistency with local plans and policies. The proposed project consists of a series of amendments to the following adopted City plans. Amendment to Municipal Code Section 24.10, Part 24, Central Business District (CBD), of the Zoning Code to modify extension area regulations and add Parklet standards.

- Downtown Recovery Plan: Amendment to extend Additional Height Zone A, modify Additional Height Zone B, and modify development standards as fully described in Chapter 3, Project Description.
 General Plan 2030: Amendment to modify Floor Area Ratio for the Regional Visitor Commercial land use designation in the downtown area. The reason for General Plan Amendment is that the CBD zone is the primary zone district that implements the broader RVC General Plan land use designation. The modifications proposed for the CBD additional height Zone A between Pacific Avenue and Front Street would potentially allow for upper level floor area that could exceed the existing 3.5 FAR.
- Local Coastal Plan (LCP): Amendment to Land Use Plan text to modify San Lorenzo Urban River Plan land use development policies. There are several LCP policies that are proposed to be modified. Since the original certification of the City's LCP in 1985, additional plans have been prepared and policies incorporated into the LCP as amendments. The City adopted the San Lorenzo Urban River Plan (SLURP) in 2003 as a resource management protection plan for the river. Subsequent to the City Council approval, several resource-related and land use policies were included in the LCP and approved by the CCC as an amendment to the City's LCP. There are nine coastal policies based on the SLURP that pertain to development along Front Street within the coastal zone. The proposed amendment would modify one policy, eliminate the other existing eight policies, and add two new LCP policies.

The LCP policies proposed for deletion address maintenance of 50-foot building heights along Front Street, provision of public amenities, and building architecture. Appendix C lists the policies proposed for deletion with an explanation provided by City Planning Department staff. The primary reason for deletion is either the language is from a process that is now outdated or applies to properties outside of the coastal zone. It is

also noted that the SLURP was intended as a resource protection programmatic guide and not a land use planning document regarding policies on building height. Since the adoption of the SLURP, the City has undertaken a comprehensive effort to update the principal land use document for the area – the Downtown Recovery Plan. Development standards for this area are appropriately located in the DRP and not within the Local Coastal Plan. However, the following three policies proposed for elimination address building height and views, but would be inconsistent with proposed Downtown Plan amendments if those are approved. The proposed amendment includes elimination of the SLURP LCP policy to limit heights to 50 feet in the Front Street/Riverfront area. The policies related to building heights, mass and views; see section 4.1 of this EIR, Aesthetics, for a full discussion of impacts of the proposed amendments on building height, massing and overall aesthetic and visual character of the study areas.

- SRFA 1 Maintain existing development standards in the Downtown Recovery Plan (DRP) for the Front Street Riverfront Area including principal permitted uses for ground-level and upper-floors, conditional uses, and height and step back requirements. Maintain maximum height restriction to 50 feet with development above 35 feet in height stepping back at least 10 feet at an angle not to exceed 42 degrees. (DRP, p. 47-50)
- SRFA 10 Maintain views from both taller downtown buildings to the River and from the River trail to distant mountains and ridges, avoiding creation of a development "wall" between the downtown and the River.
- SRFA 11 Preserve views along the Front Street area to and from Beach Hill, a significant historic feature in this area.

The proposed new LCP SLURP policies are:

- Require new development projects to incorporate design features that encourage active engagement with the Riverwalk such as: filling adjacent to the Riverwalk and landscaping, providing direct physical access to the Riverwalk, including appropriate active commercial and/or residential uses adjacent to the Riverwalk, or providing a combination of these and/or other design features that support the resource enhancement and river engagement policies of the San Lorenzo Urban River Plan.
- Require new development projects to incorporate pedestrian and/or bicycle connections between Front Street and the Riverwalk at appropriate locations such as the extensions from Maple Street and near Elm Street.

California Coastal Commission (CCC) staff have indicated that the standard of review for a LCP amendment is consistency with policies in the Coastal Act. Coastal Act consistency will be made by the CCC at the time the LCP amendment is reviewed.

9711.0003

In accordance with Appendix G of the state CEQA Guidelines, the review focuses on potential project conflicts with policies or regulations adopted for the purpose of avoiding or mitigating an environmental impact. 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 summarized in Table 4.9-1 at the end of this section. It is also noted that the proposed Downtown Plan amendments are consistent with General Plan Action CD2.1.7 that calls for an update to 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."

The City's General Plan includes a number of policies and actions to promote use of alternative transportation modes. In accordance with significance criteria 3f in Section 4.8 of this EIR, Transportation and Traffic, the General Plan mobility policies were reviewed to determine potential project conflicts with adopted plans, plans or programs regarding public transit, bicycle or pedestrian facilities. The project would not conflict with any such policies as summarized on Table 4.9-1.

It is noted that there are other policies in these plans which are applicable to the project, and which address a broader range of land use, project design, circulation, and planning concerns. Project consistency with local adopted plans and policies will be determined ultimately by the City Council. Because the policy language found in any city or county general plan is often susceptible to varying interpretations, it is often difficult to determine, in a draft EIR, whether a proposed project is consistent or inconsistent with such policies. Case law interpreting the Planning and Zoning Law (Gov. Code, § 65000 et seq.) makes it clear that: (i) the ultimate meaning of such policies is to be determined by the elected city council, as opposed to city staff and EIR consultants, applicants, or members of the public; and (ii) the city council's interpretations of such policies will prevail if they are "reasonable," even though other reasonable interpretations are also possible (See No Oil, Inc. v. City of Los Angeles (1987) 196 Cal.App.3d 223, 245-246, 249.) Courts also have recognized that, because general plans often contain numerous policies emphasizing differing legislative goals, a development project may be "consistent" with a general plan, taken as a whole, even though the project appears to be inconsistent or arguably inconsistent with some specific policies within a given general plan (Seguoyah Hills Homeowners Association v. City of Oakland (1993) 23 Cal.App.4th 704, 719). Furthermore, courts strive to "reconcile" or "harmonize" seemingly disparate general plan policies to the extent reasonably possible (No Oil, supra, 196 Cal.App.3d at p. 244).

Consistency with Regional Plans

The State CEQA Guidelines section 15125(d) require that a discussion be provided regarding any inconsistencies between a proposed project and applicable general and regional plans. Examples of other regional plans include air quality plans, water quality control plans, regional transportation plans, regional housing allocation plans, habitat conservation plans and regional land use plans. As discussed in section 4.2 of this EIR, Air Quality and Greenhouse Gas Emission, the project would not conflict with the Monterey Bay Unified Air Pollution Control District's "Air

9711.0003

Quality Management Plan". There are no provisions in the current Basin Plan¹ (water quality) that are applicable to the proposed project. There are no Habitat Conservation Plans in the project area or other regional plans with which the project may be in conflict. Applicable regional transportation plans are discussed in Section the TRANSPORTATION and TRAFFIC (Chapter 4.4) section of this EIR. The proposed project consists of residential development and does conflict with regional housing allocation plans.

Mitigation Measures

No mitigation measures are required as a significant impact has not been identified.

July 2017 4.9-8

Downtown Plan Amendments

¹ Regional Water Quality Control Board, Central Coast Region. June 2011. "Water Quality Control Plan for the Central Coastal Basin."

 TABLE 7-1: Potential Project Conflicts with City of Santa Cruz General Plan Policies

[POLICIES RELATED TO MITIGATING ENVIRONMENTAL IMPACTS]

Element Policy Number		Policy	Potential Conflict			
General Plan 203	General Plan 2030					
COMMUNITY DESIGN	CD1.2	Ensure that the scale, bulk and setbacks of new development preserve important public scenic views and vistas.	NO CONFLICT: Future development would not impact public scenic views.			
	CD3.2	Ensure that the scale, bulk and setbacks of new development preserve public views of city landmarks where possible.	NO CONFLICT: Future development would not affect public views or City landmarks as none exist in the vicinity of the project.			
LAND USE LU1.3		Ensure that facilities and services required by a development are available, proportionate, and appropriate to development densities and use intensities.	NO CONFLICT: Public services are available.			
MOBILITY M3.1.3		Strive to maintain the established "level of service" D or better at signalized intersections.	NO CONFLICT: Project traffic would not result in a decrease in level of service below D at any signalized intersection.			
	M3.3.4	Mitigate safety, noise, and air quality impacts from roadways on adjacent land uses through setbacks, landscaping, and other measures.	NO CONFLICT WITH MITIGATION: No significant air emission impacts were identified. Inclusion of structural design features to attenuate exterior noise levels is a required mitigation measure for future development.			
CIVIC AND CC5.1.8 COMMUNITY FACILITIES		Require new development to maintain predevelopment runoff levels.	NO CONFLICT: Future development accommodated by the proposed Plan amendments will be required to comply with the City's stormwater requirements and regulations.			
CC5.1.9 Reduce stormy		Reduce stormwater pollution.	NO CONFLICT: Future development would be in compliance with City requirements.			
HAZARDS, SAFETY AND NOISE	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."	NO CONFLICT: No significant air emission impacts were identified, and no mitigation is required.			
	HZ3.1.1	Require land uses to operate at noise levels that do not significantly increase surrounding ambient noise.	NO CONFLICT: No significant impacts were identified related to project increases in ambient noise levels.			

Downtown Plan Amendments 9711.0003

 TABLE 7-1: Potential Project Conflicts with City of Santa Cruz General Plan Policies

[POLICIES RELATED TO MITIGATING ENVIRONMENTAL IMPACTS]

Element Policy Number		Policy	Potential Conflict	
HZ3.1.6		Require evaluation of noise mitigation measures for projects that would substantially increase noise.	NO CONFLICT WITH MITIGATION: Inclusion of structural design features in future development to attenuate exterior noise levels is a required mitigation measure.	
PARKS, RECREATION,	PR1.3.1	Ensure that adequate park land is provided in conjunction with new development.	NO CONFLICT: Future projects will be required to pay park dedication fee.	
AND OPEN PR4.2.3 SPACE		Require development projects located along planned trail routes to dedicate trails or trail easements.	NO CONFLICT: Proposed Downtown Plan amendments require dedication of access along Cathcart, Maple and Elm Street extensions.	
NATRUAL NRC1.2.1 RESOURCES		Evaluate new uses for potential impacts to watershed, riverine, stream, and riparian environments.	NO CONFLICT WITH MITIGATION: Potential indirect significant impacts to birds as a result of future construction of taller buildings can be mitigation to a less-than-significant level.	
AND NRC2.1.3 CONSERVATION		Evaluate development for impacts to special-status plant and animal species.	NO CONFLICT: No potentially significant impacts to special status plant or wildlife species were identified.	
LCP Land Use Plan				
COMMUNITY 2.2 DESIGN		Preserve important public views and viewsheds by ensuring that the scale, bulk and setback of new development does not impede or disrupt them.	NO CONFLICT: Future development would not impact public scenic views.	

Downtown Plan Amendments 9711.0003

CHAPTER 5 CEQA CONSIDERATIONS

Section 15126 of the California Environmental Quality Act (CEQA) Guidelines requires that all aspects of a project must be considered when evaluating its impact on the environment, including planning, acquisition, development, and operation. The EIR must also discuss (1) significant environmental effects of the proposed project, (2) significant environmental effects that cannot be avoided if the proposed project is implemented, (3) significant irreversible environmental changes that would result from implementation of the proposed project, and (4) growth-inducing impacts of the proposed project. Chapter 2, Summary, and Sections 4.1 through 4.7 of this EIR provide a comprehensive identification and evaluation of the proposed project's environmental effects, mitigation measures, and the level of impact significance both before and after mitigation. This section addresses the other required topics identified above, as well as cumulative impacts and project alternatives.

5.1 SIGNIFICANT UNAVOIDABLE IMPACTS

The State California Environmental Quality Act (CEQA) Guidelines require a description of any significant impacts, including those that can be mitigated but not reduced to a level of insignificance (section 15126.2(b)). Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described. This EIR identified no significant unavoidable project impacts. Significant cumulative impacts were identified for traffic, water supply and schools, but the project's contribution is not cumulatively considerable, except for cumulative traffic impacts.

5.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The State CEQA Guidelines require a discussion of significant irreversible environmental changes with project implementation, including uses of nonrenewable resources during the initial and continued phases of the project (section 15126.6(c)). The Guidelines indicate that use of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Irreversible damage can also result from environmental accidents associated with the project. Section 15227 further requires this discussion only for adoption of a plan, policy or ordinance by a public agency; the adoption by a Local Agency Formation Commission (LAFCO) of a resolution making determinations; and projects which require preparation of an EIS under the National Environmental Policy Act (NEPA). Since the proposed project consists of amendments

Downtown Plan Amendments

to the Downtown Recovery Plan, General Plan and Local Coastal Plan, a discussion of significant irreversible changes is provided below.

As indicated, in section 15126.2(c):

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible, since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

According to section 15126.2(c), a project would generally result in a significant irreversible impact if:

- The project would involve a large commitment of nonrenewable resources during initial and continued phase of the project;
- Primary and secondary impacts would generally commit future generations to similar uses;
- The project would involve uses in which irreversible damage could result from environmental accidents; or
- The proposed consumption of resources is not justified (e.g., the project involves the wasteful use of energy).

Future development accommodated by the proposed plan amendments could result in intensified development in the downtown on sites that are already utilized for urban development and are surrounded by urban development. Both the Downtown Plan and General Plan encourage a mix of land uses in this area. Thus, the proposed Plan would not commit future generations to uses that do not already exist.

Future development would result in the permanent and continued consumption of electricity, natural gas, and fossil fuels. Development accommodated by the proposed plan amendments would irretrievably commit nonrenewable resources to the construction and maintenance of buildings, infrastructure and roadways. Energy demands would result for construction, lighting, heating and cooling of residences, and transportation of people within, to and from the City. However, the consumption of these resources would not represent unnecessary, inefficient, or wasteful use of resources given the implementation of proposed policies that address water, lighting and energy conservation measures. Several policies in the General Plan 2030 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. See Section 4.6 for further discussion.)

In addition, new structures will be required to be constructed in accordance with specifications contained in Title 24 of the California Code of Regulations, the City's Green Building Regulations and City regulations regarding water conservation. 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.

Irreversible changes to the physical environment could occur from accidental release of hazardous materials associated with future development activities. However, environmental accidents would be minimized adherence to federal, state and local regulations. Future development accommodated by the proposed General Plan would be required to comply with all applicable federal, state and local laws regarding, transportation, storage, use and disposal of hazardous materials, which reduces the likelihood and severity of accidents that could result in irreversible environmental damage. Compliance with State and federal hazardous materials regulations would reduce the potential for accidental release of hazardous materials to a less-than-significant level.

No other irreversible changes are expected to result from the adoption and implementation of the proposed amendments.

5.3 GROWTH INDUCEMENT

CEQA requires that any growth-inducing aspect of a project be discussed in an EIR. This discussion should include consideration of ways in which the project could directly or indirectly foster economic or population growth in adjacent and/or surrounding areas. Projects which could remove obstacles to population growth (such as major public service expansion) must also be considered in this discussion. According to CEQA, it must not be assumed that growth in any area is necessarily beneficial, detrimental or of little significance to the environment.

The proposed project would result in a net increase of approximately 711 residential units and 2,200 square feet of office space as well as a net decrease of approximately 14,700 square feet of commercial building space over existing conditions within the study area. Thus, the project would directly foster population growth. The potential increase in office space would be offset by a potential reduction in commercial space, and thus, the project would not be expected to induce substantial economic growth.

The current City of Santa Cruz population is 64,632, and there are an estimated 23,635 housing units in the City. Census data for the tract that contains the downtown project shows an average household size of 1.83 (American Community Survey 5-year 2011-2015 Table S1101), which is slightly below the citywide average household size of 2.4 persons. Based on this data future development accommodated by the proposed plan amendments could result in a population increase of 1,301 to 1,706 persons based on household sizes of 1.83 and 2.4, respectively.

The Association of Monterey Bay Area Governments (AMBAG) develops population and housing forecasts for the region. The current forecast for the City of Santa Cruz in 2020 is 66,860 people and 26,890 housing units. With the additional housing units and population potentially resulting from the proposed project, the City of Santa Cruz will still be below these forecasts. Furthermore, it is expected that development pursuant to the proposed amendments will occur over a 25-year period. Therefore, population and housing growth due to the project is not substantial.

The project does not include offsite improvements or extension of water or sewer into undeveloped areas, and thus, the project site would not remove obstacles to development and population growth. Therefore, the project would not indirectly foster population or economic growth.

5.4 CUMULATIVE IMPACTS

State CEQA Requirements

The State CEQA Guidelines section 15130(a) requires that an EIR discuss cumulative impacts of a project "when the project's incremental effect is cumulatively considerable." As defined in Section 15355, a cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. As defined in section 15065(a)(3), "cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects. Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," the lead agency need not consider the effect significant.

CEQA requires an evaluation of cumulative impacts when they are significant. When the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR. Furthermore, according to the California State CEQA Guidelines section 15130 (a)(1), there is no need to evaluate cumulative impacts to which the project does not contribute.

An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus not significant when, for example, a project funds its fair share of a mitigation measure designed to alleviate the cumulative impact. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide detail as great as that provided for the impacts that are attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified project contributes.

CEQA section 21094(e)(1) states that if a lead agency determines that a cumulative effect has been adequately addressed in a prior environmental impact report, that cumulative effect is not required to be examined in a later EIR. The section further indicates that cumulative effects are adequately addressed if the cumulative effect has been mitigated or avoided as a result of the prior EIR and adopted findings or can be mitigated or avoided by site-specific revisions, imposition of conditions or other means in connection with the approval of the later project (subsection (e)(4)). If a cumulative impact was addressed adequately in a prior EIR for a general plan, and the project is consistent with that plan or action, then an EIR for such a project need not further analyze that cumulative impact, as provided in section 15183(j). Therefore, future projects that are determined to be consistent with the General Plan after it is adopted may rely on this analysis to streamline their environmental review. Since, the proposed project is not consistent with the adopted General Plan in that a General Plan amendment and rezoning are part of the project, the General Plan EIR analyses are not used.

Cumulative Analysis

Cumulative Growth and Projects

Discussion of cumulative impacts may consider either a list of past, present, and probable future projects producing cumulative impacts or a summary of growth projections contained in an adopted plan that evaluates conditions contributing to cumulative impacts, such as those contained in a General Plan. The Santa Cruz City Council adopted an updated General Plan in 2012 and certified the accompanying EIR. The analyses in the EIR provide an assessment of cumulative impacts within the City with projected growth in the next 20 years. The buildout estimated for the General Plan EIR assumed the following additional development in the downtown: 299 residential units, and approximately 38,900 and 4,500 square feet of commercial and office space, respectively. Most of this estimated development has occurred, is under construction or has approved permits. Table 5-1 identifies recently constructed, approved, and pending projects within the city of Santa Cruz. Projects within or near downtown are shown in bold typeface.

Table 5-1: City Cumulative Projects (As of May 31, 2017)

Name/Address	Description	Status
nder Construction	-	-1
2200 Delaware	395,400 sf industrial; 248 maximum residential units	1 st phase complete
	(197,100 sf)	
912 Western Drive	3-lot minor land division	Under construction
407 Broadway (Hyatt)	106-room hotel	Under construction
150 Jewell	48 unit memory care facility	Under construction
555 Pacific	94 small ownership units (SOU's)/5,000 square feet of commercial space	Under construction
716-724 Seabright (Seabright Breakers)	11 Townhouses	Under construction
710 Emeline	Demo. Single-family residence and construct triplex	Under construction
716 Darwin	15 apartments	Under construction
1804-1812 Ocean Street Extension	11 Townhouses	Under construction
313-321-325 Riverside Ave. (Courtyard Marriott)	151-room hotel with meeting room, pool, exercise room - replace 3 existing motels (64 rooms and manager unit) for net increase in 87 rooms	Under construction
618 Windsor	5 apartments	Under construction
514 Frederick	4 townhome units	Under construction
1314-1400 Ocean	8,400 sf commercial development	Under construction
301 Beach	Add 5 rooms to an existing hotel	Under construction
745 Ocean (Starbucks)	2,000 sf coffee shop	Under construction
131 Bixby	Duplex	Under construction
pproved		
1547 Pacific (Park Pacific)	63 residential units and 5,750 square feet commercial	Approved
350 Ocean	63 apartments (with demolition of 20 existing apartments & 2 SFD) and 6,800 sf retail	Approved
215 Beach (La Bahia)	165 Room Hotel	Approved
430 South Branciforte	Lot split	Approved
738 Pacheco	Three lot subdivision	Approved
1800 Soquel	32 condominium units, 4,000 sq. ft. commercial space	Approved
214 Plymouth	Three lot subdivision and construction of a duplex on each new lot.	Approved
800 Soquel	Two units above 2,600 sq. ft. commercial space	Approved
230 Grandview	Demolish SFR and construct 12 apartment units	Approved
2415 Mission	14 apartment units	Approved
413 Laurel	Convert office building to two residential units and one commercial space	Approved
135 Vista Branciforte	Minor Land Division to create three lots from two	Approved
108 Sycamore	10 room hotel	Approved
630 Water	Add 20 SRO units to existing mixed use development	Approved
716 Monterey	Lot split	Approved
2424 Mission	Demolish 32 room hotel and construct 60 room hotel	Approved
148 Sunnyside	Construct two units (demolish single family dwelling)	Approved
225 Meder	Four townhouse units	Approved
630 Water	Add 20 SRO units to existing mixed use development	Approved
ending Applications	The same of the sa	1 44.2.2
	40 condensione unite	Pending application
1930 Ocean Street Extension	40 condominium units	T FEHRING ADDITION

Table 5-1: City Cumulative Projects (As of May 31, 2017)

Name/Address	Description	Status
	condos and 4,300 sq. ft. commercial space	
232 River	12 condominium units	Pending application
1024 Soquel	13 apartment units, 1,600 sq. ft. commercial space	Pending application
515 Soquel	Demolish commercial building and construct 51 SRO units and two duplexes	Pending application
708-720 Water	Demolish commercial buildings and residences and construct a 56-unit apartment complex	Pending application
231 Surfside	Lot split	Pending application
550 Second	60 room hotel	Pending application
530 S. Branciforte	Four condominium units	Pending application
2656 Mission	New industrial/warehouse building	Pending application
769 N Branciforte	Three townhouse units	Pending application
135 Dubois	Self-storage facility	Pending application
335 Golf Club Drive	10-unit housing for developmentally disabled	Pending application
724 Darwin	Two duplexes	Pending application
515 Fair	Lot split, three condominiums, single family home, and ADU on historic site	Pending application
1547 Pacific	Add 16 units to approved condominium building	Pending application
801 River	Convert two story office building to triplex	Pending application

There are several projects that are being discussed within the City although there are no current permit applications or site plans:

- □ New Library and Public Parking Garage: 113; 119 Lincoln Street; (Cathcart/Cedar parking lot) that is being discussed that would result in relocation of the existing library with net increase of 14,000 square feet for library administration and increase in public parking spaces. The existing library (44,000 square feet) would be converted to office use.
- ☐ Calvary Church Residential Development: 524; 532; 538 Center Street and two Cityowned parcels (Parking lot on Center Street) for which a 77-unit housing project is being discussed with retention of the existing church.
- ☐ Sports Stadium (Warriors): expansion is under consideration that would result in a net increase in Net increase of 1,100-1 600 seats from 2,400 existing to 3,500-4,000

These projects are considered reasonably foreseeable since they are under active discussion. Since the proposed project consists of plan amendments that could result in additional development over time, the General Plan EIR buildout assumptions is the scenario used for the following cumulative analyses. The cumulative scenario includes General Plan buildout and University of California Santa Cruz (UCSC) growth and development as addressed in the General Plan EIR plus the potential new development resulting from the proposed project plus the above three projects.

Cumulative Impact Analysis

Aesthetics. The geographic area for consideration of cumulative impacts would be the project study area from which project locations may be visible. There are no other cumulative projects that are within the same viewshed as the project site. Therefore, no cumulative aesthetics impacts have been identified.

Air Quality and Greenhouse House Emissions. The geographic area for consideration of cumulative impacts would be the North Central Coast Air Basin in which the project site is located. According to MBUAPCD CEQA Guidelines, "A consistency analysis and determination serve as the project's analysis of cumulative impacts on regional air quality. Project emissions which are not consistent with the AQMP (Air Quality Management Plan) are not accommodated in the AQMP and will have a significant cumulative impact unless offset." As discussed in Section 4.2 of this EIR, Air Quality and Greenhouse Gas Emissions, the project was found to be consistent with the AQMP based on use of the District's methodology. Therefore, the project's contribution to cumulative air emissions would not be cumulatively considerable. As further discussed in Section 4.2, GHG emissions and effects on global climate change extends beyond the local air basin and is a world-wide issue. Based on the analyses in that section, the project's contribution to global GHG emissions is not cumulatively considerable.

Biological Resources. The geographic area for consideration of cumulative impacts would be the project areas and areas adjacent to the San Lorenzo River. Since most of the development estimated as part of the General Plan EIR has occurred or is underway, and no projects are adjacent to the San Lorenzo River, no potential cumulative impacts to biological resources have been identified.

Cultural Resources. The geographic area for consideration of cumulative impacts would be the project site and areas supporting cultural resources similar to those found in the project area. This EIR considers all potential development in the downtown area. Additionally, impacts to cultural resources are site specific. There are no other areas where other cumulative projects and growth would overlap. Both the City's General Plan 2030 and the University's adopted 2005 LRDP and certified EIR include policies and measures to conduct appropriate review for cultural resources and provide site-specific mitigation as may be required. With implementation of measures required by the City and UCSC for review and mitigation of potential cultural resource impacts associated with new development, potential site-specific impacts would be less than significant. Thus, there would be no significant cumulative impacts related to cultural resources.

Geology and Soils. The geographic area for consideration of cumulative impacts would be the project site and areas within similar seismic or geologic hazard areas as the proposed project. All cumulative projects greater than four units in size would be subject to City requirements for preparation of geotechnical studies. Individual projects would be designed based on site-specific conditions. Therefore, no significant cumulative impacts have been identified regarding geology and soils.

Hydrology and Water Quality. The geographic area for consideration of cumulative impacts would be the project site and areas within the same drainage area in which the project site is located. There are no other cumulative projects that are within the same drainage area as the project site. Therefore, there are no known cumulative impacts related to hydrology and water quality.

Noise. The geographic area for consideration of cumulative impacts would be the project site and areas with similar exposure to noise levels as the project site. There are no other cumulative projects that would be exposed to noise levels similar to the proposed project, and the project would not contribute to cumulative noise impacts.

Public Services and Utilities. The geographic area for consideration of cumulative impacts would be the City of Santa Cruz service area in which the project site is located. All City services supplied to the project site include the entire City, except for water service, which also includes areas located outside the City.

Fire and Police Protection and Solid Waste. The City's Fire and Police Departments and the City's Resource Recovery Center (landfill) serve City residents. No significant cumulative impacts have been identified with buildout under the City's General Plan and other cumulative growth, i.e. UCSC growth, and no new or expanded police or solid waste facilities are needed to serve cumulative growth, including the proposed project.

Cumulative development and growth could result in the need for expanded fire facilities. According to the City's Fire Department, the existing downtown fire station is inadequate in terms of space and equipment to meet existing needs, which would be further impacted by development and growth that would be accommodated by the proposed project and other cumulative development. Should expansion be proposed, it is likely that expanded or new fire facilities would be within developed downtown and/or eastside locations. Expansion or new construction would be considered infill development on sites surrounded by development. However, existing and future growth may require new or physically altered fire protection facilities, but locations for expansion or construction are within developed areas and are not expected to result in significant physical impacts. Therefore, no significant cumulative impact related to fire protection services is anticipated.

Schools. Potential cumulative development that could affect school enrollment includes development and growth within the City and surrounding areas as well as the proposed project. As discussed in Section 4.6 of this EIR, Public Services and Utilities, approximately 80 new students would be generated by future development projects accommodated by the proposed project. The City's General Plan EIR reported a cumulative enrollment estimate of approximately 1,765 students over the next 20 years with cumulative growth in the City and as a result of growth at UCSC, and some schools may exceed capacity depending on the timing of growth. The General Plan 2030 EIR concluded that this is a potentially significant cumulative impact. With

required payment of school impact fees to fund necessary facility expansion and/or additions, in conjunction with use of the former Natural Bridges Elementary School, the impact would be mitigated to a less-than-significant level (City of Santa Cruz, April 2012, DEIR volume).

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, and future enrollment could accommodated without construction of new schools, although some expansion of existing facilities may be necessary (Ibid.). It is not known which campuses may need to be expanded in the future to accommodate the additional enrollment. The project's incremental contribution to this impact (approximately 80 students) is not cumulatively considerable as the required payment of school impact fees would mitigate the project's cumulative contribution such that it would no longer be considered cumulatively considerable.

Parks and Recreation. The General Plan 2030 EIR concluded that cumulative population growth accommodated by the proposed General Plan and UCSC would not result in significant cumulative impacts to parks as increased use of existing parks is expected to be spread out throughout the City so that no substantial deterioration would occur at any one facility. Cumulative impacts resulting from citywide development growth, including the proposed project and UCSC growth, would not result in a significant impact to parks such that a substantial deterioration would occur at any one facility. Furthermore, 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). Projects that have dedicated land or fees in accordance with Municipal Code Chapter 23.28 requirements for subdivisions are exempt from this tax.

Wastewater Treatment. The geographical area for the analysis of cumulative wastewater impacts includes the area served by the City's wastewater treatment facility (WWTF), which includes the City of Santa Cruz and lands within the Santa Cruz Sanitation District (south to Seascape) and two small county service areas. The City and County each have specified rights to treatment capacity. Wastewater generated by cumulative growth within the City is estimated at approximately 1.35 mgd (City of Santa Cruz, April 2012, DEIR volume). There is adequate remaining capacity within the City's treatment allocation (4.0 mgd remaining) to accommodate cumulative growth with the proposed project. There is adequate capacity to serve cumulative growth within the Santa Cruz County Sanitation District service area (Ibid.). Thus, cumulative impacts on wastewater treatment would be less than significant.

Water Supply. The geographical area for the analysis of cumulative water supply impacts includes the area served by the City's Water Department. Background on the existing and projected future demand and supplies is provided in Section 4.6, Water Supply – Service. As indicated, the 2015 UWMP predicts water supply shortfalls by the year 2035 of 40 approximately

MGY in normal rainfall years, 528 MGY during a single dry year, and 1,639 MGY in multiple dry year periods even though demand is forecast to decrease. Without augmented water supplies, cumulative future water demand during dry periods is considered a potentially significant cumulative impact on water supplies.

As discussed in Section 4.8, the City continues to administer its water conservation program, has completed a Conservation Master Plan, and is implementing a water augmentation plan. The City is has defined water supply augmentation strategies that are being studied in order to provide reliable production during drought shortages between 2020 and 2035 to address potential drought shortages. The plan includes the pursuit of the following portfolio of options: continued and enhanced conservation programs; passive recharge of regional aquifers; active recharge of regional aquifers; and a potable supply using advanced treated recycled wastewater or desalinated water (if recycled water did not meet City needs). A water transfer pilot program is underway for the passive recharge strategy. Supply volumes for the other augmentation elements have not yet been defined, and specific projects have not been selected or constructed, as these prospective sources are still under evaluation. Thus, the long-term provision of augmented water supplies is under development, but uncertain.

The proposed project would result in a net increase in water demand of approximately 29.0 MGY, which is not considered substantial in relation to the estimated future demand in the City's water service area of approximately 3,200 MGY. The project would be subject to City requirements for installation of water conserving fixtures and landscaping in accordance with City Municipal Code and building requirements. Under drought conditions, the project, like other City customers, would be required to curtail water use by varying amounts, depending on the severity of the drought and the level of curtailment set in place by the City. In addition, the project will pay the required "System Development Charge" for the required new service connection. This charge as set forth in Chapter 16.14 of the City's Municipal Code is intended to mitigate the water supply impacts caused by new development in the City of Santa Cruz water service area, and the funds are used for construction of public water system improvements t and conservation programs.

The increase in water demand due to the proposed project would not substantially exacerbate water supply reliability in the future or during a drought because the amount of additional demand when spread across all service area customers would not result in any noticeable increase in the curtailment in customer use that would otherwise be implemented during drought conditions. Additionally, the project payment of the System Development Charge and implementation of other water conservation measures would mitigate the project's contribution to cumulative water supply impacts. Therefore, the project's incremental contribution to a significant cumulative water supply impact would not be cumulatively considerable.

Traffic and Transportation. The geographic area for consideration of cumulative impacts would be those areas of the street network to which the project would contribute trips. Cumulative traffic impacts were analyzed in the *General Plan 2030* EIR based on estimated buildout

accommodated by the General Plan, a number of approved and reasonably foreseeable projects, and long-range growth anticipated for UCSC.

Cumulative traffic volumes were obtained from the City of Santa Cruz 2030 General Plan traffic model for this analysis, which included UCSC development, and was modified to account for a growth factor of 5 percent, which would cover the three projects being discussed that were not included in the General Plan buildout (see page 5-7). Improvements included in the City of Santa Cruz Traffic Impact Fee (TIF) program were assumed to be in place for the cumulative analysis. Weekday PM peak cumulative trips, including the proposed project, are shown on Figure 5-1 at the end of this section.

Cumulative intersection levels of service are summarized on Table 5-2. The following six intersections would operate at an unacceptable level of service under cumulative conditions:

Front Street/Laurel Street,
Pacific Avenue/Laurel Street,
Front Street/Soquel Avenue,
Ocean Street/Water Street,
Highway 1/Highway 9, and
Chestnut Street/Mission Street

Improvements are planned as part of the City's TIF program at three intersections: Ocean Street/Water Street, Highway 1/ Highway 9, and Chestnut Street/Mission Street, but would not improve operations to an acceptable LOS, although delays may be reduced. The other three impacted intersections are not included in the City's Traffic Impact Fee program as significant cumulative impacts were not identified as part of the General Plan 2030 EIR analysis Cumulative traffic along state highways would contribute to existing and future unacceptable levels of service.

Review by the City's traffic consultant indicates that the other three intersections can be improved to an acceptable level. The Pacific/Laurel intersection LOS can be improved to D with the addition of a southbound left-turn lane, which would require shortening the median. The Front/Laurel intersection LOS can be improved to D with the addition of a westbound lane and right-turn overlap for the north and south right turns. The Front/Soquel intersection LOS can be improved to D with the modification of the signal phasing and separation of the combined westbound through/left turn lane.

The proposed project will contribute to significant cumulative traffic impacts at six locations in the project vicinity and along state highways. Future development projects within the area of the proposed plan amendments will be required to pay the City's traffic impact fee. However, payment of the traffic impact fee and the associated improvements would not mitigate impacts to a less-than-significant level at three intersections: Ocean Street/Water Street, Highway 1/ Highway 9, and Chestnut Street/Mission Street.

TABLE 5-2: Intersection Weekday Cumulative PM Peak Hour Levels of Service with Project

		LOS		Cumulative Plus Project Conditions ²		
#	Intersection	Control Type	Threshold ¹	PM Peak Hour		
			mresnoia	Movement	Delay ³	LOS
1	Front Street / Laurel Street	Signal	D	Overall	100.2	F
2	Pacific Avenue / Laurel Street	Signal	D	Overall	105.9	F
3	Front Street / Cathcart Street	Signal	D	Overall	23.5	С
4	Front Street / Metro Station Driveway	Signal	D	Overall	6.4	А
	Pacific Avenue / Motro	SSSC	D	Overall	1.7	Α
5	Pacific Avenue / Metro Station Driveway	Worst Approach	D	WB	10.5	В
6	Pacific Avenue / Maple Street	AWSC	D	Overall	7.7	Α
7	Pacific Avenue / Front Street / Mission-Water Street	Signal	D	Overall	32.3	С
8	Front Street / Soquel Avenue	Signal	D	Overall	59.9	E
9	Pacific Avenue / Cathcart Street	AWSC	D	Overall	8.3	Α
	Soquel Avenue / Pacific Avenue	SSSC	D	Overall	4.3	Α
10		Worst Approach	D	WB	9.5	А
11	Ocean Street / Water Street	Signal	D	Overall	228.1	F
12	Highway 1 / Highway 9	Signal	C-D	Overall	269.2	F
13	Chestnut Street / Mission Street / Highway 1	Signal	C-D	Overall	344.0	F

Source: Kimley-Horn, May 2017.

Notes:

- 1. The City of Santa Cruz has established LOS D as the minimum acceptable LOS for overall intersection operations during the AM and PM peak hours. However, under the existing General Plan, the City accepts a lower LOS (F) at some major regional intersections per existing Circulation Policy 5.1.2.
- 2. Analysis performed using HCM 2010 methodologies, except for Intersection 7 where HCM 2000 methodology was applied as explained above.
- 3. Delay is shown in seconds/vehicle.
- 4. Intersections that fall below the LOS threshold are shown in **bold**.

Intersection operations could be improved at the other three impacted intersections that the project would contribute cumulative trips. However, these improvements are not included in the TIF program as significant cumulative impacts were not identified in the General Plan 2030 EIR at

these locations. Thus, the proposed project's contribution at these three intersections would be considered cumulatively considerable due to resulting unacceptable LOS with addition of project trips. The following mitigation requires future development to contribute fair share contributions to fund the identified improvements at the following intersections: Front/Soquel, Front/Laurel and Front/Pacific.

MITIGATION 5-1:

Require future development projects within the downtown area to contribute fair-share payments for improvements at the following intersections: Front/Soquel (signal timing and lane modifications); Front/Laurel (westbound lane addition and north and south right-turn overlap), and Pacific/Laurel (southbound left-turn lane addition).

With implementation of Mitigation 5-1, significant cumulative impacts at three intersections would be mitigated, and the project's contribution would not be cumulatively considerable. Future development projects in the downtown area would be required to pay the City's traffic impact fees for improvements at the other three intersections, but planned improvements would not result in acceptable levels of service, and no other feasible improvements have been identified. Therefore, cumulative traffic impacts remain significant at three City intersections and along state highways this is a significant cumulative impact, and the project's contribution to cumulative traffic impacts would be cumulatively considerable at these locations.

5.5 PROJECT ALTERNATIVES

According to State CEQA Guidelines (section 15126.6), an EIR shall describe a range of reasonable alternatives to the project or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. The guidelines further require that the discussion focus on alternatives capable of eliminating significant adverse impacts of the project, or reducing them to a level of insignificance even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. The alternatives analysis also should identify any significant effects that may result from a given alternative. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. An EIR is not required to consider alternatives which are infeasible.

The lead agency is responsible for selecting a range of potentially feasible project alternatives for examination, and must publicly disclose its reasoning for selecting those alternatives. The range of alternatives is governed by a "rule of reason" that requires the EIR to set forth only those potentially feasible alternatives necessary to permit a reasoned choice. The alternatives shall be limited to those that would avoid or substantially lessen any of the significant effects of the

project. Of those alternatives, the EIR need examine in detail only those that the lead agency determines could feasibly attain most of the basic objectives of the project. An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. Alternatives in an EIR must be "potentially feasible." Agency decision makers ultimately decide what is "actually feasible."

"Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors (State CEQA Guidelines, section 15364). Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or already owns the alternative site). None of these factors establishes a fixed limit on the scope of reasonable alternatives. The concept of feasibility also encompasses the question of whether a particular alternative or mitigation measure promotes the underlying goals and objectives of a project. Moreover, feasibility under CEQA encompasses "desirability" to the extent that desirability is based on a reasonable balancing of the relevant economic, environmental, social, legal, and technological factors.

Summary of Significant Impacts and Project Objectives

Significant Project Impacts

The following potentially significant impacts have been identified, all of which can be mitigated to a less-than-significant level, except for cumulative traffic, which would remain significant and unavoidable.

J	Future development of taller buildings as a result of the proposed Downtown Plan amendments could result in indirect impacts to birds in the area that could lead to bird mortalities.
	Biological Resources - Impact 4.3-3: Indirect Impacts to Nesting Birds. Future development as a result of the proposed Downtown Plan amendments could result in disturbance to nesting birds if any are present in the vicinity of construction sites along the San Lorenzo River.
	Public Services - Impact 4.6-1c: Schools. Adoption of the proposed plan amendments could indirectly result in increased population associated with potential development that would generate elementary school student enrollments that could exceed capacity of existing schools.

Public Services - Impact 4.6-2: Parks and Recreation. Adoption of the proposed plan amendments could indirectly result in increased population associated with potential development that could be accommodated by the Plan that would result in increased demand for parks and recreational facilities that
could result in some deterioration of existing parks and recreational facilities.
Noise - Noise-1: Exposure to Noise. Future development in the project area would be exposed to exterior and / or interior

☐ Cumulative Traffic Impacts.

The proposed project will contribute to significant cumulative traffic impacts at six locations.

noise levels that exceed local and state requirements. However, the project area is not within locations that would expose people to noise in excess of established standards.

Summary of Project Objectives

- 1. Support the following First Principles of the Downtown Plan:
 - Form and Character. New buildings should be allowed to develop individual character while retaining qualities of the historic townscape. Issues of articulation, materials, signage, setbacks, scale, massing, form, bulk, solar access and height are critical.
 - Housing. Significant new housing opportunities should be targeted throughout
 the downtown, including Pacific Avenue, the San Lorenzo riverfront, and South of
 Laurel. Housing should be comprised of a mix of apartments and
 condominiums. SRO housing should be replaced and dispersed throughout the
 downtown area.
 - Accessibility. A downtown that aesthetically integrates access as a primary design criterion for all improvements to ensure increased opportunities for the public to participate in commercial, governmental, residential, social and cultural activities.
 - Open Space and Streetscape. A strong network of public and private open spaces (streets, sidewalks, public parks, plazas, passageways and courtyards) that creates a socially active and pedestrian-oriented downtown core should be emphasized.
 - *Circulation.* Downtown should be predominantly pedestrian in nature; movement should be carefully structured to reinforce the character of the place. Pedestrian, bicycle, and transit access to the downtown should be enhanced.
 - Parking. Parking in the downtown core should continue to be provided by the Parking District in a centralized fashion, to maximize shared use and minimize the quantity of stored vehicles.
- 2. Increase opportunities for all types of housing in downtown.

- 3. Encourage and incentivize maximum public access to the San Lorenzo River.
- 4. Achieve superior connections to the San Lorenzo River above the existing DRP and existing SLURP policies consistent with Section 30211 of the Coastal Act.
- 5. Ensure that development adjacent to the Riverwalk will be designed to prevent impacts to the adjacent sensitive San Lorenzo River and will incentivize clean-up of degraded areas along the levee.
- 6. Enhance opportunities to view and interact with the San Lorenzo River as a coastal resource.
- 7. Create development standards that will incentivize development of key east-west public passageways between Pacific Avenue and the Riverwalk.

Alternatives Considered

Section 15126.6(c) of State CEQA Guidelines indicates that the range of potential alternatives shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly describe the rationale for selecting the alternatives to be discussed.

The EIR also should identify any alternatives that were considered by the lead agency but were rejected as infeasible, and briefly explain the reasons underlying the lead agency's determination. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (1) failure to meet most of the basic project objectives, (2) infeasibility, or (3) inability to avoid significant environmental impacts. The City considered other locations for additional height zones in the downtown area, but none were identified. The Additional Height Zone A already exists along Pacific Avenue north of Cathcart.

Based on the above discussion, the following section evaluates the following alternatives:

No Project – Required by CEQA
Alternative 1 – Reduced Height for Expanded Additional Height Zone A to 75 feet and Elimination of Additional Height Zone B
Alternative 2 – Reduced Height for Additional Height Zone A to 75 feet along Pacific/Front and Reduced Height for Additional Height Zone B to 60 feet along the San Lorenzo River with Development Standard Modifications: eliminate encroachment over property line and require 10-foot setback above 50 feet

Each alternative is described and analyzed below, and the ability to meet project objectives is addressed. Table 5-3 summarizes key components of the alternatives.

Table 5-3: Summary of Alternatives

	Proposed Project	No Project	Alternative 1	Alternative 2
Project Size-Net Change Over				
Existing Conditions				
 Residential Units 	711	437	437	645
 Commercial Square Footage 	(-14,695 sf)	(-23,990 sf)	(-14,695 sf)	(-14,695 sf)
Office Square	2,190 sf	(-5,205 sf)	2,190 sf	2,190 sf
Impacts				
 Daily Trips 	2,627	1,075	1,339	2,275
 Peak Hour Trips 	293	119	132	214
 Annual Water Demand (MGY) 	29	16.6	17.4	26.1

No Project Alternative

Section 15126.6(e) of the State CEQA Guidelines requires that the impacts of a "no project" alternative be evaluated in comparison to the proposed project. Section 15126(e) also requires that the No Project Alternative discuss the existing conditions that were in effect at the time the Notice of Preparation was published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.

Project Description. Under the No Project Alternative, none of the proposed DRP, General Plan, LCP or Municipal Code amendments would be implemented. Additional Height zones would not be extended along Pacific Avenue, Front Street or the San Lorenzo River. However, redevelopment could occur under the existing General Plan and Downtown Recovery Plan without the amendments. Under the No Project Alternative, none of the project impacts identified in this EIR would occur. However, since redevelopment of the downtown area could occur without the amendments, some level of development would be reasonably expected to occur over the next 25 years.

City Planning Department staff developed an estimate of potential buildout without the proposed amendments to identify potential development under the existing DRP. The affected area was divided into three segments as shown on Figure 3-6 in section 3, Project Description City staff identified broad development assumptions for these areas, which are included in Appendix D. Table 5-4 summarizes potential development under existing plans without the proposed project. City staff estimates indicate that development under existing plans could result in a net increase of approximately 437 residential units and a net decrease of approximately 23,990 square feet of commercial and 5,100 square feet of office space over existing conditions. Development under existing plans without the proposed amendment could result in approximately 274 fewer residential units than the proposed project and a greater decrease in commercial and office square footage than the proposed project.

9711.0003 July 2017 5-18

TABLE 5-4: Potential Development/Buildout Assumptions With Existing General Plan and Downtown Recovery Plan

	Area X Riverfront	Area Y E. Pacific/W. Front Pacific Station	Area Z W. Pacific	Totals	Change from Existing Conditions (Includes demolition and reconstruction)
Baseline/Existing Conditions					
Property Area	146,000 sf	222,200 sf	148,800 sf	517,000 sf	N/A
	(3.35 acres)	(5.10 acres)	(3.42 acres)	(11.87 acres)	
Commercial	62,000 sf	74,864 sf	182,836 sf	319,700 sf	N/A
Office	N/A	56,105 sf	65,761 sf	121,866 sf	N/A
Residential	N/A	113 units	56 units	169 units	N /A
Parking	164 spaces	186 spaces	97 spaces	447 spaces	N /A
2030 General Plan – No Amendments (Units are totals, reflecting both demolition and reconstruction)					
	65,875 sf	47,000 sf	182,836 sf	295,711 sf	-23,989
Commercial					
Office	11,000 sf	40,000 sf	65,761 sf	116,761 sf	-5,105
Residential	190 units	360 units	56 units	606 units	+437
Parking	265 spaces	1,610 spaces	97 spaces	1,972 spaces	+1,525

SOURCE: City of Santa Cruz Planning and Community Development

Impacts. Since redevelopment of downtown properties could occur under existing conditions without the proposed plan amendments, some of the impacts identified in this EIR could result at some unknown time in the future and at an unknown magnitude depending on the proposal as discussed in the following section.

□ Aesthetics: Under this alternative, the Additional Height Zones would not be extended along Pacific and Front Streets or along the San Lorenzo River. The existing base height would remain at 50 feet. Under the existing DRP, all buildings must conform to the 50-foot base height requirements. Along Pacific Avenue, the second story must be at least 50 percent of the first floor area and located toward the street frontage. Uninhabitable mechanical penthouses are permitted to a maximum height of 55 feet, provided that such penthouses are set back a minimum of 25 feet from any exposed face of the buildings and are out of the pedestrian's view. Sloping roofs also are permitted up to a maximum height of 55 feet, provided that they do not penetrate a 42 degree angle measured back from the 50-foot Base Height eaves line.

The existing Additional Height Zone B would remain in effect under the No Project Alternative, which affects approximately 10 properties south of Cathcart Street. The additional building height limit for these properties, if they meet the eligibility criteria, is 60 feet. Uninhabitable mechanical penthouses are be permitted to project 5 feet above the approved additional height of building, provided that such penthouses are set back a

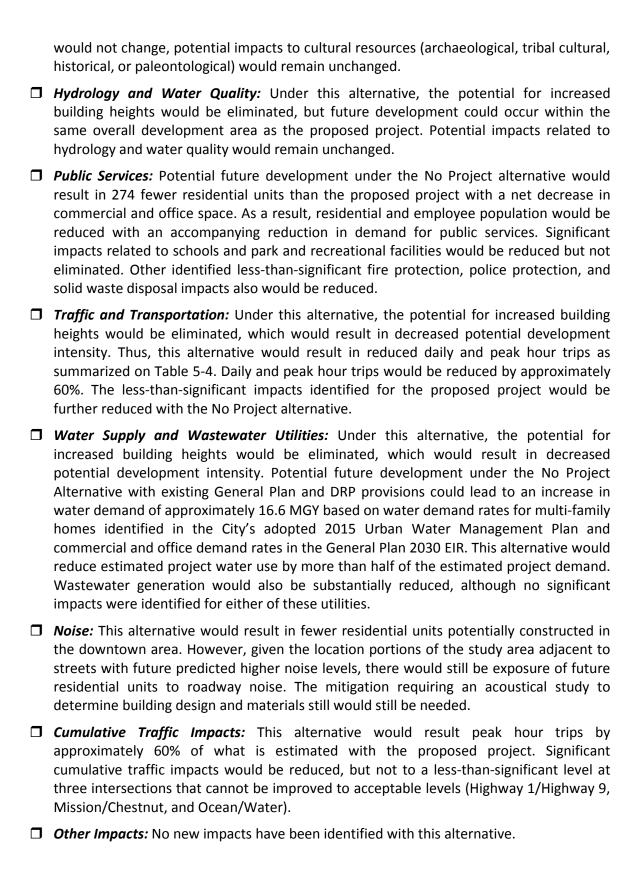
9711.0003

minimum of 25 feet from any exposed face of the building and are out of the pedestrian's view.

Under the No Project alternative, additional heights of 20 to 35 feet above the 50-foot base height limit would be eliminated. Figures 4.1-3A through 4.1-3C in Section 4.1, Aesthetics, show the base height limit under existing plans as well as with the potential additional heights with the proposed plan amendments as seen from the San Lorenzo River, Pacific Avenue and Front Street, respectively. The diagrams do not represent actual projects or architecture, but show potential building mass depicted, which may or may not occur. The diagrams do not show any architectural designs that typically would be employed to break up building mass.

The less-than-significant impacts on the visual character of the surrounding area would be reduced with elimination of the expanded Additional Height Zones. Future development would be allowed to construct buildings to the 50-foot base height limit, similar to existing downtown building heights north of Cathcart Street. Required street tree plantings, if similar to those along Pacific, would substantially screen upper levels from many pedestrian-level views. Since development would be consistent with development in the downtown area north of Cathcart, there would be no substantial change or degradation to visual character of the project area. Thus, eliminating the incremental height increase of 20 to 35 feet above the 50-foot base height with the No Project alternative would eliminate less-than-significant aesthetic impacts when compared to the Project.

- ☐ Air Quality and Greenhouse Gas Emissions: This alternative would result in potentially less future development than the proposed project with an accompanying reduction in vehicle trips, energy use and water use. Thus, this alternative would result in a reduced level of air emissions than the less-than-significant impact identified for the proposed project.
- Biological Resources: Under this alternative additional building heights of 20 to 35 feet above the 50-foot base height limit would be eliminated. While any new development would be taller than existing development in the study area, impacts related to shading would be reduced with minor shading impacts occurring only for a limited duration during the winter, which were not found to result in significant impacts to aquatic habitat or species. Potential indirect impacts to birds in the area would be reduced with the lower heights along the San Lorenzo River Riverwalk, but not eliminated, as potential concerns regarding reflective glass and lighting would also be a concern under the No Project Alternative. Similarly, potential construction-related disturbance to nesting birds could also occur under this alternative. Mitigation for both these impacts would be required as with the proposed project.
- ☐ **Cultural Resources:** Under this alternative, the potential for increased building heights would be eliminated, but future development could occur within the same overall development area as the proposed project. Since the overall development footprint



Downtown Plan Amendments 9711.0003
July 2017 5-21

Ability to Meet Project Objectives. The No Project Alternative would meet three project objectives. With no proposed plan changes, the existing DRP would continue to support the First Principles of the plan (#1), and housing opportunities would continue to be encouraged (#2). Any development would need to meet existing DRP development standards for sensitive siting and design next to the river (#5). The No Project alternative would not include the incentives to create two new linkages to the San Lorenzo River and Riverwalk through extensions of Elm and Maple Streets, and would not fully meet the project objectives to increase public access. (#3, 4, 6, 7).

Alternative 1 - Reduced Height for Expanded Additional Height Zone A and Elimination of Additional Height Zone B

Project Description. This alternative includes expansion of Additional Height Zone A as with the proposed project, but the maximum height for the Additional Height Zone A would be limited to 75 feet with elimination of the 85 maximum height limit along the east side of Pacific Avenue and the west side of Front Street. This would result in an additional height limit that is consistent with existing limits for this zone as applied to Pacific Avenue north of Cathcart Street. Additionally, the proposed Additional Height Zone B would be eliminated so no additional height above the existing 50-foot base height would be permitted on the east side of Front Street and along the River.

Based on City Planning Department staff review, the maximum height limit change from 85 to 75 feet would affect the size of individual residential units, potentially eliminating a mezzanine feature, but the overall number of units and non-residential square footage would not change from the proposed project. Due to Building Code requirements, the increased height from 75 to 85 feet would allow for a mezzanine feature but would not allow for an additional building floor without changing the construction type to meet high-rise building standards. The elimination of the proposed Additional Height Zone B area would result in the same potential development as allowed under the existing DRP without the proposed plan amendments for the Front Street/Riverfront area. The commercial and office square footage estimated for the lower floors would not change from the proposed project in any location. Potential development under this alternative could result in a net increase of approximately 437 residential units, a net increase of approximately 2,190 square feet of office use, and a net decrease of approximately 14,690 square feet of commercial building space over existing conditions.

Impacts. Potential impacts of this Alternative are discussed in the following section.

☐ Aesthetics: Under this alternative, the Additional Height Zone A would be limited to 75 feet, resulting in a reduction of maximum building height from 85 to 75 feet along the east side of Pacific Avenue and the west side of Front Street. There would be no increase in additional building heights over the existing 50-foot base height along the east side of Front Street and along the San Lorenzo River Riverwalk.

Future development would be required to construct buildings to the 50-foot base height limit with a maximum floor area percentage above the 50-foot base height in Additional Height Zone A. Buildings developed to the existing base height limits would be similar to existing downtown building heights north of Cathcart Street. Required street tree plantings, if similar to those along Pacific, would substantially screen upper levels from many pedestrian-level views. Potential development along Pacific would be taller than existing development along Pacific south of Cathcart (except for the existing building at 1010 Pacific) and may be considered out of character with some existing buildings. However, development along Pacific and Front and adjacent to the San Lorenzo River would be consistent with development in the downtown area north of Cathcart and would not result in a significant degradation of the visual character of the surrounding area. Thus, Alternative 1 would reduce less-than-significant impacts on aesthetics compared to the proposed project.

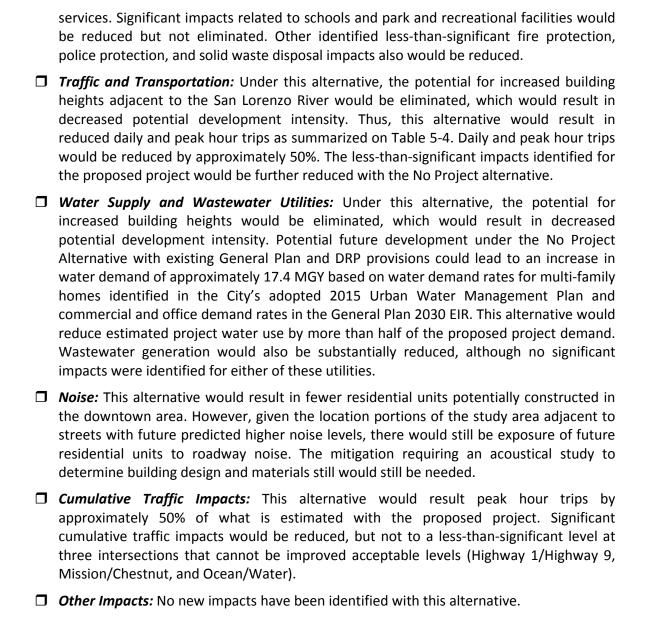
☐ Air Quality and Greenhouse Gas Emissions: This alternative would result in potentially less future development than the proposed project with an accompanying reduction in vehicle trips, energy use and water use. Thus, this alternative would result in a reduced level of air emissions than the less-than-significant impact identified for the project. ☐ Biological Resources: Under this alternative additional building heights above the 50foot base height limit along the San Lorenzo River would be eliminated. While any new redevelopment could be taller than existing development on the east side of Front Street, impacts related to shading would be reduced with minor shading effects occurring during winter, which were not found to result in significant impacts to aquatic habitat or species. Potential indirect impacts to birds in the area would be reduced with the lower heights, but not eliminated, as potential concerns regarding reflective glass

and lighting would also be a concern under the No Project Alternative. Similarly, potential construction-related disturbance to nesting birds could also occur under this alternative. Mitigation for both these impacts would be required as with the proposed

- ☐ Cultural Resources: Under this alternative, the potential for increased building heights would be eliminated, but future development could occur within the same overall development area as the proposed project. Since the overall development footprint would not change, potential impacts to cultural resources (archaeological, tribal cultural, historical, or paleontological) would remain unchanged.
- ☐ Hydrology and Water Quality: Under this alternative, the potential for increased building heights would be eliminated, but future development could occur within the same overall development area as the proposed project. Potential impacts related to hydrology and water quality would remain unchanged.
- ☐ **Public Services:** Potential future development under the this alternative would result in 274 fewer residential units than the proposed project with a net increase in office space and a net decrease in commercial space the same as the project. As a result, residential population would be reduced with an accompanying reduction in demand for public

9711.0003 July 2017 5-23

project.



Ability to Meet Project Objectives. Alternative 1 would meet three project objectives. With no proposed plan changes, the existing DRP would continue to support the First Principles of the plan (#1), and housing opportunities would continue to be encouraged, although with reduced opportunities (#2). Any development would need to meet existing DRP development standards for sensitive siting and design next to the river (#5). This alternative would include the incentives to create two new linkages to the San Lorenzo River and Riverwalk through extensions of Elm and Maple Streets, although incentives may be limited with elimination of additional building heights. Thus, this alternative would partially meet the project objectives to increase public access. (#3, 4, 6, 7).

9711.0003

Alternative 2 - Reduced Height for Expanded Additional Height Zones A and B

Project Description. Under this alternative, the proposed expansion of the Additional Height Zones would be modified. The Alternative includes expansion of Additional Height Zone A as with the proposed project, but the maximum height for the Additional Height Zone A would be limited to 75 feet with elimination of the 85 maximum height limit along the east side of Pacific Avenue and the west side of Front Street. This would result in an additional height limit that is consistent with existing limits for this zone as applied to Pacific Avenue north of Cathcart Street. Additionally, the maximum building heights in the Additional Height Zone B would along the east side of Front Street and adjacent to the San Lorenzo River would be reduced from 70 to 60 feet. The proposed Development Standards would be modified under this alternative to eliminate encroachment over property line and to require a 10-foot setback for buildings above 50 feet.

Based on City Planning Department staff review, the maximum height limit change from 85 to 75 feet would affect the size of individual residential units, potentially eliminating a mezzanine feature, but the overall number of units and non-residential square footage would not change from the proposed project. Due to Building Code requirements, the increased height from 75 to 85 feet would allow for a mezzanine feature but would not allow for an additional building floor, without changing the construction type to meet high-rise building standards. However, reduction of maximum height from 70 to 60 feet in the Additional Height Zone B would in elimination of a top floor, resulting in a reduction of housing units from the proposed project. The commercial and office square footage estimated for the lower floors would not change from the proposed project. As a result, potential development under this alternative could result in a net increase of approximately 645 residential units, a net increase of approximately 2,190 square feet of office use, and a net decrease of approximately 14,690 square feet of commercial building space over existing conditions.

Impacts. Potential impacts of this Alternative are discussed in the following section.

Impacts. Potential impacts of this Alternative are discussed in the following section.

- □ Aesthetics: Under this alternative, there would be a 10-foot reduction in maximum building heights in both Additional Height Zone A and B. Potential development along Front Street adjacent to the San Lorenzo River and along Pacific Avenue would be taller than existing development along Pacific Avenue and Front Street south of Cathcart (except for the existing building at 1010 Pacific) and may be considered out of character with some existing buildings. However, potential future development would be consistent with the Additional Height Zone permitted north of Cathcart, and thus, would not result in a significant degradation of the visual character of the surrounding area. Thus, the Alternative 2 would slightly reduce less-than-significant impacts on aesthetics.
- ☐ Air Quality and Greenhouse Gas Emissions: This alternative would result in potentially less future development than the proposed project with an accompanying reduction in

level of air emissions than the less-than-significant impact identified for the project. ☐ Biological Resources: Under this alternative, additional maximum building heights along the San Lorenzo River would be reduced by 10 feet. While any new development would be taller than existing development in the study area, impacts related to shading would be slightly reduced with minor shading effects during winter, which were not found to result in significant impacts to aquatic habitat or species. Potential indirect impacts to birds in the area would be reduced with the lower heights, but not eliminated, as potential concerns regarding reflective glass and lighting would also be a concern under the No Project Alternative. Similarly, potential construction-related disturbance to nesting birds could also occur under this alternative. Mitigation for both these impacts would be required as with the proposed project. ☐ Cultural Resources: Under this alternative, the potential for increased building heights would be eliminated, but future development could occur within the same overall development area as the proposed project. Since the overall development footprint would not change, potential impacts to cultural resources (archaeological, tribal cultural, historical, or paleontological) would remain unchanged. ☐ Hydrology and Water Quality: Under this alternative, the potential for increased building heights would be eliminated, but future development could occur within the same overall development area as the proposed project. Potential impacts related to hydrology and water quality would remain unchanged. ☐ **Public Services:** Potential future development under this alternative would result in 66 fewer residential units than the proposed project with the same net increase in office space and a net decrease in commercial space as with the proposed project. As a result, residential population would be reduced with an accompanying reduction in demand for public services. Significant impacts related to schools and park and recreational facilities would be reduced but not eliminated. Other identified less-than-significant fire protection, police protection, and solid waste disposal impacts also would be reduced. ☐ *Traffic and Transportation:* Under this alternative, the potential for increased building heights adjacent to the San Lorenzo River would be eliminated, which would result in decreased potential development intensity. Thus, this alternative would result in reduced daily and peak hour trips as summarized on Table 5-4. Daily and peak hour trips would be slightly less than the proposed project. The less-than-significant impacts identified for the proposed project would be further reduced with the No Project alternative. ☐ Water Supply and Wastewater Utilities: Under this alternative, the potential for increased building heights would be eliminated, which would result in decreased potential development intensity. Potential future development under the No Project Alternative with existing General Plan and DRP provisions could lead to an increase in water demand of approximately 26 MGY based on water demand rates for multi-family

vehicle trips, energy use and water use. Thus, this alternative would result in a reduced

9711.0003 July 2017 5-26 homes identified in the City's adopted 2015 Urban Water Management Plan and commercial and office demand rates in the General Plan 2030 EIR. This alternative would reduce estimated project water use by more than half of the proposed project demand. Wastewater generation would also be substantially reduced, although no significant impacts were identified for either of these utilities.

- Noise: This alternative would result in fewer residential units potentially constructed in the downtown area. However, given the location portions of the study area adjacent to streets with future predicted higher noise levels, there would still be exposure of future residential units to roadway noise. The mitigation requiring an acoustical study to determine building design and materials still would still be needed.
- ☐ **Cumulative Traffic Impacts:** This alternative would slightly reduce peak hour trips from those estimated with the proposed project. Significant cumulative impacts would remain with the project's contribution being cumulatively considerable.
- ☐ *Other Impacts:* No new impacts have been identified with this alternative.

Ability to Meet Project Objectives. Alternative 2 would meet three project objectives. With no proposed plan changes, the existing DRP would continue to support the First Principles of the plan (#1), and housing opportunities would continue to be encouraged, although with reduced opportunities (#2). Any development would need to meet existing DRP development standards for sensitive siting and design next to the river (#5). This alternative would include the incentives to create two new linkages to the San Lorenzo River and Riverwalk through extensions of Elm and Maple Streets and would meet the project objectives to increase public access, although incentives may be limited with a reduction of additional building heights. Thus, this alternative would partially meet the project objectives to increase public access (#3, 4, 6, 7).

Environmentally Superior Alternative

According to CEQA Guidelines section 15126.6(e), if the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. Furthermore, Sections 21002 and 21081 of CEQA require lead agencies to adopt feasible mitigation measures or feasible alternatives in order to substantially lessen or avoid otherwise significant adverse environmental effects, unless specific social or other conditions make such mitigation measures or alternatives infeasible. Where the environmentally superior alternative also is the no project alternative, CEQA Guidelines in Section 15126(d)(4) requires the EIR to identify an environmentally superior alternative from among the other alternatives.

In the present case, none of the alternatives, including the No Project Alternative would eliminate significant project impacts and cumulative impacts related to traffic, although all alternatives would result reduce the level of impact. Table 5-5 presents a comparison of project impacts between the proposed project and the alternatives. Excluding the No Project Alternative, Alternative 1 – Reduced Height for Additional Height Zone A and Elimination of

Additional Height Zone B – is considered the environmentally superior alternative of the alternatives considered. Although it would not reduce significant impacts to less-than-significant levels, it could result in the greatest reduction of traffic and water demand impacts and reduce some of the other identified significant impacts. However, it would not fully meet project objectives.

Table 5-5 is on the next page.

Table 5-5: Comparison of Impacts of Project Alternatives

Environmental Issue	PP	NP	ALT 1	ALT 2
Aesthetics 4.1-1: Scenic Views	LS	LS -	LS -	LS -
Aesthetics 4.1-3: Degradation of Visual Character	LS	LS-	LS -	LS -
Aesthetics 4.1-4: Light and Glare	LS	LS -	LS -	LS -
Air Quality 4.2-1: Pollutant Emissions	LS	LS -	LS -	LS -
Air Quality 4.2-2: GHG Emissions	LS	LS -	LS -	LS -
Biological Resources 4.3-1: Aquatic Habitat/Species	LS	LS -	LS	LS
Biological Resources 4.3-2: Riparian Habitat-Birds	LSM	LSM -	LSM	LSM
Biological Resources 4.3-3: Nesting Birds	LSM	LSM	LSM	LSM
Cultural Resources 4.4-1: Archaeological Resources	LS	LS	LS	LS
Cultural Resources 4.4-2: Historical Resources	LS	LS	LS	LS
Cultural Resources 4.4-3: Paleontological Resources	LS	LS	LS	LS
Hydrology 4.5-1: Stormwater Drainage	LS	LS	LS	LS
Hydrology 4.5-2: Water Quality	LS	LS	LS	LS
Hydrology 4.5-3: Flood Hazards	LS	LS	LS	LS
Public Services 4.6-1a: Fire Protection	LS	LS -	LS -	LS -
Public Services 4.6-1b: Police Protection	LS	LS -	LS -	LS -
Public Services 4.6-1c: Schools	LSM	LSM -	LSM -	LSM -
Public Services 4.6-2: Parks and Recreation	LSM	LSM -	LSM -	LSM -
Public Services 4.6-3: Solid Waste	LS	LS -	LS -	LS -
Traffic 4.7-1: Circulation System Impacts	LS	LS -	LS -	LS -
Traffic 4.7-2: Highway Impacts	LS	LS -	LS -	LS -
Water & Wastewater 4.8-1: Water Supply	LS	LS -	LS -	LS -
Water & Wastewater 4.8-2: Wastewater	LS	LS -	LS -	LS -
Noise: Exposure to Noise	LSM	LSM -	LSM -	LSM -
Cumulative Traffic	SU	SU -	SU -	SU -
New Significant Impacts		None	None	None

Notes:

PP = Proposed Project

NP = No Project

ALT1 = Reduced Height for Expanded Additional Height Zone A and Elimination of Additional Height Zone B

ALT2 = Reduced Height for Additional Height Zone A to 75 feet along Pacific/Front and Reduced Height for Additional Height Zone B to 60 feet along the San Lorenzo River with Development Standard Modifications

Impact without Mitigation / Impact with Mitigation

NI = No Impact

LS = Less than significant impact

S = Significant

LSM = Less than significant with mitigation

SU = Significant unavoidable impact

+ = Greater adverse impact than proposed project

- = Lesser adverse impact than proposed project

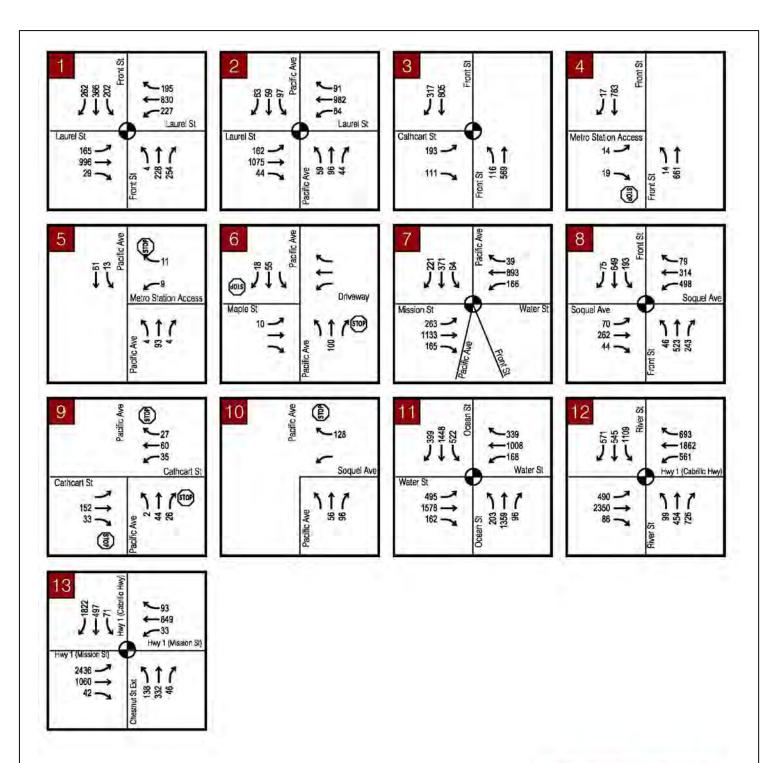
Downtown Plan Amendments

INTENTIONALLY LEFT BLANK

Downtown Plan Amendments

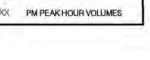
9711.0003

July 2017









DUDEK

SOURCE: Kimley Horn

FIGURE 5.1 **Cumulative Trips**

CHAPTER 6 REFERENCES AND LIST OF PREPARERS

6.1 AGENCIES AND PERSONS CONTACTED

City of Santa Cruz

City Manager's Office: Tiffany Wise-West

Fire Department: Jim Frawley, Dave Sasscer

Planning and Community Development Department: Ron Powers, Alex Khoury, Eric Marlatt

Public Works Department: Chris Schneiter, Agnes Toppe, Steve Wolfman, Ron Marquez

(Traffic Consultant)

Parks and Recreation Department: Noah Downing, Mauro Garcia

Police Department: Rick Martinez

Water Department: Toby Goddard, Katie Moore, Sarah Easley Perez

6.2 REFERENCES

AMBAG, Association of Monterey Bay Area Governments.

- a) September 14, 2016. "Monterey Bay Metropolitan Transportation Improvement Program (MTIP) FFY 2016-17 to 2019-20." Online at: http://ambag.org/programs/met transp-plann/MTIP-2016-17 to 2019-20/2016 MTIP-FullDocument.pdf
- b) June 2014. "Monterey Bay Metropolitan Transportation Plan." Online at: http://ambag.org/programs/met_transp_plann/documents/2035_AmendNo1/AMBAG_2035MTP-SCS_AmendmentNo1_January2017.pdf

American Bird Conservancy, New York City Audubon. 2015. "Bird-Friendly Building Design." Available online at: https://abcbirds.org/wp-content/uploads/2015/05/Bird-friendly-Building-Guide_2015.pdf.

Association of Environmental Professionals. October 16, 2016. "Final White Paper, Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California.

California Air Resources Board (CARB).

a) January 20, 2017. "THE 2017 Climate Change Scoping Plan Update." Online at: https://www.arb.ca.gov/cc/scopingplan/2030sp pp final.pdf.

- b) June 17, 2016. "California Greenhouse Gas Inventory 2016 Edition." Online at: http://www.arb.ca.gov/cc/inventory/data/data.htm.
- c) May 2016. "Area Designation Maps/State and National." Last updated May 5, 2016. Accessed May 25, 2017. http://www.arb.ca.gov/desig/adm/adm.htm.
- d) May 2014. "First Update to the Climate Change Scoping Plan Building on the Framework Pursuant to AB 32 The California Global Warming Solutions Act of 2006. Online at: https://www.arb.ca.gov/cc/scopingplan/2013 update/first update climate change scoping plan.pdf.
- e) December 12, 2008. *Climate Change Scoping Plan: A Framework for Change*. Online at: https://www.arb.ca.gov/cc/scopingplan/document/adopted scoping plan.pdf.

California Coastal Commission. August 2015. California Coastal Sea Level Rise Policy Guidance."

California Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT) with science support provided by the Ocean Protection Council's Science Advisory Team and the California Ocean Science Trust. March 2013 update. "State of California Sea-Level Rise Guidance Document."

California Department of Education, Educational Demographics Unit. "District and School Enrollment by Grade-Enrollment by Grade for 2016-17." Available online at: http://dq.cde.ca.gov/dataquest/ (Accessed 7/7/17).

California Department of Finance. May 2017. "E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2017 with 2010 Census Benchmark." Available online at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/.

Caltrans, California Department of Transportation.

- a) 2015. "2015 Traffic Volumes on the California State Highway System." Online at: http://www.dot.ca.gov/trafficops/census/
- b) October 2011. "State Routes 1 & 183 Corridor System Management Plan." Online at: http://www.dot.ca.gov/dist05/planning/csmp scr mon 1.htm.
- c) September 2007. "Transportation Planning Fact Sheet: State Route 9 in Santa Cruz County." Online at: http://www.dot.ca.gov/dist05/planning/sys plan docs/tcr factsheet combo/scr sr9 tc rfs.pdf
- d) April 2006. "Transportation Concept Report for State Route 1 in District 5." Online at: http://www.dot.ca.gov/dist05/planning/sys plan docs/tcr factsheet combo/scr sr1 tc rfs.pdf
- e) January 2006. "Transportation Concept Report for State Route 17 in District 5." Online: http://www.dot.ca.gov/dist05/planning/sys_plan_docs/tcr_factsheet_combo/scr_sr17_tcrfs.pdf

f) December 2002. "Guide for the Preparation of Traffic Impact Studies." Online at: http://www.dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa_files/tisguide.pdf

California Department of Water Resources. December 2016. "California's Groundwater, Working Toward Sustainability." Bulletin 118, Interim Update 2016.

California Energy Commission. 2017. "U.S. Per Capita Electricity Use by State." Available online at: http://www.energy.ca.gov/almanac/electricity_data/us_per_capita_electricity.html.

California Environmental Protection Agency. Office of Environmental Health Hazard Assessment. August 2013. "Indicators of Climate Change in California."

California Natural Resources Agency. December 2009. "Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97."

City of Santa Cruz.

- a) Not Dated. Adopted. "Capital Improvement Program Budget Fiscal Years 2017-2019."
- b) Not Dated. City of Santa Cruz Climate Adaptation Plan, 2012-2017.
- c) February 28, 2017. "Active Transportation Plan." Available online at: http://www.cityofsantacruz.com/home/showdocument?id=59168.
- d) Not Dated. "2016 Annual Traffic Safety Report." Available online at: http://www.cityofsantacruz.com/home/showdocument?id=57466.
- e) March 6, 2017. "Water Supply Augmentation Strategy, Quarterly Work Plan Update." City Council Agenda Report for 3/14/17, Attachment 1.
- f) March 5, 2017. "Joint Meeting of the Santa Cruz City Council and Water Commission: briefing on City Water Supply Advisory Committee Final Report on Agreements and Recommendations." City Council Agenda Report for 3/14/17, Attachment 1.
- g) "Annual Report 2015." Available online at: http://www.cityofsantacruz.com/home/showdocument?id=52906.
- h) Adopted August 23, 2016. 2015 Urban Water Management Plan. Prepared by City of Santa Cruz Water Department. Available online at:
 - http://www.cityofsantacruz.com/government/city-departments/water/2015-urbanwater-mgmt-plan.
- i) January 27, 2016. "City of Santa Cruz Draft 2015-2023 Housing Element." Adopted June 26, 2012. *General Plan 2030*. Available online at:
 - http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/general-plan.
- j) Revised 2014. "Storm Water Best Management Practices For Private and Public Development Projects, Chapter 6B of the Best Management Practices Manual for the City's Storm Water Management Program."

- k) 2013. Approved by FEMA on May 20, 2014. City of Santa Cruz Local Hazard Mitigation Plan, 2012-2017.
- I) March 2013. Santa Cruz Historic Building Survey: Volume III. Prepared by Archives & Architecture, LLC.
- m) March 2013. Resolution No. NS-28,621: Exhibit A, List of Properties in Volume III Historical Building Survey by Address with Opt-Outs Indicated.
- n) June 26, 2012. Adopted. *General Plan 2030*. Available online at: http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/general-plan.
- o) April 2012. City of Santa Cruz *General Plan 2030* Final EIR. [SCH#2009032007] Certified June 26, 2012. Includes Draft EIR document, dated September 2011. Available online at: http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/general-plan.
- p) Adopted by City Council on February 28, 2006 and certified by the California Coastal Commission on May 9, 2008. *City-wide Creeks and Wetlands Management Plan*. Available online at:
 - http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development-2/area-plans-planning-documents-projects/city-wide-creeks-and-wetlands-management-plan
- q) July 2005a. "San Lorenzo River Bicycle-Pedestrian Bridge and Spur Trails Biological Evaluation." (05-Cruz-San Lorenzo River Bicycle-Pedestrian Bridge)
- r) Adopted June 24, 2003. San Lorenzo Urban River Plan. Prepared by City of Santa Cruz San Lorenzo Urban River Plan Task Force with assistance from Rivers, trails and Conservation Assistance Program of the National Park Service. Available online at: http://www.cityofsantacruz.com/home/showdocument?id=61131
- s) October 20, 2000. *Historic Context Statement for the City of Santa Cruz*. Prepared by Susan Lehmann.
- t) October 25, 1994. *The City of Santa Cruz General Plan and Local Coastal Program 1990-2005*. [Local Coastal Program portion] Available online at:

 http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/general-plan
- u) June 13 1995. List of Properties on the Historical Building Survey by Address. Updated in 2008.
- v) May 1989. *Santa Cruz Historic Building Survey: Volume II.* Prepared by John Chase, Daryl Allen and Jeanne Gordon.
- w) 1976. Santa Cruz Historic Building Survey: Volume I. Prepared by Charles Hall Page & Associates, Inc.

1930 Ocean Street Extension Project

9644

July 2017 6-4

Decision Insite. January 2016. *Analysis of Enrollment Projections: Fall 2016.* Prepared for Santa Cruz City Schools. Available online at:

http://sccs.net/UserFiles/Servers/Server_222705/File/Board%20Books/Books%202015-16/Board%20Book%201-13-16%20Final%20Duplex.pdf.

Dudek. August 2016. "San Lorenzo River Flood Control Stable Channel and Beach Nourishment Pilot Project Existing Conditions Report." Prepared for City of Santa Cruz.

EIP Associates. July 1991. "Final City of Santa Cruz Downtown Recovery Plan Environmental Impact Report." SCH#90031009. Includes Draft EIR document, dated May 1991. Prepared for City of Santa Cruz Redevelopment Agency.

Evans Ogden, Lesley, J. September, 1996. "Collision Course: The Hazards of Lighted Structures and Windows to Migrating Birds." A Special Report for the World Wildlife Fund Canada and the Fatal Light Awareness Program. University of Nebraska, Lincoln.

Federal Highway Administration (FHWA) and State of California Department of Transportation (Caltrans). November 2015. "Tier I and Tier II Draft Environmental Impact Report/Environmental Assessment." Online at:

https://sccrtc.org/projects/streets-highways/hwy1corridor/environmental-documents/

Gelb, Yigal, and Nicole Delacretaz. 2009. "Windows and Vegetation: Primary Factors in Manhattan Bird Collisions." *Northeastern Naturalist*. 16(3):455-470.

Gary Griggs, Brent Haddad. January 22, 2011. "City of Santa Cruz city Climate Change Vulnerability Assessment."

Hager, Stephen, B., Heidi Trudell, Kelly J. McKay, Stephanie M. Crandall, and Lance Mayer. September 2008. "Bird Density and Mortality at Windows." *The Wilson Journal of Ornithology*. 120(3):550-564. 8

Kittleson Environmental Consulting and Bryan Mori Biological Consulting.

- a) June 2016. "Existing Conditions: Fish and Wildlife Resources San Lorenzo River Highway 1 to Water Street Bridge." Prepared for Dudek and City of Santa Cruz.
- b) January 2016. "Lower San Lorenzo River 2015 Fall Migration Bird Surveys." Prepared for Santa Cruz City Council City of Santa Cruz, CA.

Klem, D. Jr. February, 1990. "Collisions Between Birds and Windows: Mortality and Prevention." *Journal of Field Ornithology*. 61(1): 120-128.

Klem, D. Jr., Christopher Farmer, Nicole Delacretaz, Yigal Gelb, Peter Saenger. March 2009. "Architectural and Landscape Risk Factors Associated with Bird-Glass Collisions in an Urban Environment." *The Wilson Journal of Ornithology*. 121(1):126-134.

Monterey Bay Air Pollution Control District (MBUAPCD).

- a) February 2016. "Guidelines for Implementing the California Environmental Quality Act." Revised February 2016.
- b) 2015. "NCCAB (NCCAB) Area Designations and Attainment Status". Online at: http://mbuapcd.org/wp-content/uploads/2015/01/attainment-status-january-2015.pdf
- c) May 2013. Memorandum Regarding "Santa Cruz Crematory Screening Risk Assessment for Proposed Crematory Relocation."
- d) May 24, 2013. Letter to Randy Krassow, Santa Cruz Cemetery Corporation regarding "Health Risk Assessment for Santa Cruz Crematory."
- e) April 17, 2013, Adopted. "Triennial Plan Revision 2009 2011." Final.
- f) February 2013. Letter from Mike Gilroy, Deputy Air Pollution Control Officer to District Board of Directors regarding "Receive an Informational Report on the Status of Developing Greenhouse Gas Emissions Thresholds for Evaluating Projects Under the California Environmental Quality Act (CEQA) and Provide Direction to Staff on Next Steps."
- g) August 2008. Air Quality Management Plan.
- h) February 2008. "CEQA Air Quality Guidelines."
- i) 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.
- j) December 1, 2005. "2005 Report on Attainment of the California particulate Matter Standards in the Monterey Bay Region."

Monterey Bay Air Resources District. Adopted March 15, 2017. "2012-2015 Air Quality Management Plan."

Pacific Gas and Electric Company. 2017. "Company Information." Online at: https://www.pge.com/en_US/about-pge/company-information/profile/profile.page (Accessed July 17, 2017).

Santa Cruz City Schools. "District Profile." Website: http://sccs.net/administration/district_profile/ (Accessed May 2, 2017).

Santa Cruz Metropolitan Transit District. May 2014. "Santa Cruz Metro Short Range Transit Plan."

Santa Cruz Regional Transportation Commission. June 2014. "2014 Santa Cruz County Regional Transportation Plan." Available online at: https://sccrtc.org/funding-planning/long-range-plans/rtp/2014-plan/.

6-7

San Francisco Planning Department. Adopted July 14, 2011. "Standards for Bird-Safe Buildings." Available online at: http://sf-planning.org/standards-bird-safe-buildings.

Swanson Hydrology & Geomorphology, Native Vegetation Network, Hagar Environmental Science. January 2002. "Lower San Lorenzo River & Lagoon Management Plan." Prepared for San Lorenzo Urban River Task Force, City of Santa Cruz, State Coastal Conservancy. (Included as an appendix in the San Lorenzo Urban River Plan)

United States Census Bureau.

- "S1101: Households and Families." 2011-2015 American a) American FactFinder. https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml Community Survey. (Accessed May 2, 2017).
- b) American FactFinder. "S1401: School Enrollment." 2011-2015 American Community Survey. https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml (Accessed May 2, 2017).

U.S. Energy Information Administration. 2017. "California State Energy Profile." Available online at: https://www.eia.gov/state/print.php?sid=CA.

United States Fish and Wildlife Service. January 2002. "Migratory Bird Mortality: Many Human-Caused Threats Afflict Our Bird Populations."

- U.S. Environmental Protection Agency (EPA)
 - a) 2017. "EPA Region 9 Air Quality Maps and Geographic Information." Last updated March 7, 2017. Accessed May 25, 2017. http://www.epa.gov/region9/air/maps/.
 - b) 2016. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014 EPA 430-R-16-002. Washington, D.C.: EPA. April 15, Online at: https://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2016-Main-Text.pdf.
 - c) October 2008. Reducing Urban Heat Islands: Compendium of Strategies,. Available online at: https://www.epa.gov/sites/production/files/2014-08/documents/basicscompendium.pdf
- U.S. Fish and Wildlife Service. September 25, 2015. "Birds of Conservation Concern" web page; accessed April 26, 2017. Available online at: https://www.fws.gov/birds/management/managedspecies/birds-of-conservation-concern.php

July 2017

6.3 EIR TEAM

Dudek

Stephanie Strelow, Project Manager

Dave Compton, Biological Resources

Matthew Morales, Technical Resource Specialist, Air Quality

Anais Schenk, Environmental Specialist / Planner

Tyler Friesen, Graphics

Consultants

Gary Kittleson, Kittleson Environmental Consulting, Biological Resources Kimley Horn, Transportation and Traffic Engineering

APPENDIX A Notice of Preparation and Initial Study

ZONING / PERMIT PROCESSING 831/420-5100 • FAX 831/420-5434 COMPREHENSIVE PLANNING 831/420-5180 • FAX 831/420-5101



INSPECTION SERVICES 831/420-5120 • FAX 831/420-5434 PLANNING ADMINISTRATION 831/420-5110 • FAX 831/420-5101

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

809 Center Street • Room 206 • Santa Cruz, CA 95060 • www.cityofsantacruz.com Alex Khoury, Acting Director

February 15, 2017

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT

RE: Downtown Recovery Plan, General Plan and Local Coastal Plan Amendments

To Interested Agencies and Persons:

The City of Santa Cruz, as the lead agency, is preparing an Environmental Impact Report on the project described herein. Please respond with written comments regarding the scope and the content of the EIR as it may relate to your agency's area of statutory responsibility or your areas of concern or expertise. Your agency may need to use the EIR prepared by our agency when considering your permit or other approval for the project, if any is required. *Responses are due within 30 days of the receipt of this Notice, as provided by State law.* The contact person's name and address are listed below. Please include the name and phone number of a contact person at your agency in your response.

- 1. <u>Project Location</u>. The project area consists of an approximate 12-acre portion of the downtown area of the city of Santa Cruz in the area generally bounded by Laurel Street on the south, the San Lorenzo River on the east, Cathcart Street and Soquel Avenue on the north, and Cedar Street on the west. See the attached Location Map and Figure 1 in the attached Initial Study for project area boundaries.
- 2. Project Description. The proposed project consists of a series of amendments to the City's Downtown Recovery Plan (DRP), General Plan 2030 (GP), and Local Coastal Plan (LCP). The DRP amendments include revisions to Plan text and modifications to development guidelines and standards. The focus of the DRP amendment is to expand the location in which the "Additional Height Zones" are applied and revisions to the Chapter 4 Development Standards of the DRP. The primary proposed modification under consideration is an increase in allowable building heights in the lower Pacific Avenue area to Laurel Street and along the San Lorenzo Riverfront. The proposed General Plan amendment would the floor area ratio (FAR) for the Regional Visitor Commercial land use designation in areas where expanded height would permitted as the building height increases would also result in an increased FAR. The proposed LCP amendments include changes to policies for the San Lorenzo Urban River Plan (SLURP) component of the LCP.

Page 2 February 15, 2017

The proposed amendments and potential increased building heights could result in additional development. City staff estimates that the proposed amendment to height zones could result in a net increase of approximately 711 residential units and approximately 2,200 square feet of office space with a net decrease of approximately 14,700 square feet of commercial building space over existing conditions within the study area. In comparison to potential redevelopment that could occur under the adopted *General Plan 2030*, City staff estimates that potential additional development resulting from the proposed DRP amendments could result in an increase of approximately 274 residential units and approximately 16,600 square feet of commercial and office space over what could be developed under the General Plan without the proposed DRP amendments.

- **3. Project Applicant.** The City of Santa Cruz is the project proponent.
- 4. Probable Environmental Effects of the Project. After completing a preliminary review of the project, as described in Section 15060 of the CEQA Guidelines, and preparing an Initial Study for the project, which is attached or is available for review on the City's website at: http://www.cityofsantacruz.com/departments/planning-and-community-development/environmental-documents, the City has determined that an EIR should be prepared to assess the potentially significant environmental impacts of this project. The City has identified the following possible effects of the project as topics for analysis in the EIR. The City will consider the written comments received in response to this Notice of Preparation in determining whether any additional topics should be studied in the Draft EIR.
 - Aesthetics Potential aesthetic impacts related to increased building heights will be reviewed based in part on results of a building massing study prepared for the City's Planning and Community Development Department.
 - Air Quality and Greenhouse Gas Emissions (GHG) Potential impacts resulting from emissions related to potential future development will be reviewed.
 - Biological Resources Potential impacts to San Lorenzo River habitat and species due potential development resulting from increased building heights will be reviewed.
 - *Cultural Resources* Potential impacts to historical resources with redevelopment under the proposed plan amendments will be reviewed.
 - Hydrology and Water Quality Exposure to flood hazards.
 - Public Services and Utilities Fire and police protection services, schools, parks and recreation, wastewater treatment, municipal water service and solid waste disposal will be reviewed based on potential future development that could occur as a result of the proposed amendments.
 - Traffic and Transportation Findings of a traffic impact analysis, which is being prepared for the City's Planning and Community Development Department, will be provided and supplemented as needed in the EIR. Updated traffic counts and level of service analyses

Page 3 February 15, 2017

will be provided at area intersections. The review will address other modes of transportation in the area, including transit, pedestrian and bicycle circulation.

 Land Use - Review of potential project conflicts with plans, policies or regulations adopted for the purpose of avoiding or mitigating an environmental effect will be provided in the EIR.

4. Contact Person Name and Phone Number:

Ron Powers, Principal Planner
City of Santa Cruz Planning and Community Development Department
809 Center Street, Rm. 206
Santa Cruz, CA 95060

Phone: 831 420-5216

Email: RPowers@cityofsantacruz.com

Responses to this Notice of Preparation are due by March 17, 2017.

Sincerely,

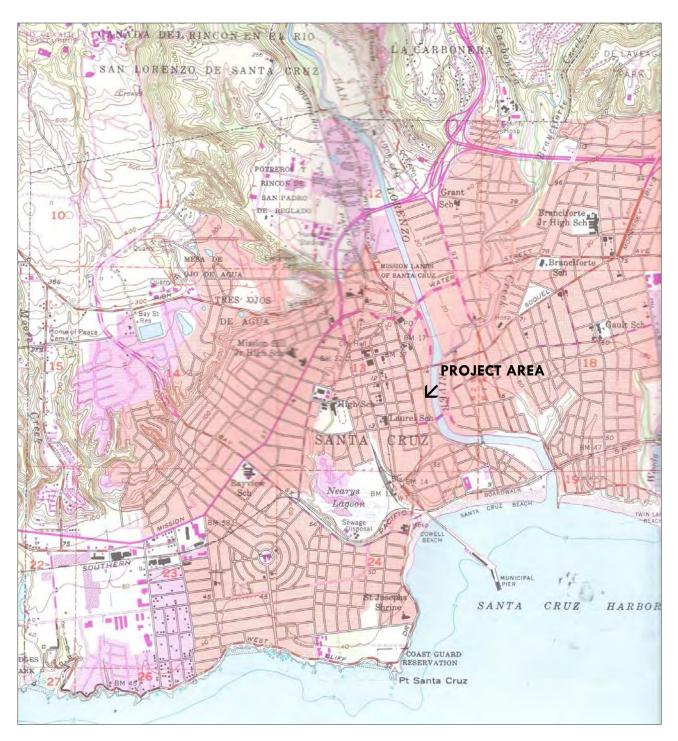
Ron Powers
Principal Planer

Attachments:

Location Map

Initial Study (Online at: http://www.cityofsantacruz.com/departments/planning-and-community-development/environmental-documents)

LOCATION MAP



City of Santa Cruz INITIAL STUDY / ENVIRONMENTAL CHECKLIST

I. BACKGROUND & PROJECT DESCRIPTION

1. Application No: Not Applicable

2. Project Title: Downtown Recovery Plan Amendments

3. Lead Agency Name and Address:

City of Santa Cruz 809 Center Street, Room 107 Santa Cruz, CA 95060

4. Contact Person and Phone Number: Ron Powers, (831) 420-5216

RPowers@cityofsantacruz.com

5. Project Location: A portion of the downtown area of the city of Santa Cruz in the area generally bounded by Laurel Street on the south; the San Lorenzo River on the east; Cathcart Street and Soquel Avenue on the north; and Cedar Street on the west. Figure 1 shows the boundary of the project area.

6. Project Applicant's/Sponsor's Name and Address:

City of Santa Cruz

- **7. General Plan Designation:** Regional Visitor Commercial, except for the Metro Station property that is designated Community Facilities.
- 8. **Zoning:** CBD-Central Business District, except for the Metro Station property that is zoned PF-Public Facilities. The southern portion of the study area is zoned CZ-O Coastal Zone Overlay Boundary,

9. Project Description:

Background. The Downtown Recovery Plan (DRP) was adopted in 1991 to guide post-Loma Prieta earthquake reconstruction as the earthquake destroyed significant portions of downtown Santa Cruz. The intent was to establish policies, standards and guidelines to direct the recovery process toward the rebuilding after the earthquake. The DRP was adopted as a specific plan (pursuant to California Government Code requirements) to implement policies in the downtown area, and implementation also included amendments to the Zoning Ordinance. Specifically, DRP Chapter 4, the Development Standards and Design Guidelines, are incorporated by reference in Part 24 of the Zoning Ordinance, the Central Business District (CBD). The DRP has been modified several times over the past 25 years with the most recent change in 2016 to relocate the downtown sign regulations from the DRP to Chapter 24 of the Zoning Code.

The City Planning and Community Development Department and the Planning Commission began working on development standards for the Pacific Avenue Retail District and the Front Street/Riverfront Corridor at the request of the City Council in October 2014. The Planning Commission established two subcommittees to review and develop recommendations. The recommended amendments were forwarded to the City Council and in October 2016, the City Council directed staff to initiate environmental review on the proposed amendments.

Project Overview. The proposed project consists of a series of amendments to the City's DRP, the GP 2030, and the LCP. The DRP amendments include revisions to Plan text and modifications to development guidelines and standards. The focus of the proposed DRP amendment is to expand the location in which the "Additional Height Zones" are applied and revisions to the Chapter 4 Development Standards of the DRP. The primary proposed modification would increase allowable building heights in the lower Pacific Avenue and lower Front Street areas and along the San Lorenzo River, between Cathcart and Laurel Streets. According to the City, these changes were initiated to provide more opportunities for housing in the core of the downtown. Increasing densities in the downtown is consistent with the overarching objectives of the City to maintain a compact downtown with a dense urban core in exchange for retaining a strong greenbelt. This amendment includes modifications to the format of the original DRP with the creation of a more formal Use Chart for ground level and upper level uses, as well as consolidating language relating to design guidelines and development standards. This amendment also includes the renaming of the plan to eliminate the "Recovery" from the title that was formerly associated with the post-earthquake reconstruction that is now mostly complete.

The proposed General Plan amendment would increase the upper limit of the floor area ratio (FAR) for the Regional Visitor Commercial land use designation in areas where expanded height would be permitted. As the building height increases would also result in an increased FAR. The proposed LCP amendments include changes to policies for the San Lorenzo Urban River Plan (SLURP) component of the LCP as further described below.

<u>Summary of Proposed DRP Changes</u>. The proposed amendments include minor revisions to text, reorganization of text, elimination of outdated text, and addition of new text and exhibits, including modifications to development standards regarding building height. Key proposed changes are summarized below and in Table 1.

Remove references to the High Density Overlay (HDO) District, which was repealed in 2016 due to redundancy with the adopted <i>General Plan 2030</i> and Housing Element.
Reorganize and combine Guideline language with Development Standard language into the same section with new standards for public passageways along Cathcart, Elm and Maple Streets.
Introduce a percentage footprint with varying height limits for the Pacific Avenue Retail District and west of Front Street for projects taller than 55 feet. This volumetric approach is intended to ensure both vertical and horizontal variation to avoid monolithic structures.

Increases allowable maximum building heights in three locations as shown on Figure 2 and summarized below:
 Additional Height to 75 Feet: Extends the existing zone for additional height to the area along the west side of Pacific Avenue between Cathcart Street and Laurel Street under specified conditions. Current allowable heights are 50 to 60 feet.
Additional Height to 85 Feet: Extends the existing zone for additional height to 75 feet between Pacific Avenue and Front Street (between Cathcart and Laurel under certain conditions and up to 85 feet for a smaller portion of large sites Current allowable heights are primarily feet except for parcels south of Cathcart that are within 60 to 75 height zones.
 Additional Height to 70 Feet: Creates a new zone that would change the maximum height from 50 feet to 70 feet feet under specific conditions along the east side of Front Street between Soquel Avenue and Laurel Street.
The Draft Plan requires the top floor of Front Street properties to not exceed 60% of the floor below and 60% of the building length, thereby ensuring that the skyline views will avoid a linear wall of building mass.
Change the upper level stepback 42 degree or 52 degree standard to a numeric stepback approach above a specific height. A stepback is generally an upper floor building setback.
The Draft Plan includes language to require the sloped side of the river levee between the levee and the private property to be filled with earth to achieve a similar elevation between the Riverwalk and the adjacent private development for the purposes of encouraging more connections to the Riverwalk. The original DRP did encourage filling along the levee, but the proposed language makes this public objective a mandatory design feature for new development.
Include a Use Chart in a table format for both ground level and upper level uses for each of the four CBD subdistricts. This modification allows for easier reference with notes to details about particular uses. Very few changes are proposed to the allowable uses, but the proposed revisions include prohibition of cannabis dispensary facilities as a result of the passage of state Proposition 64, the ballot measure to allow personal recreational use of marijuana.
Neither the existing DRP nor the proposed amendments provide an exhaustive list of all potential and foreseen uses for the CBD subdistricts. The proposed DP does include more uses not mentioned in the original DRP, including required Community Care Family Day Care and Supportive and Transitional Housing uses that are required by States

<u>Potential Downtown Plan Area Buildout with Amendments</u>. The proposed amendments will allow increased building heights in specified locations and under specified conditions. City Planning Department staff developed an estimate of potential buildout without and with the

Law. The proposed DP also includes a provision that allows the Zoning Administrator to determine whether a proposed unlisted use would be considered similar in nature to

other listed uses that support the objectives of the DP and the CBD.

proposed amendments for the purpose of evaluating potential environmental impacts as part of the CEQA review. It is estimated that the proposed amendment to expand the Additional Height Zones" could result in a net increase of approximately 711 residential units and approximately 2,200 square feet of office space with a net decrease of approximately 14,700 square feet of commercial building space over existing conditions within the study area. In comparison to potential redevelopment under the adopted *General Plan 2030*, City staff estimates that potential additional development resulting from the proposed DRP amendments could result in an increase of approximately 274 residential units and approximately 16,600 square feet of commercial and office space over what could be developed under the existing General Plan without the proposed DRP amendments.

<u>Summary of Proposed LCP Amendment</u>. A portion of the downtown lies within the coastal zone. Chapter 4 of the Downtown Recovery Plan is incorporated by reference in the CBD zone district, and the district is part of the implementation section of the LCP. Thus, revisions to the DRP Chapter 4 require review and approval by the California Coastal Commission.

In addition to the development standards of Chapter 4, there are also several LCP land use policies that are proposed to be modified. Since the original certification of the City's LCP in 1985, additional plans have been prepared and policies incorporated into the LCP as amendments. The City adopted the San Lorenzo Urban River Plan (SLURP) in 2003 as a resource management protection plan for the river. Subsequent to the City Council approval, several resource-related and land use policies were included in the LCP by the Coastal Commission as an amendment to the City's LCP. There are 11 SLURP policies that pertain to Front Street development, several of which are directed to areas outside of the coastal zone. The proposed amendment would remove these policies, nine of which are certified LCP polices, and add two new LCP policies.

10. Public Agencies Whose Approval or Review Is Required:

California Coastal Commission: Approval of LCP amendment

II. ENVIRONMENTAL SETTING

The city of Santa Cruz is located at the northern edge of Monterey Bay. The project area encompasses approximately 12 acres in the lower downtown area of the City of Santa Cruz within the boundaries of the existing adopted DRP. Boundaries of the DRP plan area are: Laurel Street on the south, Cedar and Center Streets on the west, River and Water Streets on the north, and the top of the west levee of the San Lorenzo River on the east. The project area is the portion of the DRP area that is generally bounded by Laurel Street on the south; the San Lorenzo River on the east; Cathcart Street and Soquel Avenue on the north; and Cedar Street on the west. The project area is developed primarily with a mix of commercial uses with some upper floor office and residential uses. The area also includes the approximately 2-acre Metro Station, owned and operated by the Santa Cruz Metropolitan Transit District that serves as the bus plaza for the downtown area.

Table 1: Summary of Key Proposed DRP Amendments

Table 1: Summary of Key Proposed DRP Amendments						
Chapter	Existing	Proposed				
Introduction,	Downtown Recovery Plan	All references to the updated plan refer to the plan as				
Executive		Downtown Plan (DP), except where specifically referring to				
Summary,		the original document.				
Chapters 1, 2	The existing DRP uses the 1989 Loma Prieta	Some language has been modified to note that the City has				
and 3	earthquake as a baseline for describing	had 25 years of post-earthquake development and				
	character of the CBD zone. Language	recognizes that the CBD character has changed.				
	indicating historic character or historic fabric of					
	the CBD meant pre-1989 earthquake					
	character.	Tout douifice that law are a management and a management in				
	Summary of the Plan Recommendations	Text clarifies that language represents recommendations in 1991.				
	References to flood improvements.	Updated to reflect improvements to the San Lorenzo River levee made since the Loma Prieta earthquake.				
	Descriptions and boundaries of the four CBD	The general descriptions of the purposes and character of				
	subdistricts - Pacific Avenue Retail, Front Street	these four areas remain the same. The height map is moved				
	/ Riverfront Corridor, Cedar Street Village	to Chapter 4 with the other Development Standards.				
	Corridor, and North Pacific.	T . II				
	Reference and description of the High Density Overlay (HDO) District.	Text eliminated as the HDO was repealed in 2016.				
Chapter 4	The DRP was formatted to describe allowable	Reorganizes the allowable uses for all the CBD districts into a				
Prohibited	uses by each of the four CBD subdistricts and	table format, similar to the Citywide code update format				
Uses	further defined by ground floor and upper	that will be more consistent with all zoning districts in the				
	floor uses. The allowable uses were written in	future. Adds two tables: one for ground level uses and one				
	paragraph form and repeated for each subdistrict.	for upper floor uses.				
	Prohibited uses are listed within Chapter 4 of	Adds Medical and Recreational cannabis service providers to				
	the Plan. The Plan also includes a list of	the list of prohibited uses within the Central Business				
	amortized uses that are to be phased out by	District. No change is proposed for the types of uses that				
	October 2020. Existing "Additional Height Zones" are located	are listed to be phased out of the CBD by October 2020. Expands zones of additional height to areas along lower				
	generally north of Cathcart and west of Front	Pacific Avenue and lower Front Street.				
	Street.	racine Avenue and lower Front Street.				
Chapters 5, 6	Circulation and Parking Plan, Streetscape and	The language of Chapters 5, 6 and 7 were not re-addressed				
and 7	Open Space Plan, and Implementation and	with this update.				
	Management Strategy chapters remain intact.					
Appendices	Appendix 3 – Sign Regulations	Appendix 3 – Downtown Sign regulations previously were				
	, , _ , , , , , ,	moved to the Zoning Ordinance, Chapter 24.12.				
	5 – Floor Area Ratio (ordinance)	Appendix 5 – Floor Area Ratio ordinance appendix deleted				
	6 – Additional Height Zone C (specific to upper Pacific Avenue)	as being obsolete in the CBD.				
	racine Avenue)	Appendix 6 – The Additional Height Zone C and the High Density Overlay Zone have been eliminated. Height Zone C				
		is integrated with Additional Height Zone A; HDO Zone was				
		repealed in 2016.				
	7 – Live Entertainment (ordinance)	Appendix 7 – Live Entertainment ordinance are in the Zoning				
	(,	Code Chapter 24.				
Exhibits	Downtown Landscape Program	No change.				
List of Maps	Land Use Concept	Land Use Concept remains the same				
and	Height	Height Map relocated to Chapter 4.				
Diagrams	Housing	Housing Map deleted as it represented the High Density				
-	Zone A – Additional Height Standards	Overlay Zone, which is now obsolete with the General Plan				
	Zone B – Additional Height Standards	2030.				
	Many other diagrams listed.	Additional Height Zones A and B are in Chapter 4.				

APPENDIX A

This page intentionally left blank.

APPENDIX A

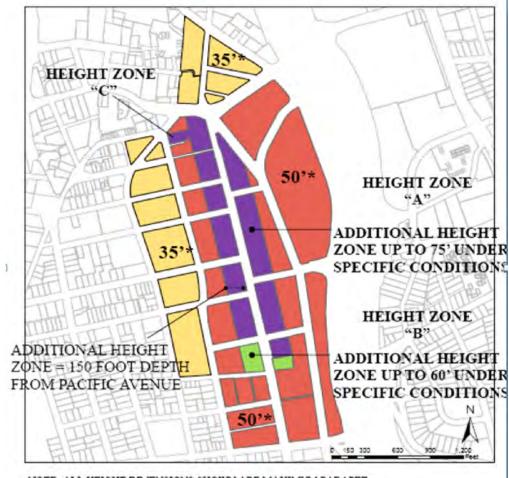


DUDEK

Plan Area Location Map

APPENDIX A

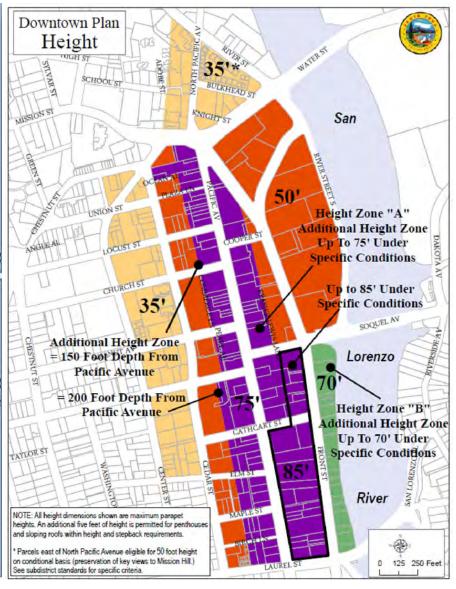
Existing Additional Height Zones



NOTE: ALL HEIGHT DIMENSIONS SHOWN ARE MAXIMUM PARAPET HEIGHTS. AN ADDITIONAL FIVE FEET OF HEIGHT IS PERMITTED FOR PENTHOUSES AND SLOPING ROOFS WITHIN HEIGHT AND STEPBACK REQUIREMENTS.

* PARCELS EAST OF NORTH PACIFIC AVENUE ELIGIBLE FOR 50 FOOT HEIGHT ON CONDITIONAL BASIS (PRESERVATION OF KEY VIEWS TO MISSION HILL).

Proposed Additional Height Zones



SOURCE: City of Santa Cruz Planning and Community Development Department

FIGURE 2

Existing and Proposed Additional Height Zones



III. ENVIRONMENTAL CHECKLIST

Environmental Factors Potentially Affected by the Project: The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

√	Aesthetics		Agricultural & Forest Resources	√	Air Quality
✓	Biological Resources	>	Cultural Resources & Tribal Cultural Resources	>	Geology / Soils
✓	Greenhouse Gas Emissions		Hazards & Hazardous Materials	√	Hydrology / Water Quality
✓	Land Use / Planning		Mineral Resources	√	Noise
✓	Population / Housing	√	Public Services	✓	Recreation
✓	Transportation / Traffic	√	Utilities/Service Systems	√	Mandatory Findings of Significance

Instructions to Environmental Checklist

- 1. A brief explanation is required (see VI. "Explanation of Environmental Checklist Responses") for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question (see V. Source List, attached). A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- 2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that any effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- 4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.

- 5. Earlier Analysis may be used where, pursuant to the tiering, program EIR, or other CEQA process, one or more effects have been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case a discussion should identify the following on attached sheets:
 - a) Earlier Analysis used. Identify earlier analyses and state where they are available for review.
 - b) Impacts adequately addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation measures. For effects that are "Less than Significant with Mitigation Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8. The explanation of each issue should identify:
 - a) The significance criteria or threshold, if any, used to evaluation each question; and
 - b) The mitigation measure identified, if any, to reduce the impact to less than significance.

	/IRONMENTAL IMPACTS ses (and Supporting Information Sources):	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
1.	AESTHETICS. Would the project:				
a)	Have a substantial adverse effect on a scenic vista?			✓	
b)	Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?			✓	
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	✓			
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			√	
a)	significant environmental effects, lead agencies may Site Assessment Model (1997) prepared by the Califoto use in assessing impacts on agriculture and farmla resources, including timberland, are significant envir information compiled by the California Department inventory of forest land, including the Forest and Rai Assessment project; and forest carbon measurement the California Air Resources Board. Would the project Convert Prime Farmland, Unique Farmland, or	ornia Departmen and. In determin conmental effect of Forestry and F nge Assessment t Methodology p	t of Conservation ing whether im s, lead agencies Fire Protection r Project and the	on as an optiona pacts to forest may refer to regarding the sta Forest Legacy	al model ate's
ŕ	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? (V.1b-Figure 4.15-1 in DEIR)				√
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?				✓
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				√
d)	Result in the loss of forest land or conversion of forest land to non-forest use?				✓
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?				✓

	IRONMENTAL IMPACTS es (and Supporting Information Sources):	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
3.	AIR QUALITY. Where available, the significance crite management or air pollution control district may be Would the project:				ons.
a)	Conflict with or obstruct implementation of the applicable air quality plan?	✓			
b)	Violate any air quality standard or contribute to an existing or projected air quality violation?			✓	
c)	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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			√	
d)	Expose sensitive receptors to substantial pollutant concentrations?			√	
e)	Create objectionable odors affecting a substantial number of people?				✓
4.	BIOLOGICAL RESOURCES. Would the project:				•
a)	Have a substantial adverse effect, either directly or through habitat modifications, on 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 Wildlife or U.S. Fish and Wildlife Service?			✓	
b)	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 Wildlife or U.S. Fish and Wildlife Service?			√	
c)	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?				√
d)	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?		✓		
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				√

_	'IRONMENTAL IMPACTS es (and Supporting Information Sources):	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				~
5.	CULTURAL RESOURCES. Would the project:				
a)	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	√			
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?			√	
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			√	
d)	Disturb any human remains, including those interred outside of formal cemeteries?			√	
e)	Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074?				√
6.	GEOLOGY AND SOILS. Would the project:				
a)	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. (V.la) ii. Strong seismic ground shaking? iii. Seismic-related ground failure, including liquefaction? iv. Landslides? (V.Ib-DEIR Figure 4.10-3)			✓ ✓	*
b)	Result in substantial soil erosion or the loss of			√	
c)	topsoil? 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 on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			√	

_	IRONMENTAL IMPACTS es (and Supporting Information Sources):	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d)	Be located on expansive soil, as defined in Table 18- 1-B of the Uniform Building Code (1994), creating substantial risks to life or property? (V.8b)				✓
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				√
7.	GREENHOUSE GAS EMISSIONS. Would the project:				
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			√	
b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				~
8.	HAZARDS AND HAZARDOUS MATERIALS. Would the	project:			
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				✓
b)	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?				√
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ miles of an existing or proposed school?				√
d)	Be located on a site which 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?				√
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				√
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				✓
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				√
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires,				√

-14-

	IRONMENTAL IMPACTS es (and Supporting Information Sources):	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
	including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				
9.	HYDROLOGY AND WATER QUALITY. Would the proj	ect:			
a)	Violate any water quality standards or waste discharge requirements?				✓
b)	Substantially 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 ground water table level (for example, the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				✓
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation onor off-site?				√
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				√
e)	Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?			✓	
f)	Otherwise substantially degrade water quality?			✓	
g)	Place housing within a 100-year flood-hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? (V.1b-Figure 4.7-1 in DEIR)	√			
h)	Place within a 100-year flood-hazard area structures which would impede or redirect flood flows? (V.1b-Figure 4.7-1 in DEIR)	√			
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				✓
j)	Inundation by seiche, tsunami, or mudflow? (V.1b-Figure 4.7-2 in DEIR)	√			

-	IRONMENTAL IMPACTS es (and Supporting Information Sources):	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
10.	LAND USE AND PLANNING. Would the project:				
a)	Physically divide an established community?				✓
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				✓
c)	Conflict with any applicable Habitat Conservation Plan or Natural Community Conservation Plan?				✓
11.	MINERAL RESOURCES. Would the project:				
a)	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? $(V.1a)$				✓
b)	Result in the loss of availability of a locally- important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?				√
12.	NOISE: Would the project:				
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?		√		
b)	Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?				\
c)	Substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			✓	
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			√	
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				✓
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				✓

_	IRONMENTAL IMPACTS es (and Supporting Information Sources):	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
13.	POPULATION AND HOUSING. Would the project:				
a)	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)?	√			
b)	Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				√
c)	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				✓
14.	PUBLIC SERVICES. Would the project result in substate provision of new or physically altered governmental governmental facilities, the construction of which contains acceptable service ratios, response time services:	facilities or nee ould cause signif	d for new or ph icant environm	ysical altered ental impacts, ir	n order
a)	Fire protection?			✓	
b)	Police protection?			✓	
c)	Schools?			✓	
d)	Parks?			√	
e)	Other public facilities?				✓
15.	RECREATION. Would the project:				•
a)	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			√	
b)	Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				√
16.	TRANSPORTATION/TRAFFIC. Would the project:				
a)	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?	✓			
b)	Conflict with an applicable congestion management program, including, but not limited to level of				✓

ENVIRONMENTAL IMPACTS Issues (and Supporting Information Sources):		Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
	service standard and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?				
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				✓
d)	Substantially increase hazards due to a design feature (for example, sharp curves or dangerous intersections) or incompatible uses (for example, farm equipment)?				✓
e)	Result in inadequate emergency access?				✓
f)	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				✓
17.	UTILITIES AND SERVICE SYSTEMS. Would the project	t:			
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				✓
b)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction or which could cause significant environmental effects?			√	
c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				~
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	√			
e)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			√	
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			√	
g)	Comply with federal, state, and local statutes and regulations related to solid waste?				✓

	IRONMENTAL IMPACTS es (and Supporting Information Sources):	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact			
18.	MANDATORY FINDINGS OF SIGNIFICANCE. Would the project:							
a)	Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				√			
b)	Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of the past projects, the effects of other current projects, and the effects of probable future projects.)		√					
c)	Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				√			

DISCUSSION OF ENVIRONMENTAL CHECKLIST

See Section VI--ENVIRONMENTAL EVALUATION for discussion.

IV. DETERMINATION

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	
I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	
I find that the proposed project MAY have a significant effect on the environment and an ENVIRONMENTAL IMPACT REPORT is required.	√ *
I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	5 -
I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.	

Ron Powers, Principal Planner

Date

- * Topics to be addressed in EIR as identified and discussed in this Initial Study include:
 - Aesthetics
 - Air Quality and Greenhouse Gas Emissions
 - Biological Resources Riparian Habitat
 - Cultural Resources Historic Resources
 - Hydrology Exposure to Flood Hazards
 - Public Services and Utilities
 - Transportation and Traffic
 - Land Use Review of Project Conflicts with Adopted Plans and Regulations

V. REFERENCES AND DATA SOURCE LIST

- 1. City of Santa Cruz General Plan and EIR
 - a) Adopted June 26, 2012. *General Plan 2030*. Available online at: http://www.cityofsantacruz.com/departments/planning-and-community-development/general-plan-2030
 - b) April 2012. "City of Santa Cruz *General Plan 2030* Final EIR." [SCH#2009032007] Certified June 26, 2012. Includes Draft EIR document, dated September 2011. Available online at: http://www.cityofsantacruz.com/departments/planning-and-community-development/general-plan-2030
- 2. City of Santa Cruz Adopted Plans.
 - a) Adopted August 2016. 2015 Urban Water Management Plan. Prepared by City of Santa Cruz Water Department.
 - b) Adopted 2013. City of Santa Cruz Local Hazard Mitigation Plan 2012-2017.
 - c) Adopted by City Council on February 28, 2006 and certified by the California Coastal Commission on May 9, 2008. *City-wide Creeks and Wetlands Management Plan*.
- 3. City of Santa Cruz Redevelopment Agency. July 1991. Final Environmental Impact Report for the City of Santa Cruz Downtown Recovery Plan. Includes Draft Environmental Impact Report, dated May 1991, prepared by EIP Associates.
- 4. Monterey Bay Unified Air Pollution Control District.
 - a) April 17, 2013, Adopted. "Triennial Plan Revision 2009 2011." Final.
 - b) August 2008. 2008 Air Quality Management Plan for the Monterey Bay Region.
 - c) February 2008. "CEQA Air Quality Guidelines."
 - d) Adopted April 1996-Revised February 2016. *Guidelines for Implementing the California Environmental Quality Act*.

Initial Study Preparation: Dudek (Stephanie Strelow and Anais Schenk) in association with the City of Santa Cruz Planning and Community Development Department

VI. EXPLANATION OF ENVIRONMENTAL CHECKLIST RESPONSES

Introduction

As defined in the State CEQA Guidelines (section 15382 [pursuant to Public Resources Code sections 21083 and 21068]), a "significant effect on the environment" is:

...a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a

significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether a physical change is significant.

Section 15064(d) of the State CEQA Guidelines indicates that an evaluation of significant effects "shall consider direct physical changes in the environment which may be caused by the project and reasonably foreseeable indirect physical changes in the environment which may be caused by the project." This section further specifies that an indirect physical change in the environment is a physical change in the environment which is not immediately related to the project, but which is caused indirectly by the project. An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project.

The proposed project consists of amendments to the adopted DRP, GP and LCP. Adoption of the plan amendments would not directly result in development, and the proposed amendments do not include site-specific development. However, the proposed amendments would expand the geographical areas in which increased building heights may be allowed under specified conditions, which could result in additional building floors as part of future redevelopment in the area. Therefore, the amendments could lead to reasonably foreseeable indirect physical changes in the environment as discussed below. For the purposes of the CEQA analysis, City staff has estimated a potential net increase in future development of approximately 711 residential units and approximately 2,200 square feet of office space with a net decrease of approximately 14,700 square feet of commercial building space within the study area.

1. Aesthetics.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including visually prominent trees, rock outcrops, or historic buildings along a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and surroundings, i.e., be incompatible with the scale or visual character of the surrounding area; or
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

The project area is located along lower Pacific Avenue and lower Front Street, extending to the San Lorenzo River on the east and almost to Cedar Street on the west. According to maps developed for the City's *General Plan 2030* and included in the General Plan EIR, the project site is not within a mapped panoramic view. Urban views, including those of the project site, are identified along the San Lorenzo levee (SOURCE V.1c-Figure 4.3-1).

The existing DRP allows for building height increases to up to 75 feet in specified situations along Pacific Avenue north of Cathcart Street and for an already developed parcel on the southeast

corner of Cathcart and Pacific. The proposed amendments would permit Increases in allowable heights in three locations as shown on Figure 2. The EIR for the DRP concluded that the additional height areas would not significantly impact the visual character of the area with implementation of the development standards and design guidelines included in the DRP, including upper floor setbacks.

Although, the proposed project does not include site-specific development proposal, the proposed amendments would expand the geographical areas in which increased building heights may be allowed under specified conditions. The Plan also includes design guidelines and development standards that would remain largely unchanged and would serve to guide structural siting and design. However, analysis of potential increases in building height and effects of future development on the visual character of the project area and surroundings require further review in an EIR. The analysis will review potential future building mass and scale based on a building mass study being prepared for the City Planning and Community Development Department. The EIR analysis will address impacts to scenic views, scenic resources, and light and glare, although no significant impacts are anticipated.

2. Agriculture and Forest Resources.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

- Convert prime farmland, unique farmland or farmland of state importance to non-agricultural uses;
- Conflict with existing zoning for agricultural use or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land;
- Result in the loss of forest land or conversion of forest land to non-forest use; or
- Involve other changes to the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use.

The project area does not contain prime or other agricultural lands as mapped on the State Farmland Mapping and Monitoring Program, but is designated as "Urban and Built-up Land" (SOURCE V.1b-DEIR Figure 4.3-1). The area is not designated for agricultural uses in the City's General Plan and is not located adjacent to lands that are in agricultural production. Therefore, the project would not interfere or conflict with agricultural operations. There are planted street trees within the project area, but these trees are not considered timber resources. The project area is not zoned Timberland Preserve. Thus, the proposed project would not result in or lead to the conversion of agricultural or forest lands to other uses.

Air Quality.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

• Conflict with or obstruct implementation of the applicable air quality plan;

- Violate any air quality standards or contribute substantially to an existing or projected air quality violation, i.e. result in generation of emissions of or in excess of 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), and/or 82 pounds per day of PM₁₀ (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 PM₁₀) pursuant to impact criteria for significance developed by the MBUAPCD (MBUAPCD, "CEQA Air Quality Guidelines," February 2008);
- 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollution concentrations; or
- Create objectionable odors affecting a substantial number of people.

(a) Conflict with Air Quality Management Plan. In 1991, the Monterey Bay Unified Air Pollution Control District (MBUAPCD), now named to the Monterey Bay Air Resources District (MBARD), adopted the *Air Quality Management Plan* (AQMP) for the Monterey Bay region in response to the California Clean Air Act of 1988, which established specific planning requirements to meet the ozone standards. The MBUAPCD has updated the AQMP five times. The most recent update, the Triennial Plan Revision 2009-2011, adopted in 2013, builds on and updates information developed in past AQMPs. The primary elements from the 2008 AQMP that were updated in the 2012 revision include the air quality trends analysis, emission inventory, and mobile source programs (SOURCE V.4a). The proposed project could indirectly lead to increased development intensity as properties in the project area redevelop due to proposed expansion of "Additional Height Zones" and potential increased building heights. Potential conflicts with the AQMP will reviewed in the EIR based on MBARD methodologies.

(b-c) Project Emissions. To protect public health, both the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established ambient air quality standards (AAQS) that are the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety to protect public health and welfare. The national standards address six criteria pollutants, including ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, fine particulate matter (both PM_{10} and $PM_{2.5}$, which refer to particles less than 10 microns and 2.5 microns, respectively), and lead. The state standards, which are generally more stringent than the federal standards, apply to the same pollutants as the federal standards do, but also include sulfate, hydrogen sulfide, and vinyl chloride.

The North Central Coast Air Basin (NCCAB), in which the project site is located, is under the jurisdiction of the MBARD and includes Santa Cruz, Monterey and San Benito Counties. The NCCAB is currently in attainment for the federal PM_{10} , ozone, nitrogen dioxide, sulfur dioxide, and carbon monoxide standards and is unclassified or attainment for the federal PM_{25} and lead standards. The basin is designated non-attainment for the state ozone and PM_{10} standards, and is in attainment for all other state standards, except for carbon monoxide for which it is unclassified. The MBARD's 2013 AQMP identifies a continued trend of declining ozone emissions in the Air Basin primarily related to lower vehicle miles traveled (SOURCE V.4a).

The project could indirectly result in generation of air emissions through new regional vehicle trips associated with potential future development accommodated by the proposed plan amendments. The timing, rate and amount of future development are not known. Future development projects are required to conduct air emissions calculations for projects whose size exceeds significant screening sizes presented in the AQMP to determine whether emissions exceed MBARD's adopted significance thresholds or potentially violate air quality standards. However, potential indirect impacts related to air emissions resulting from future development will be evaluated in an EIR. The MBARD's "CEQA Air Quality Guidelines," indicate that 8.1 acres could be graded per day with minimal earthmoving or 2.2 acres per day with grading and excavation without exceeding the PM₁₀ threshold of 82 lbs/day. The project area is approximately 12 acres in size, comprised of multiple properties. It is unlikely that any single future development project would exceed these guidelines.

(d) Sensitive Receptors. The project area is located within the developed downtown area of the city of Santa Cruz. Some existing buildings support upper level residential uses, and the DRP supports additional upper floor residential uses. Given the City's existing General Plan designations and zone districts, future development would consist of a mix of commercial and residential uses, but would not be expected to result in industrial development or uses that typically could expose sensitive receptors to substantial pollutant concentrations from a stationary emissions source. For CEQA purposes, a sensitive receptor is defined as any residence, including private homes, condominiums, apartments, and living quarters; education resources 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 (SOURCE V.4c).

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 CARB started developing emission regulations for a number of categories of in-use diesel vehicles and equipment. In July 2007, the CARB 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.

Future development in the project area as a result of the proposed amendments would result in construction that may involve use of trucks and equipment that will emit diesel exhaust, including diesel particulate matter, a designated toxic air contaminant. There are some existing sensitive receptors (residential uses) within the project area that could be exposed to diesel exhaust emissions associated with future construction in the area. It is noted that future redevelopment of the study area could occur without the proposed plan amendments, but the proposed DRP amendment could result in additional building height and floors. Construction-related diesel emissions would be of limited duration (i.e., primarily during grading) and temporary. Furthermore, the State is implementing emission standards for different classes of on- and offroad diesel vehicles and equipment. Additionally, Title 13 of the California Code of Regulations (section 2485(c)(1)) prohibits idling of a diesel engine for more than five minutes in any location. Thus, it is not expected that the proposed project would indirectly expose sensitive receptors to diesel emissions and associated risks, but this will be further reviewed in the EIR.

(e) Odors. The proposed DRP, GP and LCP amendments would not result in changes to the type of permitted commercial and residential uses for the area. These existing permitted uses within the City's developed downtown setting typically would not be the type to create objectionable odors.

4. Biological Resources.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

- 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 Wildlife or U.S. Fish and Wildlife Service;
- 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 Wildlife or US Fish and Wildlife Service;
- 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;
- 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;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- 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;
- 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.

(a-c) Special Status Species and Sensitive Habitat Areas. The project area is currently developed and does not support special status species. According to maps developed for the City's *General Plan 2030* and included in the General Plan EIR, the project area is not within a mapped sensitive habitat area (SOURCE V.1c-Figure 4.8-3). However, the San Lorenzo River is located along the eastern edge of the study area. The City's *City-wide Creeks and Wetlands Management Plan* establishes requirements for structural setbacks and development standards and guidelines that would be applicable to future development. The proposed plan amendments would expand areas where additional building heights may be permitted. Although, taller buildings would not be expected to adversely affect the adjacent river habitat, potential effects on aquatic habitat and species due to potential increased building heights and increased shadows and/or lighting will be further assessed in an EIR.

(d) Wildlife Movement/Nesting. Wildlife corridors are segments of land that provide a link between these different habitats while also providing cover. 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 (SOURCE V.1b-DEIR). Three main corridors have been identified within the City 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) (Ibid.).

The project area is within an existing developed area, and future redevelopment would not affect wildlife movement along the river corridor as future development would be within the existing development footprint in the downtown area. Furthermore, future development with or without the proposed plan amendments would be required to comply the City's *City-wide Creeks and Wetlands Management Plan*, which establishes requirements for structural setbacks that would protect wildlife movement in the corridor. Therefore, adoption and implementation of the proposed plan amendments would not directly or indirectly substantially interfere with wildlife movement or with established wildlife corridors.

There are areas along the San Lorenzo River of known bird nesting sites. Further review of adjacent habitat and resources will be provided in an EIR. While the project will not directly result in new construction that would affect nesting birds, future development accommodated by the proposed amendments could result in impacts to nesting birds at the time of construction. However, measures in the *City-wide Creeks and Wetlands Management Plan* include preconstruction surveys where construction may affect nesting birds in order to prevent disturbance if nesting is occurring when construction is initiated. Tree removal during the breeding season (generally March 1 to August 1) also could result in direct mortality to nesting avian species protected under the Migratory Bird Treaty Act due to destruction if active nest sites are present. Construction activity for a prolonged period could affect nesting adults and result in nest

abandonment or failure. This is considered *a potentially significant impact*. Implementation of the pre-construction nesting surveys as set forth in the adopted Creeks Plan would reduce impacts to a less-than-significant level.

(e) Conflicts with Local Ordinances - Tree Removal. There are planted street trees throughout the downtown area. Future development under the DRP could result in tree removal, which could also occur under existing conditions without the proposed plan amendments.

Chapter 9.56 of the City Municipal Code defines heritage trees, establishes permit requirements for the removal of a heritage tree, and sets forth mitigation requirements as adopted by resolution by the City Council. Resolution NS-23,710 adopted by the City Council in April 1998 establishes the criteria for permitting removal of a heritage tree and indicates that one or more of the following findings must be made by the Director of Parks and Recreation:

- 1) The heritage tree or heritage shrub has, or is likely to have, an adverse effect upon the structural integrity of a building, utility, or public or private right of way;
- 2) The physical condition or health of the tree or shrub, such as disease or infestation, warrants alteration or removal; or
- 3) A construction project design cannot be altered to accommodate existing heritage trees or heritage shrubs.

City regulations require tree replacement for approved to include replanting three 15-gallon or one 24-inch size specimen or the current retail value which shall be determined by the Director of Parks and Recreation. Removal would be permitted if found in accordance with the above criteria and requirements. Approval of a tree removal permit automatically requires replacement trees as set forth above. 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. Since future development would be subject to City regulations, any future removal of trees would be required to comply with City requirements, and therefore, any removed heritage trees would be replaced in the ratio required by the City and no significant impacts related to conflicts with local ordinances would occur.

(f) Habitat Conservation Plans. There are no adopted Habitat Conservation or Natural Community Conservation Plans in the project vicinity.

5. Cultural Resources.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the State CEQA Guidelines*;
- Cause a substantial adverse change in the significance of an archaeological resource;
- Disturb any human remains, including those interred outside of formal cemeteries;

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074.

*Pursuant to CEQA Guidelines, "historical resources include a resource listed in, or determined to be eligible for listing in the California Register of Historical Resources; a resource included in a local register of historical resources; and 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.

A "substantial adverse change in the significance of an historical resource" means 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 local register of historical places.

(a) Historical Resources. According to maps developed for the City's General Plan 2030 and included in the General Plan EIR, the southwestern corner of the project area may be within a designated national historic district (SOURCE V.1c-DEIR Figure 4.9-4). Additionally, there are some structures within the study area that included in the City's Historic Building Survey. The proposed DRP, GP and LCP amendments do not change the area of future development, and the overall potential building footprints would remain unchanged. The proposed DRP amendments would allow for increased height in specific locations and under specified conditions, but would not change the area in which development and/or redevelopment could occur under existing adopted plans. However, potential indirect impacts to historical resources as a result of the project's proposed increased heights will be assessed in an EIR.

(b, d) Archaeological Resources. According to maps developed for the City's *General Plan 2030* and included in the General Plan EIR, the project site is within a mapped "sensitive" archaeological area (SOURCE V.1b-DEIR Figure 4.9-1) and within a "sensitive" historical archaeological area (SOURCE V.1b-DEIR Figure 4.9-3). The DRP EIR reported that archaeological sensitive areas are within several blocks of the downtown area, and excavations for large buildings and other construction could uncover buried unknown resources, although deep subsurface prehistoric sites were not expected (SOURCE V.3).

The City's General Plan (Action HA1.2.2) requires preparation of archaeological investigations on sites proposed for development within designated sensitive archaeological and/or historical archaeological areas, except for exempt uses within "sensitive" areas as described below.

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. Minor projects with little excavation may be exempt from this requirement. 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.

The General Plan EIR included Mitigation Measure 4.9-1 that requires archaeological investigations for any designated site within areas of archaeological sensitivity as well as sensitive historical archaeological areas. Therefore, future site-specific development projects in designated sensitive areas would be required to comply with this provision and conduct archaeological investigations and incorporate measures if needed to mitigation impacts to archaeological resources. Additionally, all development is subject to provisions of the City's Municipal Code section 24.12.430 that requires construction to stop if archaeological resources or human remains are accidentally discovered during construction and sets forth a procedure for notification, evaluation and mitigation, if the find is determined to be a significant resource. The DRP EIR includes Mitigation 4.3-1 that requires stopping of construction if cultural resources are identified, which is similar to the provisions of the City's Municipal Code described above.

The proposed DRP, GP and LCP amendments do not change the area of future development, and the overall potential building footprints would remain unchanged. The proposed DRP amendments would allow for increased height in specific locations and under specified conditions, but would not change the area in which development and/or redevelopment is currently permitted. Therefore, with implementation of required archaeological investigations required by the General Plan, future development indirectly accommodated under the existing DRP or with the proposed DRP and LCP amendments would not result in a significant impact.

(c) Paleontological Resources. According to maps developed for the City's General Plan 2030 and included in the General Plan EIR, the project area is located within an area mapped as Holocene Alluvium formation (SOURCE V.1b-DEIR Figure 4.9-5). Four geologic units within the City are known to contain fossils: Late Pleistocene alluvium; the Purisima Formation; the Santa Cruz Mudstone; and the Santa Margarita Sandstone (SOURCE V.1b-DEIR). Although 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 (Ibid.). General Plan Action HA1.2.3 requires the City to notify applicants within paleontologically sensitive areas of the potential for encountering such resources during construction and condition approvals that work would be halted and resources

examined in the event of encountering paleontological resources during construction. If the find is significant, the City would require 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.

The proposed DRP, GP and LCP amendments do not change the area of future development, and overall building footprints would remain unchanged. Future construction within the project area could result in discovery of unknown paleontological resources with or without the proposed project. With application of the notification process required by the General Plan, future development would not result in significant impacts in the event that paleontological resources are discovered during construction.

(e) Tribal Cultural Resources. State Assembly Bill 52, effective July 1, 2015, recognizes that California Native American prehistoric, historic, archaeological, cultural, and sacred places are essential elements in tribal cultural traditions, heritages, and identities. The law establishes a new category of resources in the California Environmental Quality Act called "tribal cultural resources" that considers the tribal cultural values in addition to the scientific and archaeological values when determining impacts and mitigation. Public Resources Code section 21074 defines a "tribal cultural resource" as either:

- (1) Sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Nature American tribe that is either listed, or determined to be eligible for listing, on the national, state, or local register of historic resources, or
- (2) A resource determined by the lead agency chooses, in its discretion and supported by substantial evidence, to treat as a tribal cultural resource.

The California Public Resources Code section 21084.2 now establishes that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." The Public Resources Code requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. No Native American tribe has contacted the City of Santa Cruz and requested consultation.

6. **Geology and Soils**.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

Expose people or structures to potential substantial adverse effects resulting from the rupture
of a known earthquake fault, seismic ground shaking, landslides, or seismic-related groundfailure, including liquefaction, and that cannot be mitigated through the use of standard
engineering design techniques;

- 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;
- Result in substantial soil erosion or the loss of topsoil and subsequent sedimentation into local drainage facilities and water bodies;
- Be located on an expansive soil, as defined by the Uniform Building Code (1997) or subject or other soil constraints that might result in deformation of foundations or damage to structures, creating substantial risks to life or property; or
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available.

(a-ii-iv,c) Seismic and Geologic Hazards. The project site is located in a seismically active region of California and the region is considered to be subject to very intense shaking during a seismic event. The City of Santa Cruz is situated between two major active faults: the San Andreas, approximately 11.5 miles to the northeast and the San Gregorio, approximately nine miles to the southwest. There are no active fault zones or risk of fault rupture within the City (SOURCE V.1b-DEIR).

According to maps developed as part of the City's recently adopted *General Plan 2030* and included in the General Plan and General Plan EIR, the project area is located in an area identified as being subject to liquefaction hazards (SOURCE V.1a and V.1b-DEIR Figure 4.10-4). According to maps developed as part of the City's recently adopted *General Plan 2030* and included in the General Plan EIR, the project site is not located in a mapped landslide area (SOURCE V.1b-DEIR Figure 4.10-3.

The proposed DRP, GP and LCP amendments do not change the area of future development, and overall building footprints would remain unchanged. The DRP EIR reported that the age and construction of buildings was a determining factor related to damages sustained during the 1989 Loma Prieta earthquake rather than the property location, especially unreinforced masonry buildings. However, all new construction must conform to the requirements of the California Building Code (CBC). Adherence to existing regulations and standards, including the CBC 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 (SOURCE V.1b-DEIR volume). 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 (SOURCE V.2b). 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.).

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 (SOURCE V.1b-DEIR volume). 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.

Therefore, future development in the project area with or without the proposed plan amendments would be required to be designed in accordance with CBC requirements and recommendations of project-level geotechnical reports, which would avoid potentially significant impacts due to exposure to seismic hazards, including liquefaction.

(b, d) Soils and Erosion. The project area is currently developed. According to the City's General Plan EIR, the project site is not located within an area subject to high erosion (SOURCE V.1b-DEIR volume). The proposed DRP and LCP amendments do not change the area of future development, and overall building footprints would remain unchanged. Therefore, no impacts would directly or indirectly occur with adoption and implementation of the proposed plan amendments.

(e) Use of Septic Systems. The project will be connected to City sanitary sewers, and would not use septic systems.

7. Greenhouse Gas Emissions.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

(a-b) Greenhouse Gas Emissions. Climate change refers to any significant change in measures of climate, such as average temperature, precipitation, or wind patterns over a period of time. Climate change may result from natural factors, natural processes, and human activities that change the composition of the atmosphere and alter the surface and features of the land. Significant changes in global climate patterns have recently been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to accumulation of greenhouse house gas (GHG) emissions in the atmosphere. Greenhouse gases trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities (SOURCE V.1b-DEIR volume). Climate change models predict changes in temperature, precipitation patterns, water availability, and rising sea levels, and these altered conditions can have impacts on natural and human systems in California that

can affect California's public health, habitats, ocean and coastal resources, water supplies, agriculture, forestry, and energy use (Ibid.).

The most common GHG that results from human activity is carbon dioxide, followed by methane and nitrous oxide (SOURCE V.1b-DEIR volume). The primary contributors to GHG emissions in California are transportation, electric power production, industry, agriculture and forestry, and other sources, including commercial and residential uses. Approximately 81% of California's emissions are carbon dioxide produced from fossil fuel combustion (Ibid.).

The State of California passed the Global Warming Solutions Act of 2006 (AB 32), which requires reductions of GHG emissions generated within California. The Governor's Executive Order S-3-05 and AB 32 (Health & Safety Code, § 38501 et seq.) both seek to achieve 1990 emissions levels by the year 2020. Executive Order S-3-05 further requires that California's GHG emissions be 80 percent below 1990 levels by the year 2050. AB 32 defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrocarbons, perfluorocarbons and sulfur hexafluoride.

The CARB is the lead agency for implementing AB32. In accordance with provisions of AB 32, CARB has completed a statewide Greenhouse Gas Inventory that provides estimates of the amount of GHGs emitted to, and removed from, the atmosphere by human activities within California. In accordance with requirements of AB32, a Scoping Plan was adopted by CARB in December 2008 and updated in 2014. The Scoping Plan and 2014 Update identify emissions reduction measures and actions related to energy, transportation, agriculture, water conservation and management, waste management, natural resources, green building, and cap-and-trade actions.

The City's General Plan 2030 includes goals, policies and actions on climate change, including reducing community-wide greenhouse gas emissions 30 percent by 2020, reducing 80 percent by 2050 (compared to 1990 levels), and for all new buildings to be emissions neutral by 2030. In October 2012, the City also adopted a "Climate Action Plan" that outlines the actions the City will take over the next ten years to reduce greenhouse gasses by 30%. The CAP addresses citywide greenhouse emissions and reduction strategies. The CAP outlines the actions the City and its partners may take pertaining to reduction of greenhouse gas emissions to meet the goals and implement the policies and actions identified in the General Plan 2030. The CAP provides City emissions inventories, identifies an emissions reduction target for the year 2020, and includes measures to reduce energy use, reduce vehicle trips, implement water conservation programs, reduce emissions from waste collection, increase solar systems, and develop public partnerships to aide sustainable practices. Measures are outlined for the following sectors: municipal, residential, commercial, and community programs.

The project could indirectly result in generation of air emissions through new regional vehicle trips associated with potential future development accommodated by the proposed plan amendments. The timing, rate and amount of future development are not known. Future development projects are required to conduct air emissions calculations for projects whose size exceeds significant screening sizes presented in the AQMP to determine whether emissions exceed MBARD's adopted significance thresholds or potentially violate air quality standards, and emissions

calculations include GHG emissions. However, indirect GHG emissions resulting from future development accommodated by the proposed project will be evaluated in the EIR as part of the air quality analysis. Potential project conflicts with the City's adopted CAP will be addressed in the EIR.

8. Hazards.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- 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;
- Emit hazardous emissions or handle hazardous materials or waste within ¼ miles of an existing or proposed school;
- 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, create a significant hazard to the public or the environment;
- Impair the implementation of or physically interfere with an adopted emergency response or evacuation plan; or
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires.

(a-d) Hazardous Materials. The project consists of adoption of amendments to the adopted DRP, GP and LCP. The proposed DRP and LCP amendments do not change the area of future development or uses permitted in the area. The range of commercial and residential uses allowed in the downtown area typically would not result in creation of risks associated with hazardous material transport, use, or disposal and would not result in exposure to health hazards or creation of a health hazard. The project area is not included on a list of hazardous materials compiled pursuant to Government Code section 65962.5 (known as the Cortese List).

(e-f) Location Near Airports. The site is not located near an airport or airstrip. The site is not included in a state hazardous materials site list.

(g) Emergency Response. The City of Santa Cruz has an Emergency Operations Plan (EOP) that details the City's concept of operations in response to disasters. The EOP outlines how information and resources are coordinated for disasters or threat of disasters. The City of Santa Cruz Emergency Operations Center Manager endeavors to conduct annual trainings, tabletop exercises and other drills that support the preparedness and response capabilities of city staff and the readiness of the Emergency Operations Center. Information updates and tabletop discussions are conducted to clarify staff roles and responsibilities in the EOC, in the Department Operations Centers (DOCs) and in the field to help protect people and property (SOURCE V.2b). The proposed plan amendments and potential future development accommodated by the DRP proposed

expansion of additional height zones would not impair or physically interfere with the implementation of this emergency operations plan.

(h) Wildland Fire Hazard. According to maps developed as part of the City's recently adopted *General Plan 2030* and included in the General Plan EIR and General Plan, the project area is not located within a high fire hazard area (SOURCE V.1b-DEIR Figure 4.6-1). The project area is within the developed downtown of the city of Santa Cruz.

9. Hydrology.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge;
- Substantially alter the existing drainage pattern of the site or area or alteration of a stream in a manner that would result in substantial offsite erosion or siltation or flooding;
- 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;
- Substantially degrade surface water quality;
- 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;
- Locate structures within a 100-year flood hazard area that would impede or redirect flood flows;
- 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
- Expose people or structures to a significant risk of loss, injury or death as a result in inundation by seiche, tsunami, or mudflow.

(a) Violation of Water Quality Standards. The proposed project does not include discharges that would result in violation of water quality standards.

(b) Groundwater. The project site is located within a developed area and would not affect groundwater supplies.

(c-e, f) Drainage and Water Quality. The project area is served by a public storm drainage system. The area is developed with nearly, if not all of the area, covered with impervious surfaces. Future redevelopment would not substantially increase impervious surfaces and would not alter existing drainage patterns. Future development would be subject to the City's stormwater management requirements in which both volume and quality of stormwater runoff would be assessed.

Construction activity on projects that disturb one or more acres of soil must obtain coverage under the State's 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. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must list best management practices (BMPs) that the discharger would use to protect storm water runoff and the placement of those BMPs.

The proposed DRP, GP and LCP amendments do not change the area of future development, and the overall potential building footprints would remain unchanged. The proposed DRP amendments would allow for increased height in specific locations and under specified conditions, but would not change the area in which development and/or redevelopment is currently permitted. Therefore, with implementation of required stormwater management plans, future development indirectly accommodated under the existing DRP or with the proposed DRP and LCP amendments would not result in a significant impact related to drainage. The City's regulatory requirements and BMPs, as detailed in the "Stormwater Best Management Practices Manual" published by the City's Public Works Department, must be implemented, and projects over one acre in size would be required to prepare a SWPPP to protect water quality during construction.

(g-j) Flood Hazards. According to maps developed as part of the City's recently adopted *General Plan 2030* and included in the General Plan and General Plan EIR, the project area, as is all of the Downtown area, is located in an area identified as being subject to flood hazards along the San Lorenzo River (SOURCE V1.a and V.1b-DEIR Figure 4.7-1). According to maps developed as part of the City's recently adopted *General Plan 2030* and included in the General Plan and General Plan EIR, the project site is located in a mapped tsunami inundation zone (SOURCE V1.a and V.1b-DEIR Figure 4.10-3). As indicated above, the proposed DRP, GP and LCP amendments do not change the area of future development, and the overall potential building footprints would remain unchanged. The proposed DRP amendments would allow for increased height in specific locations and under specified conditions, but would not change the area in which development and/or redevelopment is currently permitted. However, review of hazards due to potential San Lorenzo River flooding, tsunami inundation and sea level rise in the project area will be examined in the EIR.

10. Land Use and Planning.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

- Physically divide an established community;
- Conflict with any applicable City land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflict with any applicable Habitat Conservation Plan or Natural Community Conservation Plan.

The project site is located at the edge of a developed area of the City. Construction of the project would not physically divide an established community.

(b-c) Consistency with Local Policies/ Plans. Review of potential project conflicts with plans, policies or regulations adopted for the purpose of avoiding or mitigating an environmental effect will be assessed in the EIR. The project site is not subject to any Habitat Conservation or Natural Community Conservation Plans.

12. Noise.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

- Expose persons to or generate noise levels in excess of standards established in the County's "Land Use Compatibility for Community Noise" chart;
- Expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- Result in a substantial permanent increase in ambient noise levels above existing levels 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} , a 3 dB increase in noise where existing noise levels are between 60 and 65 dBA L_{dn} , or a 1.2 dB increase in noise where existing noise levels are above 65 dBA L_{dn} . An outdoor noise standard of 65 dBA (CNEL) at the property line shall be used in the assessment of operational noise impacts; or
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels.

The project site is not located near an airport or private airstrip.

(a-b) Exposure to Noise. The project area is located in the downtown area of the city of Santa Cruz. Ambient noise levels are characterized by vehicular traffic, activities along Pacific and adjoining streets, and in limited cases music venues. Existing and future noise contours for selected roadways were updated as part of the City's *General Plan 2030*. An existing sound level of 65-66 decibels (dBA), measured in Ldn (Day/Night Average Sound Level), was identified within approximately 70 to 90 feet of the centerline of Front Street south of Soquel Avenue with an estimated future sound level of 66-67 dBA with General Plan buildout. An existing sound level of 60 dBA was identified within approximately 80 feet of the centerline of Pacific Avenue between Mission Street and Laurel Street with an estimated future sound level of 62 dBA (SOURCE V.1b-DEIR volume).

For commercial uses, normally acceptable exterior noise levels are 70 decibels and conditionally acceptable levels are identified as 60-70 dBA (SOURCE V.1b-DEIR volume). For multi-family residential uses, normally acceptable exterior noise levels are 65 decibels and conditionally acceptable levels are identified as 60-70 decibels (Ibid.). 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) (Ibid.). 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 (Ibid.).

Impact Analysis. Future development in the project area would be exposed to exterior and / or interior noise levels that exceed local and state requirements. However, the project area is not within locations that would expose people to noise in excess of established standards. This is considered a *less-than-significant impact*.

The proposed DRP, GP and LCP amendments do not change the area of future development, and overall building footprints would remain unchanged. However, proposed amendments to expand areas of increased height could result in additional residential development in upper floors of future buildings, which could exposure additional residents to noise from traffic and activities in the downtown area. City staff has estimated a potential increase of approximately 711 residential units, which represents approximately 274 more units than potentially could be potentially developed under the existing General Plan. However, existing and future ambient noise levels would be within acceptable or conditionally acceptable ranges. Furthermore, Mitigation Measures 4.6-2(a) and 4.6-2(b) in the DRP EIR call for preparation and implementation of noise studies for projects that could be exposed to noise levels in excess of those defined as "normally acceptable" (SOURCE V.3), and as indicated above, window, insulation and other building material selection can reduce interior sound levels.

Implementation of the following mitigation would reduce the impact to a less-than-significant level.

MITIGATION MEASURE NOISE-1: Require preparation and implementation of acoustical studies for future residential development along Front Street to specific building design features that meet state interior sound levels.

(c) Permanent Noise Increases. The proposed DRP, GP and LCP amendments do not change the type of future uses that could occur in the area. Future redevelopment of ground floor commercial uses and upper floor residential or office uses would not be types of land uses that would result in new substantial sources of noise and no impact is anticipated.

(d) Temporary Noise. There would be a temporary increase in existing noise levels during construction of development projects accommodated by the existing DRP and with proposed amendments. The proposed project would not directly result in temporary increases in noise due to construction as no development projects are proposed as part of the proposed project. Noise impacts resulting from construction depend on the noise generated by various pieces of

construction equipment, the timing and duration of noise-generating activities, and the distance between construction noise sources and noise-sensitive receptors, as well as existing ambient noise levels. Noise generated during construction would vary throughout the construction period and on any given day, depending on the construction phase and the type and amount of equipment used at the construction site. The highest noise levels would be generated during grading of the site, with lower noise levels occurring during building construction and finishing. Overall, construction noise levels would be temporary, short-term and fluctuate throughout the construction period. Because construction noise impacts would be temporary, the impact of construction noise would be less than significant.

The General Plan EIR concluded that future development would result in construction of varying sound level and duration, which could be an annoyance to adjacent residents. However, with implementation of the General Plan policies to minimize exposure to construction noise levels, the increase in temporary noise levels from construction-related activities would be considered a less-than-significant impact. The General 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. Therefore, temporary increased noise levels during construction of future development projects is considered a *less-than-significant* impact.

13. Population and Housing.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

- 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;
- Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere; or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

(a) Population Growth. The proposed project could lead to increased development intensity as properties in the project area redevelop due to proposed expansion of "Additional Height Zones" and future development of additional upper floor residential units. Population growth would be dependent on the type and size of residential units, which is not known. As previously indicated, City staff has estimated a potential increase of approximately 711 residential units as a result of the proposed DRP amendments, which represents approximately 274 more units than potentially could be potentially developed under the existing General Plan. It is expected that this potential

residential development and associated population would be within regional population and housing projections over the next 20 years. However, population growth resulting from the project will be addressed in the Growth Inducement section of the EIR.

(b) Housing. Future redevelopment in the project area will be on sites that do not currently support residential units, and thus, the proposed project is not expected to indirectly result in displacement of existing housing or people.

14. Public Services.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

• Result in substantial adverse physical impacts associated with provision of new or physically altered facilities, the construction of which could cause significant impacts, in order to maintain acceptable service for fire protection, police protection, schools and parks.

The proposed project could lead to increased development intensity as properties in the project area redevelop due to proposed expansion of "Additional Height Zones". Future development would be served by existing public services. Potential impacts on fire protection, police protection, parks and recreational services and schools will be evaluated in an EIR.

15. Recreation.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

- Increase the use of existing parks or recreational facilities such that substantial physical deterioration would occur or be accelerated; or
- Include recreational facilities or require construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

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. In the project area, the San Lorenzo River Walk provides pedestrian and bicycle access to the multi-use path on the river levee.

The proposed project could lead to increased development intensity as properties in the project area redevelop due to proposed expansion of "Additional Height Zones". Future development would be served by existing public services. Potential impacts on parks will be evaluated in an EIR.

16. Transportation/Traffic.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

- 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;
- 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);
- 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;
- Substantially increase hazards due to a design feature (for example, sharp curves or dangerous intersections) or incompatible uses (for example, farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, programs that support supporting alternative transportation (for example, bus turnouts, bicycle racks).

There are no adopted congestion management programs (CMP) within the City or region nor is the project area located near an airport. Therefore, therefore there are no impacts related to conflicts with an applicable CMP or air traffic patterns.

<u>a, d-f) Traffic and Transportation System Performance</u>. The project area is located in the lower downtown area along Pacific Avenue and Front Street. The proposed project could lead to increased development intensity as properties in the project area redevelop due to proposed expansion of "Additional Height Zones" and future development of additional upper floor residential units. Thus, the project could indirectly result in a net increase of residential units and office space with a net decrease in commercial space, which would result in a change in trip generation and traffic in the area. Impacts on the transportation system will be evaluated in the EIR base on a traffic analysis prepared for the City Planning Department. The analysis will include signalized intersections where 25 or more net new trips are added per the City's Traffic Impact Study Guidelines (City of Santa Cruz, *Traffic Impact Study Guidelines* 2009). Changes to level of service on the State Highway system will also be analyzed.

The project area also supports the Santa Cruz Metropolitan Transit District's downtown bus station, and transit, pedestrian and bicycle trips are prevalent in the area. The DRP includes standards and guidelines to design for and promote pedestrian circulation in the downtown area. Alternate travel modes will be considered in the traffic impact evaluation. Review of other potential impacts including design hazards, emergency access, and conflicts with alternative transportation plans will also be provided in the EIR.

17. Utilities and Service Systems.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

- Exceed wastewater treatment requirements of the Regional Water Quality Control Board;
- Result in a water demand that exceeds water supplies available from existing entitlements and resources, and new or expanded supplies or entitlements may be needed;
- Require or result in construction of new water or wastewater treatment facilities or expansion
 of existing facilities, the construction of which could cause significant environmental effects;
- Require or result in construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Result in wastewater flows exceed treatment plant capacity; or
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste demands.

The proposed project could lead to increased development intensity as properties in the project area redevelop due to proposed expansion of "Additional Height Zones". Future development would be served by existing public utilities, including wastewater/collection and treatment, municipal water service and solid waste disposal. Potential impacts on these utilities will be evaluated in an EIR. See subsection 9(c-d) above regarding storm drainage.

18. Mandatory Findings of Significance.

In accordance with the California Environmental Quality Act (CEQA), State CEQA Guidelines, City of Santa Cruz plans and policies, and agency and professional standards, a project impact would be considered significant if the project would:

- Have the potential to degrade the quality of the environment, substantially reduce the habitat of a
 fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels,
 threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare
 or endangered plant or animal or eliminate important examples of the major periods of California
 history or prehistory;
- Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of the past projects, the effects of other current projects, and the effects of probable future projects.); or
- Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly.

(a) Quality of the Environment. The proposed project could result in indirect impacts to biological and cultural (historical) resources as discussed above in sections 4a-d and 5a, respectively, which will be further evaluated in an EIR.

(b) Cumulative Impacts. Cumulative impacts will be reviewed in the EIR.

APPENDIX A

(c) <u>Substantial Adverse Effects on Human Beings</u>. No environmental effects have been identified that would have direct or indirect adverse effects on human beings.

APPENDIX B Notice of Preparation Comments

EDMUND G. BROWN JR., GOVERNOR

CALIFORNIA COASTAL COMMISSION

CENTRAL COAST DISTRICT OFFICE 725 FRONT STREET, SUITE 300 SANTA CRUZ, CA 95060 PHONE: (831) 427-4863 FAX: (831) 427-4877 WEB: WWW.COASTAL.CA.GOV



March 2, 2017

Ron Powers City of Santa Cruz Planning and Community Development Department 809 Center Street, Room 206 Santa Cruz, CA 95060

Subject:

Notice of Preparation of EIR: Downtown Recovery Plan, General Plan and

Local Coastal Plan Amendments

Dear Ron:

Thank you for the opportunity to provide written comments on the Notice of Preparation (NOP) for the Downtown Recovery Plan (DRP), General Plan and Local Coastal Program (LCP) amendments project. As a preliminary matter, we would like to acknowledge our shared goal with the City to provide better pedestrian access connections between the City's downtown area and the San Lorenzo Riverwalk, and to improve the Riverwalk as a public access and recreation focal point for the City's downtown area. We believe that the Riverwalk is an extremely under-utilized public access and recreation feature of the City, and strongly support improved user experience for this area. The purpose of this letter is to help the City realize these goals by facilitating the Commission's review of the proposed changes to the certified LCP.

Local Coastal Program Amendment

The NOP correctly notes that several of the proposed amendments include changes to the City's certified LCP, and will therefore require Commission approval of an LCP amendment. In fact, the proposed amendments include both Land Use Plan (LUP) Policy changes, including to the San Lorenzo Urban River Plan (SLURP), as well as Implementation Plan (IP) standards, including the Central Business District Zone standards. The standard of review for LUP amendments is that they must be consistent with and adequate to carry out the Chapter 3 policies of the Coastal Act; and the standard of review for IP amendments is that they must be consistent with and adequate to carry out the policies of the certified LUP.

Project Description/Goals

The September 15, 2016 Staff Report to the Planning Commission stated that the project was intended to be consistent with the following Coastal Act policies related to access and recreation, protection of sensitive biologic resources, and protection of visual resources:

• Encourage and incentivize maximum public access to the San Lorenzo River in accordance with Section 30210 of the Coastal Act.

Ron Powers Downtown Recovery Plan Amendments March 2, 2017 Page 2

- Achieve superior connections to the San Lorenzo River above the existing DRP and existing SLURP policies, consistent with Section 30211 of the Coastal Act.
- Ensure that development adjacent to the Riverwalk will be designed to prevent impacts to the adjacent sensitive San Lorenzo River and will incentivize clean-up of degraded areas along the levee, consistent with Section 30240 of the Coastal Act. The DRP will continue to be sensitive to the pedestrian experience along the Riverwalk with design guidelines and upper floor step backs and open river pedestrian connections that will provide light, air and open space between buildings.
- Enhance opportunities to view and interact with the San Lorenzo River as a coastal resource consistent with Section 30251 of the Coastal Act. The DRP standards ensure that development will be sited and designed to be visually compatible with the surrounding downtown, while promoting new open space pedestrian plazas and passageways to the Riverwalk.

We would recommend that the CEQA document include these project goals as key objectives of the project.

Impact Analysis - Aesthetics

We have some concerns regarding the proposed new height standards along Front Street, which have the potential to impact public views along the Riverwalk and adjacent public recreational facilities. We would therefore request that the CEQA analysis include a visual resource analysis that includes extensive visual simulations from all appropriate public vantage points, including from along both sides of the Riverwalk, from the Soquel Avenue and Laurel Street bridges, from San Lorenzo Park, etc. The simulations should include a comparison between existing development and as proposed under the new height standards so that potential impacts to public views can be evaluated. The City should also consider installing story poles to show the limits of the proposed new height standards. In addition, the CEQA document should evaluate alternatives to the proposed new height standards that meet most of the project objectives but also reduce potential aesthetic impacts.

Biological Resources

The Coastal Act and LCP require that new development avoid impacts to environmentally sensitive habitat. The CEQA document should include an analysis of how the project may impact the San Lorenzo River, including: 1) establishing the appropriate setback of new development, and 2) potential impacts from shading resulting from the proposed building heights.

Hazards

The Coastal Act and LCP require that new development be sited and designed to avoid hazards. The CEQA document should analyze the project's location with respect to potential impacts from flooding. This analysis should account for the effects of sea level rise.

Ron Powers Downtown Recovery Plan Amendments March 2, 2017 Page 3

Land Use

The Coastal Act and LCP prioritize visitor serving and coastal recreational uses over residential uses. The CEQA document should evaluate appropriate land use and zoning designations for the locations adjacent to and near the Riverwalk along Front Street. Specifically, the CEQA document should evaluate requiring a mixed use zoning for this area, especially along the Riverwalk, with visitor serving and coastal recreational uses (e.g. restaurants with outdoor seating, bike/kayak rental, etc.) on the ground floor, and residential uses on higher floors.

Recreation

We understand that some initial conceptual renderings of the project suggested transferring public right-of-way along the Riverwalk (and associated fill area) to the project developer. However, for the portion of the property located in the Coastal Zone, we believe that the entire public space between the Riverwalk and the proposed buildings along Front Street should be fully utilized for public purposes, including maximization of public access and recreation. Moreover, any such transfer of property would require a Coastal Development Permit that would be appealable to the Commission.

Water Quality

Finally, the Coastal Act and LCP require that erosion control measures be implemented to prevent siltation of streams and coastal lagoons, that discharge of polluted runoff be minimized, and that on-site detention and other appropriate storm water best management practices be used to reduce pollution from urban runoff. The CEQA document should evaluate implementation of Low Impact Development Best Management Practice standards such as bioretention/bioswales, permeable pavers/concrete, roof runoff catchment system and parking lot runoff catchment system for storage; and reuse on site and underground retention/detention units that include additional pre-filtration to remove hydrocarbons, metals, and other potential pollutants generated in the automobile use areas, including for new development along Front Street as well as proposed improvements to the levy system (i.e. the filling of the sloped levy) with the goal of reducing or eliminating runoff and pollution discharges into the River.

Thank you for your consideration of these comments. We look forward to working with the City through the local process.

Ryan Moroney

District Supervisor

Central Coast District Office

DEPARTMENT OF TRANSPORTATION

50 HIGUERA STREET SAN LUIS OBISPO, CA 93401-5415 PHONE (805) 549-3101 FAX (805) 549-3329 TTY 711 http://www.dot.ca.gov/dist05/



March 22, 2017

SCr: 1-18.73 SCH#: 2017022050

Mr. Ron Powers Principal Planner City of Santa Cruz 809 Center Street, Rm 206 Santa Cruz, CA 95060

COMMENTS TO THE DOWNTOWN RECOVERY PLAN ADMENDMENTS (DRP)

The California Department of Transportation (Caltrans), District 5, Development Review, has reviewed the Downtown Recovery Plan Amendments. As noted, this project will require amendments to the City's General Plan 2030, and the Local Coastal Plan that include revisions to the Plan text, modifications to guidelines and standards, and changes to coastal policies. As stated, the proposed Downtown Recovery Plan (DRP) amendment would expand the location in which the "Additional Height Zones" are applied and revisions to the Chapter 4 Development Standards of the DRP. The primary focus of the DRP would be to increase allowable building heights in the lower Pacific Avenue and lower Front Street areas and along the San Lorenzo River, between Cathcart and Laurel Streets that could lead to increased upper floor residential development.

Caltrans supports local planning efforts that are consistent with State planning priorities intended to support smart growth, promote equity, strengthen the economy, protect the environment, promote public health and safety, and makes the connection to climate change goals. We accomplish this by working with local jurisdictions to achieve a shared vision of how the transportation system should and can accommodate interregional and local travel.

- 1. To ensure the traffic study in the Draft Environmental Impact Report (EIR) includes the information needed to analyze the impacts (both cumulative and project specific) of this effort, it is recommended that the analysis be prepared in accordance with the Department's "Guide for the Preparation of Traffic Impact Studies," which can be found at: http://www.dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa_files/tisguide.pdf.
- 2. The traffic study should include information on existing volumes within the study area, including the State transportation system, and should be based on recent traffic volumes less than two years old. Counts older than two years cannot be used as a baseline. Feel free to contact us for assistance in acquiring the most recent data available.

Mr. Ron Powers March 22, 2017 Page 2

- 3. Please be aware that comments to this and any subsequent EIR for the project, will stress the importance of using the Association of Monterey Bay Area Governments Model for completing the traffic analysis.
- 4. The Draft EIR should also include an analysis of the multimodal travel demand expected from the proposed project. This analysis should also identify potentially significant adverse impacts from such demands and the subsequent mitigation measure to address them. Early collaboration, such as sharing the analysis and findings with Caltrans prior to official circulation, can lead to better outcomes for all stakeholders.
- 5. Projects that support smart growth principles which include improvements to pedestrian, bicycle, and transit infrastructure (or other key Transportation Demand Strategies) are supported by Caltrans and are consistent with our mission, vision, and goals.
- 6. At any time during the environmental review and approval process, Caltrans retains the statutory right to request a formal scoping meeting to resolve any issues of concern. Such formal scoping meeting requests are allowed per the provisions of the California Public Resources Code Section 21083.9 [a] [1].
- 7. In addition, any work within the State right-of-way will require an encroachment permit issued from Caltrans. Detailed information such as complete drawings, biological and cultural resource findings, hydraulic calculations, environmental reports, traffic study, etc., may need to be submitted as part of the encroachment permit process.

Should you have any questions, or need further clarification on any of the items discussed above, please contact me at (805) 549-3099 or by email at: jennifer.calate@dot.ca.gov.

Sincerely,

JENNIFER CALATE

Associate Transportation Planner

District 5 Development Review Coordinator

banger (albeto

jennifer.calate@dot.ca.gov

cc: Kelly McClendon (D5)



U.S. Department of Homeland Security
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA. 94607-4052

FEMA

February 23, 2017

Ron Powers, Principal Planner City of Santa Cruz Planning and Community Development Department 809 Center Street, Room 206 Santa Cruz, California 95060

Dear Mr. Powers:

This is in response to your request for comments regarding the Notice of Preparation of Environmental Impact Report re: Downtown Recovery Plan, General Plan and Local Coastal Plan Amendments in the City of Santa Cruz.

Please review the current effective countywide Flood Insurance Rate Maps (FIRMs) for the County of Santa Cruz (Community Number 060353) and City of Santa Cruz (Community Number 060355), Maps revised May 16, 2012. Please note that the City of Santa Cruz, Santa Cruz County, California is a participant in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.
- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any *development* must not increase base flood elevation levels. The term *development* means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials. A hydrologic and hydraulic analysis must be performed *prior* to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.

Ron Powers, Principal Planner Page 2 February 23, 2017

- All buildings constructed within a coastal high hazard area, (any of the "V" Flood Zones as delineated on the FIRM), must be elevated on pilings and columns, so that the lowest horizontal structural member, (excluding the pilings and columns), is elevated to or above the base flood elevation level. In addition, the posts and pilings foundation and the structure attached thereto, is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components.
- Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at http://www.fema.gov/business/nfip/forms.shtm.

Please Note:

Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community's floodplain manager for more information on local floodplain management building requirements. The City of Santa Cruz floodplain manager can be reached by calling Eric Marlatt, Zoning Administrator, at (831) 420-5115. The Santa Cruz County floodplain manager can be reached by calling Antonella Gentile, Planner, at (831) 454-3164.

If you have any questions or concerns, please do not hesitate to call Michael Hornick of the Mitigation staff at (510) 627-7260.

Sincerely

Gregor Blackburn, CFM, Branch Chief

Floodplain Management and Insurance Branch

APPENDIX B

Ron Powers, Principal Planner Page 3 February 23, 2017

cc:

Eric Marlatt, Zoning Administrator, City of Santa Cruz
Antonella Gentile, Planner, Santa Cruz County
Maggie Dutton, State of California, Department of Water Resources, South Central Region
Office

Michael Hornick, NFIP Compliance Officer, DHS/FEMA Region IX Alessandro Amaglio, Environmental Officer, DHS/FEMA Region IX

From: Jean Brocklebank [mailto:jeanbean@baymoon.com]

Sent: Wednesday, March 15, 2017 8:24 PM

To: Ron Powers

Subject: Downtown Recovery Plan, General Plan and Local Coastal Plan Amendments

Dear Mr. Powers ~

Please accept these comments for consideration.

<u>Friends of San Lorenzo River Wildlife</u> (FoCLB) is concerned about all potential environmental impacts to wildlife and wildlife habitat, as a result of proposed amendments to the Downtown Recovery Plan.

Any development along the river corridor will impact avian species. East-facing windows will reflect the rising sun and cause confusion for birds. More birds are killed by flying into building windows than by any other means. FoCLB expects the City to address this impact and research ways to prevent bird deaths due to new buildings, regardless of height.

There is precedence for our request. Close to home, on Tuesday March 7, 2017 the San Jose City Council voted to prioritize working on *bird-safe design guidelines for buildings near creeks*. City staff will begin work on studying this issue over the coming year, and will bring their recommendations to the City Council when this work is finished.

The documents of the San Jose City Council, which explain their wise action, can be found here for your review:

March 7, 2017 City Council Meeting (see Consent Agenda item 3.3 Memorandum): http://sanjose.granicus.com/GeneratedAgendaViewer.php?event_id=ab6006f9-5128-44f5-b750-e2f3c2e336fe

Memorandum with bird buildings (see #7 Riparian Corridor & Bird-Safe Buildings): http://sanjose.granicus.com/MetaViewer.php?view_id=&event_id=2674&meta_id=619420

In general, FoCLB wants development farther away from the river and the Riverwalk. This will allow people to enjoy the river without buildings being built almost on top of it. FoCLB opposes any amendment that will provide development adjacent to the river that allows increased building heights.

Sincerely, Jean Brocklebank Michael Lewis on behalf of Friends of San Lorenzo River Wildlife



SANTA CRUZ COUNTY GROUP

Of The Ventana Chapter P.O. Box 604, Santa Cruz, CA 95061

https://ventana2.sierraclub.org/santacruz/e-mail: sierraclubsantacruz@gmail.com

March 15, 2017

To: Ron Powers, Principal Planner City of Santa Cruz Planning and Community Development 809 Center Street, Rm. 206 Santa Cruz, CA 95060

Subject: Comments on EIR for Downtown Recovery Plan

Dear Ron Powers.

The Sierra Club appreciates the opportunity to respond to the Notice of Preparation of an Environmental Impact Report for the Downtown Recovery Plan (DRP), General Plan and Coastal Plan Amendments.

Issues of environmental concern that will have a potentially significant impact are listed in the Initial Study/Environmental checklist and we anticipate responding to those depending on the findings in the draft EIR. The specific issues listed below are those we feel need careful, in-depth review via the EIR or are those we see as not included in the Initial Study.

- The amendment to eliminate 9 of the 11 policies in the 2003 San Lorenzo Urban River Plan (SLURP) needs its own section and full explanation for such action with alternatives. These 9 policies are certified under the Local Coastal Plan. SLURP was intended to protect, restore and enhance this important riparian natural resource. It has never been fully implemented nor replaced with a Plan to reflect the environmental goals and recommendations in the 2030 General Plan.
- Any analysis of the impacts on wildlife species can be determined only by a thorough, current baseline study of the San Lorenzo River (SLR) riparian fish, wildlife and fauna by qualified biologists specializing in such species. We request that such study be undertaken.
- The EIR should include study of the Urban Heat Island effect on riparian habitat from this scale of urban development as well as the impacts on birds and other wildlife generated from the additional lighting, glass windows and people.

• The Aesthetics section appears to be limited in its inclusion of the various view-sheds that will be impacted by building heights up to 85 feet along the SLR. For example, the view from the eastern side of the river is not but should be included. The EIR should include renditions that are realistic, not distorted via aerial views or placing people in the foreground, which minimizes the background scale of the proposed structures.

We look forward to seeing the above issues addressed in the draft EIR.

Sincerely,

Greg McPheeters Chair, Santa Cruz Group, Sierra Club **From:** Ron Powers [mailto:RPowers@cityofsantacruz.com]

Sent: Tuesday, June 20, 2017 1:34 PM

To: Stephanie Strelow

Subject: FW: Downtown Update Plan - Zoning and Climate Change

On Jun 16, 2017, at 1:43 AM, Candace Brown <clbrown23@gmail.com> wrote:

Dear Ron and Alex and Maggie,

Maggie, Please pass this email to the Planning Commission members regarding new building heights.

Ron, You mentioned that Climate Change issues are in the June 15th Staff Report to the Planning Commission and I have not found it in the document yet. Do you have a page reference? I assume the worst case scenario impacts of Climate Change on the Downtown Update Program EIR will be considered.

Can you also please pass along your presentation of tonight, June 15th, at the Planning Commission too. Thanks.

Alex and Ron, Note in Miami, now new buildings and wastewater infrastructure are five feet higher due to Climate Change. This is an extensive article on the impacts. http://www.bbc.com/future/story/20170403-miamis-fight-against-sea-level-rise

Canada is waking up to the issue of Climate Change and changes now being considered in the National Building Code of Canada.

https://www.desmog.ca/2017/03/07/canada-s-buildings-will-finally-be-built-climate-change-mind

Is Flood Management built into the future Santa Cruz code? Impacts are in sufficient base floor heights, drainage systems, backwater valves in sewer systems so they don't back-up into basements, storm drains and where to divert water that overrun the system during flooding. Electrical systems need to be adequately protected and back-up systems should not be in basements. These issues could be dealt with in the Zoning or Building Codes. http://www.intactcentreclimateadaptation.ca/wp-content/uploads/2016/10/Intact-Centre-Climate-Change-and-the-Preparedness-of-Canadian-Provinces-and-Yukon-Oct-2016.pdf#page=14

Thanks, Candace Brown Cell: 1-818-203-4965

----Original Message-----

From: Gillian Greensite [mailto:gumtree@pacbell.net]

Sent: Friday, June 23, 2017 10:07 AM

To: Ron Powers

Subject: Downtown Recovery Plan

Hi Ron,

As part of the EIR, I and others request that story poles be erected along the river levee for the entire comment period in order for the public to assess the visual impact of the heights of new buildings. Even if exact heights in exact locations are not yet determined, the massing studies gave sufficient detail to erect such poles in the sites proposed for development.

Thank you,

Gillian

----Original Message-----

From: Gillian Greensite [mailto:gumtree@pacbell.net]

Sent: Saturday, June 24, 2017 6:36 AM

To: Ron Powers

Subject: Re: Downtown Recovery Plan

Hi Ron,

Thanks for your reply. The poles could be located on the levee since the yards of the housing would be level with the levee according to renditions shown at the various meetings. However I do note that you say you cannot accommodate the request.

Regarding photo simulations, this is to request that they avoid birds eye views and avoid placing people etc. in the foreground which distorts the scale of the building in the background. Besides views from the east side of the river and from Front St. it would be helpful to have a view from the perspective of a person walking the levee, showing the building heights on the same plane as the person.

Thank you, Gillian From: Debbie Hencke [mailto:dhencke@gmail.com]

Sent: Friday, March 17, 2017 12:06 PM

To: Ron Powers

Cc: Cynthia Chase; David Terrazas; Sandy Brown; Chris Krohn; Cynthia Mathews; Richelle Noroyan;

Martine Watkins

Subject: Response to planned EIR

RE: Downtown Recovery Plan, General Plan and Local Coastal Plan Amendments

Concerning the 85 feet height and other tall buildings in a 12 square mile area:

The plan as presented is a disaster. It degrads the beautiful historic district that we have all come to care about. It will obliterate the River views and the uniqueness of being able to walk and lunch along it. What you're proposing as far as height of 85 feet will just keep going up with the planning departments' unabashed granting of variances. Santa Cruz does not want to become another San Francisco or Los Angeles.

We are the smallest county (except for SF) in the state. Do NOT destroy the future with what you think is ok or are told "is the future." If you want a Facebook or Google campus look try San Jose. If you feel you must build because the State tells you to, then confront the reality of this small county and limited resources and change the State. We have the most parks of any county in the state and we can't have both - unabashed development and a huge percentage of land tied up in parks. The State needs to rethink where to build, not Santa Cruz.

Remember that for every apartment you build at the current cost of rent, you need 4-5 low income wage earners to do their laundry, shopping/retail, shoe repair, food outlets, bakeries, restaurants, parking monitoring, etc. - all low income wages and where are those workers going to live? If you think the homeless population is a problem now, it will only continue to worsen and in the experience of other large cities who have built tall buildings, make the area a slum.

There seems to be no consideration of traffic. Assuming people will get out of their cars is not a model that has been proven effective nor viable. While the current health emphasis is on being healthy, people get old and bodies break down. Not everyone can ride a bike or walk miles. It is unrealistic to think in Utopian terms than an area will be "self contained." People want to explore their surroundings, travel and connect in ways that this project does not take into consideration. Traffic is already at a standstill on beautiful days and weekends. Where is the realistic traffic issues in this EIR presentation?

There is no consideration of sewage and water issues that plague this county. Drawing water from the River is the same as injecting treated sewage into the aquifers. There is no way to remove the multitude of chemicals from the septic systems of thousands upstream. There are hormones, antibiotics, chemotherapy agents, and so on to say nothing of the cleaning and auto chemicals people use that find their way into septic systems and the river. What you should be focusing on is the storage of water for drought years and sewage treatment upstream as well as locally. The water issue needs to be solved first.

APPENDIX B

Lastly, people come to Santa Cruz because of its small town uniqueness. They don't come here to look at 85 foot buildings surrounding the river or even other higher density buildings. They come because it is unique. Turning this area into some utopian concept is not going to draw people or solve the housing situation. It is not a draw for tourism and economic viability.

This plan is not the answer to the housing shortage if one considers the true consequences of such development including water and traffic issues.

Thank you for your attention.

Debbie Hencke 831-359-9391 cell 160 Pine Flat Rd. Santa Cruz, Ca. 95060 alternate: 419 Morrisseey Blvd. Santa Cruz, Ca. 95062 Ron Powers, Principal Planner City of Santa Cruz Planning and Community Development 809 Center Street, Rm. 206 Santa Cruz, CA 95060 3/16/17

Dear Ron Powers,

Thank you for the opportunity to comment on the Notice of Preparation of an Environmental Impact Report for the Downtown Recovery Plan.

Here are some items I like to address:

1. AESTHETICS. Would the project:

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The development is close to the riparian corridor. The additional lights will have impact on the wildlife, birds. There is no mention of consideration to this impact, which deserves to be addressed

Environmental impacts: Potentially Significant Issues

3. AIR QUALITY.

c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

The intended height, the additional traffic, increase of building mass have the potential to create "Urban Heat Island" effect. This is contrary to Santa Cruz Climate Change Policy.

4. BIOLOGICAL RESOURCES.

a) Have a substantial adverse effect, either directly or through habitat modifications, on 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 Wildlife or U.S. Fish and Wildlife Service?

The San Lorenzo River(SLR) Steelhead, Coho are on the endangered species list. The SLR is also an important water & land migratory bird corridor. The impact of the Front St development on the wildlife has to be addressed due to height, building mass & additional lightening.

d) 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.

This impact can only be determined on hand of a thorough, current data baseline study of the SLR riparian fish, wildlife & fauna inventory.

Environmental impacts: Potentially Significant Issues

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Front St Development requires that 9 out of 11 SLURP policies get eliminated, because they are in conflict w/the Development. The development is not in compliance w/The 2030 General Master Plan Environment Goals & Recommendations. Thus it is in conflict w/local policies of protecting biological resources.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

As of this date City of Santa Cruz doesn't a Habitat Conservation Plan in place. This fact makes it hard to determine if a conflict exists.

Environmental impacts: Potentially Significant Issues

18. MANDATORY FINDINGS OF SIGNIFICANCE.

a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

This potential can only be evaluated by a data baseline study of existing fish, wildlife, fauna inventory, which doesn't exist @ this time. It's impossible to know the impacts w/out a current inventory.

Environmental impacts: Potentially Significant Issues

b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of the past projects, the effects of other current projects, and the effects of probable future projects.)

response to a) applies

Environmental impacts: Potentially Significant Issues

Respectful thank you.

jane mio

Dear Planning Commissioners & City Council Members,

The Front St. development guidelines lack sufficient attention to the fact that the intended development is right next to a Riparian Corridor, an important watershed, which require specific considerations.

The potential light impact & bird-safe building guidelines are not adequately addressed.

It is worth noting that other Bay-area Cities have integrated the safe-bird building issue in their planning process:

http://www.greenfoothills.org/speak-up-for-birds-in-san-jose/

San Francisco & Sunnyvale have bird-safe ordinances as well.

http://sunnyvale.ca.gov/Portals/0/Sunnyvale/CDD/Planning/Planning

%20Library/BirdSafeGuidelines.pdf

http://sf-planning.org/standards-bird-safe-buildings

Here are my comments for Attachment 4 pertaining to Local Coastal Program SLURP policies, which are conceptual ideas/recommendations in Chapter 6 Significant Riverfront Areas.

SRFA-1

Eliminating the entire section w/out including language that addresses the San Lorenzo River identity as an important consideration in the planning process is not in line with the General 2030 Master Plan, Park & Rec. 2030 Master Plan nor the San Lorenzo Urban River Plan.

The height & setback need to be evaluated in regard to their impact on the river environment.

The San Lorenzo Urban River Plan states in "1.4 Relationship to Existing City Plans" page 13:

Future updates of the General Plan and Local Coastal Program will incorporate recommendations from the San Lorenzo Urban River Plan for "significant riverfront areas" including Front Street, Salz Tannery, and Beach Flats, ..etc. Additionally, the recommendations of the Urban River Plan should be referenced in regional plans referring to the San Lorenzo River and watershed.

SRFA 3:

This section deserves to be reviewed & evaluated with regard towards responsible environment policies/guidelines.

The stated building materials absorb/reflect less heat, which benefit the health of the watershed & the Climate Change condition.

The language of SRFA 3 might not be appropriate for LCP. On the other hand these are worthwhile concepts for a City, which views itself as environment conscious.

Revising SRFA 3 will incorporate the 1.4 San Lorenzo Urban River Plan section, which states:

The (Downtown Recovery) Plan identifies the River as a major downtown open space, and recognizes its potential "as a naturalistic open space, wildlife habitat, and recreational amenity: a garden promenade that can provide a more contemplative and reflective experience to the hustle and bustle of Pacific Avenue."

SRFA 10

Eliminating this section is essential allowing for a development "wall" along the watershed & is channelizing the river view & diminishes the **2030 Park& Rec.Master Plan** goal, which states:

... is a prime opportunity to revisite for revitalization of the **San Lorenzo Riverwalk** and show case one of Santa Cruz's natural assets.

Furthermore this SFRA 10 San Lorenzo Urban River Plan concept echoes the General Plan 2030 statement:

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.

Thank you very much for reading my concerns

jane mio

From: Jack Nelson [mailto:nelsontrio@cruzio.com]

Sent: Friday, March 17, 2017 11:51 PM

To: Ron Powers

Subject: Downtown Plan, NOP for EIR

March 17, 2017

Subject: Comments on Notice of Preparation for EIR, Downtown Plan update

Friendly greetings Ron:

That's a lot of good work in that Initial Study which I've viewed from online.

My comments regard item 9. i) in the I.S. checklist, which has "No Impact" checked for this question:

Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

This initial "no impact" finding suggests the City could be working from obsolete findings and science on the level of risk to downtown from flooding.

Risk is the word, because there is no certainty about when or how much downtown Santa Cruz may be flooded by the effects of climate change and sea level rise.

I wonder, will the EIR be examining...

— Cyclical, extreme atmospheric river storm events of the severity that flooded the Central
Valley in 1861, with new research on California storm sediments finding these events have been
cyclical and may be more likely in a warming world. What is the level of risk to downtown
S.C.?

— Regional climate modeling finding more	midwinter extreme	precipitation events	s likely in our
region, as climate change proceeds.			

— Concern regarding point of no return on collapse of West Antarctic ice sheet, producing se
level rise in tens of feet. New Federal direction toward "no action" on climate action suggests
this concern is a higher risk scenario, potentially unfolding in this century.

— Paleoclimate findings: in Earth's past when atmospheric CO2 is at 400 ppm, sea level
response is sea level at tens of feet higher than present sea level, with a hotter world and minimal
global cryosphere.

APPENDIX B

I understand the I.S. discussion (p.37) about not increasing the allowed footprint of future structures, however all these higher structures will be at risk—how much?—even if they do not decrease floodplain capacity. Is it appropriate for the City to grant further development entitlements in a high risk / inevitable risk location?

Thanks for your consideration. Scientific and literature references available on request.

best,

Jack Nelson land use & environmental planner, retired 127 Rathburn Way, Santa Cruz CA 95062 (831) 429-6149

APPENDIX C Proposed Plan and Ordinance Text Amendments

APPENDIX C – PLAN AND ORDINANCE TEXT CHANGES

Revisions to Plans and Municipal Code are shown with <u>underlined text for additions</u> and strikeout text for deletions.

Downtown Recovery Plan

See: http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development/downtown-recovery-plan-amendments

General Plan Amendment

Chapter 4 - Land Use, page 41, Revise as shown:

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.

Downtown Santa Cruz. (0.25 to 5.0 FAR) 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.

Reason for General Plan Amendment: The Central Business District (CBD) zone is the primary zone district that implements the broader RVC General Plan land use designation. The modifications proposed for the CBD additional height Zone A between Pacific Avenue and Front Street would potentially allow for upper level floor area that could exceed the existing 3.5 FAR. The FAR limit is one of three development standards that work together to address bulk and mass of new construction: 1) FAR, 2) Height, and 3) establishing a percentage limitation of varying heights in direct relationship to the size of the property (a volumetric standard).

Local Coastal Plan Amendment - San Lorenzo Urban River Plan Policies

Significant Riverfront Areas

Front Street

NEW POLICY

SRFA – 1 Require new development projects to incorporate design features that encourage active engagement with the Riverwalk such as: filling adjacent to the Riverwalk with landscaping, providing direct physical access to the Riverwalk, including appropriate active commercial and/or residential uses adjacent to the Riverwalk, or a combination of these and/or other design features that support the resource enhancement and river engagement policies of the San Lorenzo Urban River Plan.

NEW POLICY

SRFA – 2 Require new development projects to incorporate pedestrian and/or bicycle connections between Front Street and the Riverwalk at appropriate locations such as the extensions from Maple Street and Elm Street.

SRFA – 1 Maintain existing development standards in the Downtown Recovery Plan (DRP) for the Front Street Riverfront Area including principal permitted uses for ground level and upper floors, conditional uses, and height and step back requirements. Maintain maximum height restriction to 50 feet with development above 35 feet in height stepping back at least 10 feet at an angle not to exceed 42 degrees. (DRP, p. 47-50)

Reason For Deletion: The amendments to the Downtown Recovery Plan (DRP) make this policy obsolete. This policy language was a reference to the DRP from the SLURP. The SLURP was intended as a resource protection programmatic guide and not a land use planning document. The SLURP process did not have the benefit of any land use planning guidance for architecture or urban design. Since the adoption of the SLURP, the City has undertaken a comprehensive effort to update the principal land use document for the area – the Downtown Recovery Plan. Development standards for this area are appropriately located in the DRP and not within the Local Coastal Plan.

SRFA –32 Maintain the ten-foot setback area between residential and commercial uses adjacent to the levee trail from the western edge of the trail. The setback-area between the property line and the Riverwalk shall should be filled to raise the adjacent ground-level use to the same a similar or higher elevation as the Riverwalk elevation as the levee trail. This area The public lands between the Riverwalk and the private property may should also incorporate publicly accessible commercial or residential amenities, such as outdoor public seating or visually accessible garden space for residential development. Trees planted as part of the San Lorenzo Flood Control Improvement Project should be maintained and incorporated into new development where feasible and not in conflict with the required fill or publicly accessible amenities. (DRP, p. 51)

SRFA -3 Maintain design guidelines for residential and commercial development with the exception of limiting building materials to more natural wood, brick and stone; avoid overuse of concrete and stucco. (DRP, p. 51)

Reason for Deletion: This language is not appropriate for the LCP. It is too detailed and most of the downtown is outside of the Coastal Zone.

SRFA –4 The "river promenade" proposed in the original San Lorenzo Design Concept Plan between Soquel Drive and Laurel Street should be re-conceptualized as a more natural, less formal looking "trail" with adjacent garden space and native trees to be accommodated in the ten foot setback area.

Reason for Deletion: Levee Trail complete; referenced area mostly outside the Coastal Zone.

SRFA 5 Establish a river plaza or park within the Front Street Riverfront Area between Soquel Drive and Laurel Street on the west bank (upstream orientation). Redevelopment of the Metro Station affords an opportunity for connecting a plaza or park with a public area on the east side of Front Street. Other favorable sites are the terminus with Cathcart Street and the terminus with Maple Street (Figures 49 & 50).

Reason for Deletion: The Downtown Plan language continues to promote the accessible links to the Riverwalk as indicated in the new policies 1 and 2. .

SRFA – 6 Maintain the wooden roof-truss buildings along Front Street as architectural artifacts to demonstrate the "working waterfront" character of the area.

Reason for Deletion: It is unclear where this policy came from. The 'historic' buildings were constructed in the 1920s to 1940s and relate to the auto-service industry and automobile culture, not a "working waterfront".

SRFA –7 Ensure that any parcel consolidation strategy provides for public access from the Front Street sidewalk to the levee. Maintain the ten-foot step back requirement between buildings included in the Downtown Recovery Plan for any development. Encourage pedestrian traffic through creative inviting design and incorporate water features, gardens, paving, and stairways up the levee as design features.

Reason for Deletion: The proposed policies better reflect the combined intentions and direction for land use in this area.

SRFA – 10 Maintain views from both taller downtown buildings to the River and from the River trail to distant mountains and ridges, avoiding creation of a development "wall" between the downtown and the River.

Reason for Deletion: The City does not protect views of the river from private buildings. Front Street and the Riverwalk are perpendicular to the mountain views, therefore, the

APPENDIX C

policy is not needed to preserve any distant views. The development will be required to have accessible connections to the Riverwalk, which will prevent a development wall between the downtown and the river.

SRFA – 11 Preserve views along the Front Street area to and from Beach Hill, a significant historic feature in this area.

Reason for Deletion: This policy is too vague and is not a resource-related policy that follows the other parts of the SLURP.

Municipal Code – Zoning Ordinance Amendments

Section 1. Part 24 of the Santa Cruz Municipal Code is hereby amended to read as follows:

Part 24: CENTRAL BUSINESS DISTRICT (CBD)* Editor's Note: Former Part 24: GM-O Garden Mall Overlay District, previously codified herein and containing portions of Ord. 91-23 was repealed and replaced in its entirety by Ord. 91-29.

Section 24.10.2300 of the Santa Cruz Municipal Code is hereby amended to read as follows:

24.10.2300 PURPOSE.

This part implements the Land Use Plan, Development Standards and Design Guidelines of the Downtown Recovery Plan (Plan), a specific plan. It is intended to refine the Plan in the area of land use and regulations. It supports the purpose of the Plan, in the context of the General Plan, which aims to make maintain downtown the urban center of the city, with the many functions a city center serves. This s—Section 24.10 of the Zoning Ordinance is also part of the Local Coastal Implementation Plan.

The Central Business District Zone of the Downtown RecoveryPlan is divided into four subareas, in order to enhance the character of each by special consideration of the character of each. A fifth area, CBD Subdistrict E, The Lower Pacific Avenue, subdistrict has been added and consists of the CBD District South of Laurel Street. The Lower Pacific Avenue subdistrict is intended to implements the policies of the Beach and South of Laurel Plan and is separate from the Downtown Recovery Plan.

Section 24.10.2301 of the Santa Cruz Municipal Code is hereby amended to read as follows:

24.10.2301 USES, DEVELOPMENT STANDARDS AND DESIGN GUIDELINES* Editor's Note: As amended by Ord. 2000-03, the effective date of this section is July 31, 2000

Chapter 4 of the Downtown Recovery Plan, as amended, is hereby adopted by reference, and the Planning and Community Development Department shall maintain copies of the Downtown Plan is both hard copy and electronic form three copies of Chapter 4 of the Downtown Recovery Plan are and shall be maintained on file in the office of the city clerk, for use and examination by the public. The policies and regulations set forth in Chapter 4 of the Downtown Recovery Plan shall control all uses in the CBD, Central Business District, and its four subdistricts: Pacific Avenue Retail District; Front Street Riverfront Corridor; Cedar Street Village Corridor; and North Pacific Area.

Section 24.10.2330 of the Santa Cruz Municipal Code is hereby amended to read as follows:

24.10.2330 DEMOLITION CONTROL.

The purpose of demolition control is to provide for orderly change and development of the area in accordance with the General Plan and the Downtown Recovery Plan. It is intended to provide a means whereby existing buildings and structures are evaluated for their reuse potential before demolition is allowed.

- 1. No demolition permit as authorized by the Uniform Building Code shall be issued unless the replacement use and any use, design or other permits, as applicable, have been approved by the city, except as provided below.
 - a. Where the replacement use of the site requires no building permit, a demolition permit may be issued as approved by the decision-making body in connection with its action in approving the replacement use of the site.
 - b. Where the replacement use requires a building permit, but there is a practical hardship in delaying the demolition permit until a valid building permit is issued, the approving body may authorize demolition before issuance of a building permit if it finds that there is a practical hardship and prior demolition is consistent with the General Plan and the Downtown Recovery Plan. The approving body may require such security as it deems necessary to assure the construction of the replacement project, and may establish time requirements for performance.
- The decision-making body shall consider any demolition application at the time it considers
 any necessary permits or actions for the replacement project after demolition. It shall
 approve demolition after evaluating it for consistency with the General Plan and Downtown
 Recovery Plan, and taking into account reasonable alternatives for reuse and cost benefits
 to the community.

Section 24.10.2340 of the Santa Cruz Municipal Code is hereby amended to read as follows:

24.10.2340 EXTENSION AREAS.

The purpose of extension areas is to enhance the pedestrian ambiance of Pacific Avenue the Central Business District and the San Lorenzo Riverwalk, by introducing uses attractive to pedestrians into the pedestrian environment, configured and arranged in ways which activate and enliven the public streets and the San Lorenzo Riverwalk.

- 1. Revocable License Required. No person shall use an extension area unless a valid revocable license to operate a business has been obtained pursuant to this part.
- 2. Revocable License Application. Application for a revocable license shall be made jointly by the property owner and the business operator of the business located on the property adjacent to the extension area, and shall be filed with the planning department on the appropriate application form, accompanied with the following information:
 - a. Name and address of the property owner and business operator. Both parties or their authorized representatives shall sign the application.
 - b. The expiration date of the business license of the business intending to operate the extension area.

- c. For extension areas adjacent to public streets and pedestrian lanes within the Central Business District, a drawing showing the extension area in its relationship to the building, sidewalk and street, for the extension area and thirty feet along the sidewalk in either direction. The drawing shall show dimensions of the extension area, locating doorways and access points, show width of sidewalk (distance from curb to building face and property line), existing and projected pedestrian traffic movements, location of utilities that might affect or be affected by the application proposal, parking meters, bus stops, benches, trees, landscaping, trash receptacles and other street furniture, or any other potential sidewalk obstruction.
 - The drawing of the extension area shall show its intended use, any furniture or display stands, fixtures, signs, canopies and other overhead appurtenances, landscaping and planters, trash receptacles, and any other matter to be placed in the area.
- d. For extension areas adjacent to the San Lorenzo Riverwalk, a drawing showing the extension area in its relationship to the building, the Riverwalk, for the extension area and thirty feet along the Riverwalk in either direction. The drawing shall show dimensions of the extension area, locating doorways and access points, show proposed hardscape and landscape improvements between the existing Riverwalk and the development project relating to the extension area, location of utilities that might affect or be affected by the application proposal, benches, trees, landscaping, planters, trash receptacles and other furniture, or any other potential pedestrian obstruction.

The drawing of the extension area shall show its intended use, any furniture or display stands, fixtures, signs, canopies and other overhead appurtenances, landscaping and planters, trash receptacles, and any other items to be placed in the area.

- <u>ed</u>. Other information which may be required to act on the revocable license.
- 3. Location and Design Requirements. Chapter 4 of the Downtown Recovery Plan describes the use, location and design requirements for extension areas.

The remainder of the section remains unchanged except for deletion of the word Recovery from Downtown Recovery Plan in subsections 6b4 and 6c1.

Section 24.10.2341 of the Santa Cruz Municipal Code is hereby added to read as follows:

24.10.2341 PARKLETS

The purpose of parklets is to enhance the pedestrian ambiance of the CBD zone district by creating useable outdoor spaces that encourage a sense of community and that provide a tool for economic development.

- 1. No person shall construct or use a parklet unless a Design Permit has been obtained pursuant to Part 5 of Chapter 24.08 and a valid revocable license to operate a business has been obtained pursuant to Section 24.10.2340 of this Chapter.
- 2. <u>No person shall begin construction of a parklet without first obtaining a Temporary</u> Encroachment Permit to allow for construction to take place within the public right of way.
- 3. All parklets shall be maintained as private spaces and the business licensed to operate the parklet shall be responsible to maintain the parklet in good condition.
- 4. Parklets may only be constructed on streets with speed limits of 25 mph or lower.
- 5. Construction Standards.
 - a. The parklet must be located at least one parking space or 20' from any corner.
 - b. A minimum of two parking spaces shall be maintained between each parklet.
 - c. The structure shall not be located in front of a fire hydrant, above a fire hydrant shut-off valve or over utility or manhole covers.
 - d. The parklet shall not replace blue zones designated for disabled parking.
 - e. <u>The parklet shall not be more than six feet wide and shall provide four foot setbacks</u> from each parking tee.
 - f. The parklet length may consist of two parking spaces maximum per business and the parking spaces shall be located adjacent to the front of the business.
 - g. Reflective elements are required at the outside corners of the structure.
 - h. Soft hit posts shall be installed at the outside edges of the structure.
 - i. The parklet shall provide all features necessary to comply with current ADA requirements.
 - j. Bolting or penetrating the surface of the roadway in any way shall not be permitted.
 - k. The platform surface shall be flush with the grade of the adjacent sidewalk with a maximum gap of one-half inch.
 - I. The structure shall not impede the flow of curbside drainage and shall not be constructed over a storm drain.
 - m. Overhead elements shall provide a minimum vertical clearance of 84" above grade.
 - n. The edges/railings shall be spaced appropriately to allow for the ability to see inside the parklet during all hours.
 - o. The edges/railings shall be designed to discourage sitting on railings.
 - p. The top edge of the parklet edges/railings shall be round to prevent the resting of food and drinks.
 - q. The exterior edge/railing shall be a minimum of 30 inches tall. If alcohol will be consumed in the parklet, the edge/railing shall be a minimum of 42 inches tall.
 - r. <u>There shall be no electrical fixtures or features within the parklet. All lighting must</u> originate from the associated business and may not shine into the street or otherwise

- interfere with vehicular travel. Battery or solar powered lighting elements are permitted within the parklet.
- s. All moveable barriers and furniture used in the parklet shall be bolted down or shall be removed from the public right of way during non-operating hours.

6. Design Criteria.

- a. The parklet shall be an open design that allows for pedestrians on either side of the street to see into the parklet. Continuous opaque walls are not permitted.
- b. The parklet should be designed as an extension of the sidewalk and should have multiple points of entry.
- c. Parklets should include permanent or movable seating.
- d. The design should include planting areas that utilize native, drought-tolerant plants.

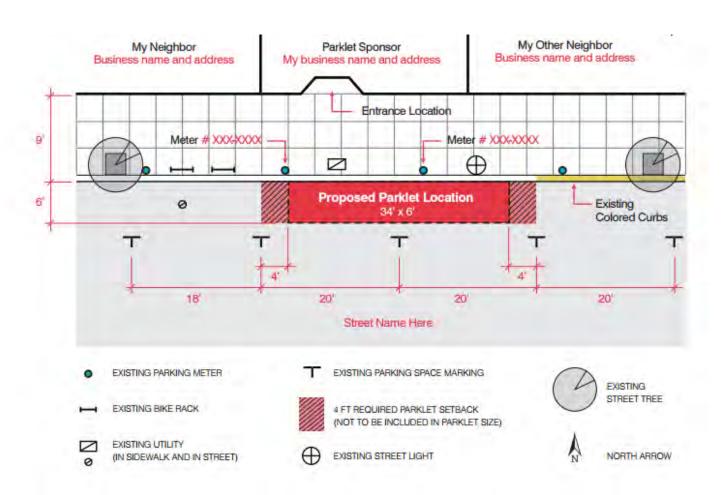
 Plantings can be used to discourage seating in areas such as the tops of walls.
- e. <u>The parklet design should utilize sustainable, locally-sourced materials that are easy to</u> maintain.
- f. Signage or other advertising matter is not permitted to be installed on or within the parklet with the exception of a notice of private property/right to refuse service no greater than 11" x 5" in size. Sandwich board signs are prohibited at all times.

7. Operational Conditions

- a. <u>If a business changes ownership, the new business owner must obtain a new Extension License per Section 24.10.2340.</u> A Design Permit may be required to recognize changes to the parklet.
- b. The parklet shall operate consistent with the restaurant hours of operation and shall not operate past 11:00 p.m. Parklets shall be closed or gated when not in use.
- c. Outdoor entertainment is prohibited within the parklet.
- d. The business associated with a parklet shall obtain a trespass letter with the Santa Cruz Police Department prior to operation of the parklet.
- e. Prior to the commencement of use, security cameras shall be installed outside to cover the entire parklet and front sidewalk areas. Cameras shall be placed in positions where the exterior lighting does not bleed into the coverage.
- f. Parklets and plantings shall be maintained in good condition, free of graffiti and litter. Elements that are visually or structurally degraded shall be replaced expeditiously.
- g. Patrons of the parklet shall not be permitted to sit on the edges/railings.
- h. Smoking is not permitted within parklets.
- i. The parklet shall be reviewed annually by the Planning Department for compliance with conditions of approval and to ensure that the parklet is maintained in good condition and does not create a nuisance to pedestrians or adjacent businesses.

8. Removal

- a. The sponsor, at their own expense, shall be required to remove the parklet and restore the public right of way to the standards of the Public Works Department if desired by the sponsor or if requested by the City of Santa Cruz for utility repair and maintenance, streetscape improvements, or other improvements that interfere with the location of the parklet.
- b. <u>If the parklet is removed temporarily for streetscape or utility improvements, the sponsor shall be responsible for the costs of removing, storing, and re-installing the parklet.</u>
- c. <u>In the case of an emergency, the city may remove the parklet without prior notice to the applicant.</u> The sponsor is responsible for restoring any damage to the parklet.



APPENDIX D Buildout Assumptions

Assumptions for Downtown Recovery Plan Amendment

Study Area - See Map (West side of Pacific Avenue from Cathcart to Laurel, East Side of Pacific, and all the parcels fronting the west side of Front Street between Soquel Avenue and Laurel Street)

Downtown Parcel and Footprint Spreadsheet dated 6-9-2015 January 6, 2017

Area X Riverfront	Area Y E. Pacific/W. Front Pacific Station	Area Z W. Pacific	Totals	Change from Existing Conditions (Includes demolition and reconstruction)
146,000 sf	222,200 sf	148,800 sf	517,000 sf	N/A
(3.35 acres)	(5.10 acres)	(3.42 acres)	(11.87 acres)	
62,000 sf	74,864 sf	182,836 sf	319,700 sf	N/A
N/A	56,105 sf	65,761 sf	121,866 sf	N/A
N/A	113 units	56 units	169 units	N/A
164 spaces	186 spaces	97 spaces	447 spaces	N/A
ndments (Units are t	otals, reflecting both der	nolition and reconstru	iction)	
65,875 sf	47,000 sf	182,836 sf	295,711 sf	-23,989
11,000 sf	40,000 sf	65,761 sf	116,761 sf	-5,105
190 units	360 units	56 units	606 units	437
265 spaces	1,610 spaces	97 spaces	1,972 spaces	+1,525
Proposed Downtown	Plan Amendments (Units	are totals, reflecting	both demolition and re	construction)
73,171 sf	47,000 sf	184,836 sf	305,007 sf	-14,693 sf
18,296 sf	40,000 sf	65,761 sf	124,057 sf	+2,191 sf
321 units	483 units	76 units	880 units	+711 units
397 spaces	1,924 spaces	117 spaces	2,438 spaces	+1,991 spaces
	146,000 sf (3.35 acres) 62,000 sf N/A N/A 164 spaces ndments (Units are t 65,875 sf 11,000 sf 190 units 265 spaces Proposed Downtown 73,171 sf 18,296 sf 321 units	Area X Riverfront 146,000 sf (3.35 acres) 62,000 sf N/A N/A 113 units 164 spaces 186 spaces 11,000 sf 190 units 265 spaces 187,171 sf 18,296 sf 321 units 146,000 sf 222,200 sf (5.10 acres) 65,105 sf 74,864 sf 113 units 186 spaces 186 spaces 186 spaces	Area X Riverfront E. Pacific/W. Front Pacific Station Area Z W. Pacific 146,000 sf (3.35 acres) 222,200 sf (5.10 acres) (3.42 acres) 62,000 sf (5.10 acres) (3.42 acres) 62,000 sf (5.10 acres) 182,836 sf (5.761	Area X Riverfront E. Pacific/W. Front Pacific Area Z W. Pacific Totals 146,000 sf (3.35 acres) 222,200 sf (5.10 acres) 148,800 sf (11.87 acres) 517,000 sf (11.87 acres) 62,000 sf (5.10 acres) 74,864 sf (3.42 acres) 182,836 sf (11.87 acres) 319,700 sf (11.87 acres) N/A 56,105 sf (65,761 sf (121,866 sf (12

GENERAL ASSUMPTIONS FOR AREA X

Ground Level (Same in GP Buildout or with Downtown Plan Amendments)

Requires removal of structures to accommodate parking.

169 spaces exist now and area could accommodate up to 265 spaces and 33,000 sf retail/non-residential uses and remaining area in open space connections to the river.

Second (Riverwalk) Level (Same in GP Buildout or with Downtown Plan Amendments)

25% commercial to connect to Riverwalk and at north and south ends of Area X = 21,875 square feet

75% residential or 66 units

Combined Third and Fourth Levels (Same in GP Buildout or with Downtown Plan Amendments)

15% Office and hotel use split between the uses

11,000 square feet of Office

11,000 square feet of hotel use

85% residential = 124 units

Combined Fifth and Sixth Levels (not feasible under existing General Plan Buildout, only applies to Downtown Plan Amendments)

10% Office and Commercial (could include restaurant) split between uses

7,296 square feet of Office

7,296 square feet of Commercial (restaurant)

90% Residential = 131 units

TOTAL AREA X ASSUMPTIONS UNDER GENERAL PLAN 2030 WITHOUT DOWNTOWN PLAN AMENDMENTS

190 total housing units (66 units 2^{nd} flr + 62 units 3^{rd} flr + 62 units 4^{th} flr)

65,875 sf Commercial (retail, restaurant or hotel) (33,000 sf 1st flr + 21,875 sf 2nd level (Riverwalk), 5,500 sf 3rd flr + 5,500 sf 4th flr)

11,000 sf Commercial (office) (5,500 sf $3^{rd} + 5,500$ sf 4^{th} level)

265 total ground level parking spaces accommodated at the Front Street ground level (no structured parking with this scenario)

TOTAL AREA X ASSUMPTIONS UNDER BUILDOUT WITH PROPOSED DOWNTOWN PLAN AMENDMENTS

321 total housing units (66 units 2^{nd} flr + 62 units 3^{rd} flr + 62 units 4^{th} flr + 131 units 5^{th} and 6^{th} flrs)

73,171 sf Commercial (retail, restaurant or hotel) $(33,000 \text{ sf } 1^{\text{st}} \text{ flr} + 21,875 \text{ sf } 2^{\text{nd}} \text{ Riverwalk level flr, 5,500 sf } 3^{\text{rd}} \text{ flr} + 5,500 \text{ 4}^{\text{th}} \text{ flr} + 7,296 \text{ sf } 5^{\text{th}} \text{ and } 6^{\text{th}} \text{ flrs})$

18,296 sf Commercial (office) $(5,500 \text{ sf } 3^{\text{rd}} + 5,500 \text{ sf } 4^{\text{th}} \text{ level} + 7,296 \text{ sf } 5^{\text{th}} \text{ and } 6^{\text{th}} \text{ flrs})$

 $397\ total\ parking\ spaces\ (265\ ground\ level\ parking\ spaces\ +\ 132\ structured)$

GENERAL ASSUMPTIONS FOR AREA Y

AREA Y GENERAL PLAN 2030 BUILDOUT WITHOUT THE PROPOSED DOWNTOWN PLAN AMENDMENTS:

Metro Site:

90 units

720 parking spaces (180 spaces per level X 4 levels) 25,000 sf Commercial at ground level

15.000 sf Office

Devcon Properties LLC and adjacent Parcels by proposed Maple Street:

157 units (55 2BR and 102 1BR/Studio)

250 parking spaces

15,000 sf Commercial

City Parking Garage on Lot 7:

640 parking spaces (160 spaces per level X 4 levels)

7,000 sf Commercial

Total parking for this area would be about 1,610 spaces (720 + 250 + 640). 186 parking spaces would be removed and replaced for a net increase of 1,424, resulting in a total of **1,610 spaces for Area Y**)

AREA Y BUILDOUT <u>WITH</u> THE DOWNTOWN PLAN AMENDMENTS. The assumptions for the Commercial and Office stay the same, but housing and parking would increase for the respective projects. Devcon Properties LLC project would be able to construct an additional **76 units above the 50' level** and the City's housing by Metro could build **30 additional units with the allowable floors above 50 feet**.

The Metro and City parking garages would be able to construct a combined **340 more spaces** with the additional height proposed for the DRP.

Metro Site:

120 units

900 parking spaces (180 spaces per level X 5 levels)

25.000 sf Commercial

15,000 sf Office

Devcon Properties LLC and adjacent Parcels by proposed Maple Street:

250 units (87 2BR and 163 1BR/Studio)

329 parking spaces

15,000 sf Commercial

City Parking Garage: 800 parking spaces (160 spaces per level X 5 levels) 7,000 sf Commercial

Total new parking for Area Y would be about 1,964 spaces (900 = 329 = 800). 186 parking spaces would be removed and replaced for a net increase of 1,830, resulting in a total of **1,964 spaces for Area Y**) Various scenarios could be assumed for parking modifications and on and off-site programs, mechanical stacking, payment of deficiency and in-lieu fees, reduction is parking ratio standards and other factors. Parking code changes are not part of the Downtown Recovery Plan changes and for the purposes of the buildout scenarios, the number of units and the square footages are assumed *reasonable worst-case scenarios* for under the proposed development standard modifications. This area assumes potentially 2 large public parking garages, which is unlikely in a short-term scenario, but both have been included for the purposes of the CEQA analysis.

TOTAL AREA Y ASSUMPTIONS UNDER GENERAL PLAN 2030 WITHOUT DOWNTOWN PLAN AMENDMENTS

247 total housing units (90 units + 157 units) **47,000 sf Commercial (retail, restaurant)** (25,000 sf + 15,000 sf + 7,000 sf) **40,000 sf Commercial (office)** (15,000 sf + 25,000 sf) **1,610 total parking spaces** (720 spaces + 250 spaces + 640 spaces)

TOTAL AREA Y ASSUMPTIONS <u>WITH</u> PROPOSED DOWNTOWN PLAN AMENDMENTS

370 total housing units (120 units + 250 units) **47,000 sf Commercial (retail, restaurant)** (25,000 sf + 25,000 sf + 7,000 sf) **15,000 sf Commercial (office)** (15,000 sf) **1,964 total parking spaces** (900 spaces + 264 spaces + 800 spaces)

GENERAL ASSUMPTIONS FOR AREA Z: West Side of Pacific Avenue between Cathcart Street and Laurel Street

Area Z has well-established businesses on all properties. There is little to no space available for adding parking, therefore the opportunity for redevelopment is limited. Under existing DRP regulations, the height limit would allow most properties to add a floor or even two. But for the purposes of estimating the buildout under the existing GP 2030, the GP EIR assumed this area was already built-out. In order to have the traffic analysis include additional reasonable worst-case assumptions, it is assumed that the NW corner property at Pacific and Laurel could be redeveloped to add a floor and accommodate some housing in a mixed use project.

Under the proposed DRP modifications, the NW corner property at Pacific and Laurel would assume adding two floors of residential for a total of 20 new housing units and another 2,000 square feet of ground level retail. These units would be small units and both the buildout and proposed DRP plan amendment scenarios assume the same number of parking spaces would be constructed in either scenario. Assumptions are made that the size of the units would require 1 space per unit.

5

TOTAL AREA Z ASSUMPTIONS UNDER GENERAL PLAN 2030 WITHOUT DOWNTOWN PLAN AMENDMENTS

56 total housing units 182,836 sf Commercial 97 total parking spaces

TOTAL AREA Y ASSUMPTIONS WITH PROPOSED DOWNTOWN PLAN AMENDMENTS

76 total housing units 184,836 sf Commercial 117 total parking spaces

APPENDIX E Air Quality and GHG Emissions Calculations

Available on CD & City Website at:

 $\underline{\text{http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development-}} \\ \underline{\text{2/environmental-documents}}$

Santa Cruz Downtown Recovery Plan CalEEMod Version 2016.3.1 Outputs

Annual, Summer, Winter, Mitigation Report

CalEEMod Version: CalEEMod.2016.3.1 Date: 5/24/2017 11:31 AM

Santa Cruz Downtown Recovery Plan - Santa Cruz County, Annual

Santa Cruz Downtown Recovery Plan Santa Cruz County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	2.19	1000sqft	0.05	2,191.00	0
Enclosed Parking with Elevator	1,991.00	Space	0.00	796,400.00	0
Apartments Mid Rise	390.00	Dwelling Unit	6.00	390,000.00	944
Condo/Townhouse	321.00	Dwelling Unit	5.00	321,000.00	777

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	1.8	Precipitation Freq (Days)	61
Climate Zone	5			Operational Year	2040

Utility Company Pacific Gas & Electric Company

 CO2 Intensity
 372.88
 CH4 Intensity
 0.029
 N20 Intensity
 0.006

 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity adjusted based on 50% RPS by year 2030

Land Use - Adjusted population based on average City household size of 2.42 persons per du

Construction Phase - Modeling operations only

Vehicle Trips - Trip rates from TIA adjusted based on City-recommended 40% reduction based on mixed-use in Downtown Santa Cruz

Water And Wastewater - Water demand based on City Water Department

Energy Mitigation - Residences and commercial uses that comply with 2016 Title 24 are 28% and 5% more efficient than 2013 Title 24, respectively. Weighted average for project = 28%

Waste Mitigation - 75% waste diversion consistent with AB 341

APPENDIX E

Table Name	Column Name	Default Value	New Value		
tblLandUse	BuildingSpaceSquareFeet	2,190.00	2,191.00		
tblLandUse	LandUseSquareFeet	2,190.00	2,191.00		
tblLandUse	LotAcreage	17.92	0.00		
tblLandUse	LotAcreage	10.26	6.00		
tblLandUse	LotAcreage	20.06	5.00		
tblLandUse	Population	1,115.00	944.00		
tblLandUse	Population	918.00	777.00		
tblOffRoadEquipment	UsageHours	6.00	0.00		
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88		
tblProjectCharacteristics	OperationalYear	2018	2040		
tblTripsAndVMT	WorkerTripNumber	169.00	0.00		
tblVehicleTrips	ST_TR	6.39	3.83		
tblVehicleTrips	ST_TR	5.67	4.39		
tblVehicleTrips	ST_TR	2.46	1.47		
tblVehicleTrips	SU_TR	5.86	3.52		
tblVehicleTrips	SU_TR	4.84	3.75		
tblVehicleTrips	SU_TR	1.05	0.63		
tblVehicleTrips	WD_TR	6.65	3.99		
tblVehicleTrips	WD_TR	5.81	4.50		
tblVehicleTrips	WD_TR	11.03	6.57		
tblWater	IndoorWaterUseRate	25,410,069.99	16,370,250.00		
tblWater	IndoorWaterUseRate	20,914,442.22	13,473,975.00		
tblWater	IndoorWaterUseRate	389,236.91	39,438.00		
tblWater	OutdoorWaterUseRate	16,019,391.95	543,037.50		
tblWater	OutdoorWaterUseRate	13,185,191.84	543,037.50		
tblWater	OutdoorWaterUseRate	238,564.56	0.00		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					MT/yr											
Area	3.5205	0.0845	7.3254	3.9000e- 004		0.0408	0.0408		0.0408	0.0408	0.0000	12.0267	12.0267	0.0115	0.0000	12.3148
Energy	0.0729	0.6228	0.2659	3.9700e- 003		0.0503	0.0503		0.0503	0.0503	0.0000	2,221.967 2	2,221.967 2	0.1306	0.0374	2,236.367 3
Mobile	0.3995	1.8629	5.2304	0.0250	3.1397	0.0124	3.1521	0.8410	0.0115	0.8526	0.0000	2,297.235 5	2,297.235 5	0.0616	0.0000	2,298.776 4
Waste						0.0000	0.0000		0.0000	0.0000	66.8043	0.0000	66.8043	3.9480	0.0000	165.5049
Water						0.0000	0.0000		0.0000	0.0000	9.4807	27.9922	37.4729	0.9759	0.0234	68.8574
Total	3.9929	2.5702	12.8217	0.0293	3.1397	0.1035	3.2432	0.8410	0.1026	0.9437	76.2850	4,559.221 5	4,635.506 6	5.1277	0.0608	4,781.820 8

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e		
Category	tons/yr												MT/yr					
Area	3.5205	0.0845	7.3254	3.9000e- 004		0.0408	0.0408		0.0408	0.0408	0.0000	12.0267	12.0267	0.0115	0.0000	12.3148		
Energy	0.0553	0.4724	0.2017	3.0100e- 003		0.0382	0.0382		0.0382	0.0382	0.0000	1,813.359 5	1,813.359 5	0.1090	0.0304	1,825.144 6		
Mobile	0.3995	1.8629	5.2304	0.0250	3.1397	0.0124	3.1521	0.8410	0.0115	0.8526	0.0000	2,297.235 5	2,297.235 5	0.0616	0.0000	2,298.776 4		
Waste						0.0000	0.0000		0.0000	0.0000	16.7011	0.0000	16.7011	0.9870	0.0000	41.3762		
Water						0.0000	0.0000		0.0000	0.0000	9.4807	27.9922	37.4729	0.9759	0.0234	68.8574		
Total	3.9753	2.4198	12.7575	0.0284	3.1397	0.0914	3.2311	0.8410	0.0905	0.9315	26.1818	4,150.613 9	4,176.795 7	2.1451	0.0539	4,246.469 4		

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.44	5.85	0.50	3.27	0.00	11.74	0.37	o.oo Page	11.84 3 of 12	1.29	65.68	8.96	9.90	58.17	11.45	11.20

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Mitigated	0.3995	1.8629	5.2304	0.0250	3.1397	0.0124	3.1521	0.8410	0.0115	0.8526	0.0000	2,297.235 5	2,297.235 5	0.0616	0.0000	2,298.776 4
Unmitigated	0.3995	1.8629	5.2304	0.0250	3.1397	0.0124	3.1521	0.8410	0.0115	0.8526	0.0000	2,297.235 5	2,297.235 5	0.0616	0.0000	2,298.776 4

4.2 Trip Summary Information

	Aver	age Daily Trip I	Rate	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,556.10	1,493.70	1372.80	4,381,832	4,381,832
Condo/Townhouse	1,444.50	1,409.19	1203.75	4,047,830	4,047,830
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	14.39	3.22	1.38	26,130	26,130
Total	3,014.99	2,906.11	2,577.93	8,455,792	8,455,792

4.3 Trip Type Information

		Miles			Trip %		Trip Purpose %				
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by		
Apartments Mid Rise	10.80	7.30	7.50	44.00	18.80	37.20	86	11	3		
Condo/Townhouse	10.80	7.30	7.50	44.00	18.80	37.20	86	11	3		
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0		
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4		

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.607849	0.022927	0.205901	0.103922	0.009867	0.003828	0.022612	0.014637	0.001269	0.001293	0.004540	0.000840	0.000515
Enclosed Parking with Elevator	0.607849	0.022927	0.205901	0.103922	0.009867		0.022612		0.001269	0.001293	0.004540	0.000840	0.000515
						i	ge 4 of 12	<u> </u>					ā

Apartments Mid Rise	0.607849	0.022927	0.205901	0.103922	0.009867	0.003828	0.022612	0.014637	0.001269	0.001293	0.004540	0.000840	0.000515
Condo/Toyahayaa	0.607040		0.205901	0.103922	0.00002	0.003828	0.000610	0.014637	0.001269	0.001293	0.004540	0 000040	0.000515
Condo/Townhouse	0.607849	0.022927	0.205901	0.103922	0.009867	0.003626	0.022612	0.014637	0.001269	0.001293	0.004540	0.000840	0.000515

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,266.375 9	1,266.375 9	0.0985	0.0204	1,274.910 6
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,500.898 3	1,500.898 3	0.1167	0.0242	1,511.013 5
NaturalGas Mitigated	0.0553	0.4724	0.2017	3.0100e- 003		0.0382	0.0382		0.0382	0.0382	0.0000	546.9836	546.9836	0.0105	0.0100	550.2340
NaturalGas Unmitigated	0.0729	0.6228	0.2659	3.9700e- 003		0.0503	0.0503		0.0503	0.0503	0.0000	721.0689	721.0689	0.0138	0.0132	725.3539

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa s Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					ton	s/yr							MT	Γ/yr		
Apartments Mid Rise	4.46144e+ 006	0.0241	0.2056	0.0875	1.3100e- 003		0.0166	0.0166		0.0166	0.0166	0.0000	238.0792	238.0792	4.5600e- 003	4.3600e- 003	239.4940
Condo/Townhous e	9.00834e+ 006	0.0486	0.4151	0.1766	2.6500e- 003		0.0336	0.0336		0.0336	0.0336	0.0000	480.7191	480.7191	9.2100e- 003	8.8100e- 003	483.5758
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	42549.2	2.3000e- 004	2.0900e- 003	1.7500e- 003	1.0000e- 005		1.6000e- 004	1.6000e- 004		1.6000e- 004	1.6000e- 004	0.0000	2.2706	2.2706	4.0000e- 005	4.0000e- 005	2.2841

APPENDIX E

Total	0.0729	0.6228	0.2659	3.9700e-	0.0503	0.0503	0.0503	0.0503	0.0000	721.0689	721.0689	0.0138	0.0132	725.3538
				003										

Mitigated

	NaturalGa s Use	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					ton	s/yr							MT	/yr		
Apartments Mid Rise	3.49779e+ 006	0.0189	0.1612	0.0686	1.0300e- 003		0.0130	0.0130		0.0130	0.0130	0.0000	186.6555	186.6555	3.5800e- 003	3.4200e- 003	187.7647
Condo/Townhous e	6.72104e+ 006	0.0362	0.3097	0.1318	1.9800e- 003		0.0250	0.0250		0.0250	0.0250	0.0000	358.6602	358.6602	6.8700e- 003	6.5800e- 003	360.7915
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	31255.1	1.7000e- 004	1.5300e- 003	1.2900e- 003	1.0000e- 005		1.2000e- 004	1.2000e- 004		1.2000e- 004	1.2000e- 004	0.0000	1.6679	1.6679	3.0000e- 005	3.0000e- 005	1.6778
Total		0.0553	0.4724	0.2017	3.0200e- 003		0.0382	0.0382		0.0382	0.0382	0.0000	546.9836	546.9836	0.0105	0.0100	550.2340

5.3 Energy by Land Use - Electricity <u>Unmitigated</u>

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		MT	「/yr	
Apartments Mid Rise	1.76334e+ 006	298.2438	0.0232	4.8000e- 003	300.2538
Condo/Townhous e	1.71488e+ 006	290.0474	0.0226	4.6700e- 003	292.0021
Enclosed Parking with Elevator	5.36774e+ 006	907.8748	0.0706	0.0146	913.9934
General Office Building	27979.1	4.7323	3.7000e- 004	8.0000e- 005	4.7642
Total		1,500.8983	0.1167	0.0242	1,511.013 5

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		MT	Γ/yr	
Apartments Mid Rise	1.66216e+ 006	281.1304	0.0219	4.5200e- 003	283.0251
Condo/Townhous e	1.64265e+ 006	277.8300	0.0216	4.4700e- 003	279.7024
Enclosed Parking with Elevator	4.15848e+ 006	703.3471	0.0547	0.0113	708.0872
General Office Building	24054.6	4.0685	3.2000e- 004	7.0000e- 005	4.0959
Total		1,266.3759	0.0985	0.0204	1,274.910 6

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Mitigated	3.5205	0.0845	7.3254	3.9000e- 004		0.0408	0.0408		0.0408	0.0408	0.0000	12.0267	12.0267	0.0115	0.0000	12.3148
Unmitigated	3.5205	0.0845	7.3254	3.9000e- 004		0.0408	0.0408		0.0408	0.0408	0.0000	12.0267	12.0267	0.0115	0.0000	12.3148

6.2 Area by SubCategory

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					ton	s/yr							MT	/yr		
Architectural Coating	0.4630					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.8369					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2207	0.0845	7.3254	3.9000e- 004		0.0408	0.0408		0.0408	0.0408	0.0000	12.0267	12.0267	0.0115	0.0000	12.3148
Total	3.5205	0.0845	7.3254	3.9000e- 004		0.0408	0.0408		0.0408	0.0408	0.0000	12.0267	12.0267	0.0115	0.0000	12.3148

Mitigated

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					ton	s/yr							MT	/yr		
Architectural Coating	0.4630					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.8369					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2207	0.0845	7.3254	3.9000e- 004		0.0408	0.0408		0.0408	0.0408	0.0000	12.0267	12.0267	0.0115	0.0000	12.3148
Total	3.5205	0.0845	7.3254	3.9000e- 004		0.0408	0.0408		0.0408	0.0408	0.0000	12.0267	12.0267	0.0115	0.0000	12.3148

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category		MT	/yr	
Mitigated	37.4729	0.9759	0.0234	68.8574
Unmitigated	37.4729	0.9759	0.0234	68.8574

7.2 Water by Land Use <u>Unmitigated</u>

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		МТ	Γ/yr	
Apartments Mid Rise	16.3702 / 0.543037	20.4969	0.5346	0.0128	37.6891
Condo/Townhous e	13.474 / 0.543037	16.9274	0.4400	0.0106	31.0783
Enclosed Parking with Elevator	0/0	0.0000	0.0000	0.0000	0.0000
General Office Building	0.039438 / 0	0.0486	1.2900e- 003	3.0000e- 005	0.0900
Total		37.4729	0.9759	0.0234	68.8574

Mitigated

|--|

Land Use	Mgal		MT	Γ/yr	
Apartments Mid Rise	16.3702 / 0.543037	20.4969	0.5346	0.0128	37.6891
Condo/Townhous e	13.474 / 0.543037	16.9274	0.4400	0.0106	31.0783
Enclosed Parking with Elevator	0/0	0.0000	0.0000	0.0000	0.0000
General Office Building	0.039438 / 0	0.0486	1.2900e- 003	3.0000e- 005	0.0900
Total		37.4729	0.9759	0.0234	68.8574

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
		MT	/yr	
Mitigated	16.7011	0.9870	0.0000	41.3762
	66.8043	3.9480	0.0000	165.5049

8.2 Waste by Land Use

<u>Unmitigated</u>

Waste	Total CO2	CH4	N2O	CO2e
Disposed				

Land Use	tons		МТ	√yr	
Apartments Mid Rise	179.4	36.4166	2.1522	0.0000	90.2205
Condo/Townhous e	147.66	29.9737	1.7714	0.0000	74.2584
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	2.04	0.4141	0.0245	0.0000	1.0259
Total		66.8043	3.9480	0.0000	165.5049

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		MT	√yr	
Apartments Mid Rise	44.85	9.1041	0.5380	0.0000	22.5551
Condo/Townhous e	36.915	7.4934	0.4429	0.0000	18.5646
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	0.51	0.1035	6.1200e- 003	0.0000	0.2565
Total		16.7011	0.9870	0.0000	41.3762

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

APPENDIX E

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type Number

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.1 Date: 5/24/2017 11:33 AM

Santa Cruz Downtown Recovery Plan - Santa Cruz County, Summer

Santa Cruz Downtown Recovery Plan Santa Cruz County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	2.19	1000sqft	0.05	2,191.00	0
Enclosed Parking with Elevator	1,991.00	Space	0.00	796,400.00	0
Apartments Mid Rise	390.00	Dwelling Unit	6.00	390,000.00	944
Condo/Townhouse	321.00	Dwelling Unit	5.00	321,000.00	777

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	1.8	Precipitation Freq (Days)	61
Climate Zone	5			Operational Year	2040

Utility Company Pacific Gas & Electric Company

 CO2 Intensity
 372.88
 CH4 Intensity
 0.029
 N20 Intensity
 0.006

 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity adjusted based on 50% RPS by year 2030

Land Use - Adjusted population based on average City household size of 2.42 persons per du

Construction Phase - Modeling operations only

Vehicle Trips - Trip rates from TIA adjusted based on City-recommended 40% reduction based on mixed-use in Downtown Santa Cruz

Water And Wastewater - Water demand based on City Water Department

Energy Mitigation - Residences and commerical uses that comply with 2016 Title 24 are 28% and 5% more efficient than 2013 Title 24, respectively. Weighted average for project = 28%

Waste Mitigation - 75% waste diversion consistent with AB 341

APPENDIX E

Table Name	Column Name	Default Value	New Value		
tblLandUse	BuildingSpaceSquareFeet	2,190.00	2,191.00		
tblLandUse	LandUseSquareFeet	2,190.00	2,191.00		
tblLandUse	LotAcreage	17.92	0.00		
tblLandUse	LotAcreage	10.26	6.00		
tblLandUse	LotAcreage	20.06	5.00		
tblLandUse	Population	1,115.00	944.00		
tblLandUse	Population	918.00	777.00		
tblOffRoadEquipment	UsageHours	6.00	0.00		
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88		
tblProjectCharacteristics	OperationalYear	2018	2040		
tblTripsAndVMT	WorkerTripNumber	169.00	0.00		
tblVehicleTrips	ST_TR	6.39	3.83		
tblVehicleTrips	ST_TR	5.67	4.39		
tblVehicleTrips	ST_TR	2.46	1.47		
tblVehicleTrips	SU_TR	5.86	3.52		
tblVehicleTrips	SU_TR	4.84	3.75		
tblVehicleTrips	SU_TR	1.05	0.63		
tblVehicleTrips	WD_TR	6.65	3.99		
tblVehicleTrips	WD_TR	5.81	4.50		
tblVehicleTrips	WD_TR	11.03	6.57		
tblWater	IndoorWaterUseRate	25,410,069.99	16,370,250.00		
tblWater	IndoorWaterUseRate	20,914,442.22	13,473,975.00		
tblWater	IndoorWaterUseRate	389,236.91	39,438.00		
tblWater	OutdoorWaterUseRate	16,019,391.95	543,037.50		
tblWater	OutdoorWaterUseRate	13,185,191.84	543,037.50		
tblWater	OutdoorWaterUseRate	238,564.56	0.00		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Area	19.8467	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260	0.0000	106.0569	106.0569	0.1017	0.0000	108.5983
Energy	0.3992	3.4123	1.4568	0.0218		0.2758	0.2758		0.2758	0.2758		4,355.300 8	4,355.300 8	0.0835	0.0799	4,381.182 2
Mobile	2.4401	10.1922	30.1498	0.1463	18.3647	0.0701	18.4348	4.9046	0.0651	4.9697		14,831.57 65	14,831.57 65	0.3827		14,841.14 27
Total	22.6861	14.2805	90.2095	0.1712	18.3647	0.6719	19.0366	4.9046	0.6669	5.5715	0.0000	19,292.93 42	19,292.93 42	0.5678	0.0799	19,330.92 33

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	lay		
Area	19.8467	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260	0.0000	106.0569	106.0569	0.1017	0.0000	108.5983
Energy	0.3029	2.5885	1.1050	0.0165		0.2092	0.2092		0.2092	0.2092		3,303.814 6	3,303.814 6	0.0633	0.0606	3,323.447 5
Mobile	2.4401	10.1922	30.1498	0.1463	18.3647	0.0701	18.4348	4.9046	0.0651	4.9697		14,831.57 65	14,831.57 65	0.3827		14,841.14 27
Total	22.5897	13.4566	89.8576	0.1660	18.3647	0.6053	18.9700	4.9046	0.6003	5.5049	0.0000	18,241.44 80	18,241.44 80	0.5476	0.0606	18,273.18 86

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.42	5.77	0.39	3.07	0.00	9.91	0.35	0.00	9.99	1.20	0.00	5.45	5.45	3.55	24.15	5.47

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Mitigated	2.4401	10.1922	30.1498	0.1463	18.3647	0.0701	18.4348	4.9046	0.0651	4.9697		14,831.57 65	14,831.57 65	0.3827		14,841.14 27
Unmitigated	2.4401	10.1922	30.1498	0.1463	18.3647	0.0701	18.4348	4.9046	0.0651	4.9697		14,831.57 65	14,831.57 65	0.3827		14,841.14 27

4.2 Trip Summary Information

	Aver	age Daily Trip F	Rate	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,556.10	1,493.70	1372.80	4,381,832	4,381,832
Condo/Townhouse	1,444.50	1,409.19	1203.75	4,047,830	4,047,830
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	14.39	3.22	1.38	26,130	26,130
Total	3,014.99	2,906.11	2,577.93	8,455,792	8,455,792

4.3 Trip Type Information

		Miles			Trip %		Trip Purpose %				
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by		
Apartments Mid Rise	10.80	7.30	7.50	44.00	18.80	37.20	86	11	3		
Condo/Townhouse	10.80	7.30	7.50	44.00	18.80	37.20	86	11	3		
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0		
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4		

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.607849	0.022927	0.205901	0.103922	0.009867	0.003828	0.022612	0.014637	0.001269	0.001293	0.004540	0.000840	0.000515
Enclosed Parking with Elevator	0.607849	0.022927	0.205901	0.103922	0.009867	0.003828	0.022612	0.014637	0.001269	0.001293	0.004540	0.000840	0.000515
Apartments Mid Rise	0.607849	0.022927	0.205901	0.103922	0.009867	0.003828	0.022612	0.014637	0.001269	0.001293	0.004540	0.000840	0.000515
Condo/Townhouse	0.607849	0.022927	0.205901	0.103922	0.009867	0.003828	0.022612	0.014637	0.001269	0.001293	0.004540	0.000840	0.000515

raye + or c

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	ay		
NaturalGas Mitigated	0.3029	2.5885	1.1050	0.0165		0.2092	0.2092		0.2092	0.2092		3,303.814 6	3,303.814 6			3,323.447 5
NaturalGas Unmitigated	0.3992	3.4123	1.4568	0.0218		0.2758	0.2758		0.2758	0.2758		4,355.300 8	4,355.300 8		0.0799	4,381.182 2

5.2 Energy by Land Use - NaturalGas Unmitigated

	NaturalGa s Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					lb/	day							lb/d	day		
Apartments Mid Rise	12223.1	0.1318	1.1264	0.4793	7.1900e- 003		0.0911	0.0911		0.0911	0.0911		1,438.013 3	1,438.013 3	0.0276	0.0264	1,446.558 7
Condo/Townhous e	24680.4	0.2662	2.2745	0.9679	0.0145		0.1839	0.1839		0.1839	0.1839		2,903.573 0	2,903.573 0	0.0557	0.0532	2,920.827 5
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	116.573	1.2600e- 003	0.0114	9.6000e- 003	7.0000e- 005		8.7000e- 004	8.7000e- 004		8.7000e- 004	8.7000e- 004		13.7145	13.7145	2.6000e- 004	2.5000e- 004	13.7960
Total		0.3992	3.4123	1.4568	0.0218		0.2758	0.2758		0.2758	0.2758		4,355.300 8	4,355.300 8	0.0835	0.0798	4,381.182 2

Mitigated

	NaturalGa s Use	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					lb/	day							lb/c	lay		
Apartments Mid Rise	9.58299	0.1034	0.8831	0.3758	5.6400e- 003		0.0714	0.0714		0.0714	0.0714		1,127.410 8	1,127.410 8	0.0216	0.0207	1,134.110 5
Condo/Townhous e	18.4138	0.1986	1.6970	0.7221	0.0108		0.1372	0.1372		0.1372	0.1372		2,166.329 6	2,166.329 6	0.0415	0.0397	2,179.203 0
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0.0856303	9.2000e- 004	8.4000e- 003	7.0500e- 003	5.0000e- 005		6.4000e- 004	6.4000e- 004		6.4000e- 004	6.4000e- 004		10.0742	10.0742	1.9000e- 004	1.8000e- 004	10.1340
Total		0.3029	2.5885	1.1050	0.0165		0.2092	0.2092		0.2092	0.2092		3,303.814 6	3,303.814 6	0.0633	0.0606	3,323.447 5

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	ay		
Mitigated	19.8467	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260	0.0000	106.0569	106.0569	0.1017	0.0000	108.5983
Unmitigated	19.8467	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260	0.0000	106.0569	106.0569	0.1017	0.0000	108.5983

6.2 Area by SubCategory Unmitigated

APPENDIX E

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					lb/d	day							lb/d	lay		
Architectural Coating	2.5371					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	15.5444					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.7652	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260		106.0569	106.0569	0.1017		108.5983
Total	19.8467	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260	0.0000	106.0569	106.0569	0.1017	0.0000	108.5983

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					lb/d	day							lb/d	ay		
Architectural Coating	2.5371					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	15.5444					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.7652	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260		106.0569	106.0569	0.1017		108.5983
Total	19.8467	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260	0.0000	106.0569	106.0569	0.1017	0.0000	108.5983

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.1 Date: 5/24/2017 11:33 AM

Santa Cruz Downtown Recovery Plan - Santa Cruz County, Winter

Santa Cruz Downtown Recovery Plan Santa Cruz County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	2.19	1000sqft	0.05	2,191.00	0
Enclosed Parking with Elevator	1,991.00	Space	0.00	796,400.00	0
Apartments Mid Rise	390.00	Dwelling Unit	6.00	390,000.00	944
Condo/Townhouse	321.00	Dwelling Unit	5.00	321,000.00	777

1.2 Other Project Characteristics

UrbanizationUrbanWind Speed (m/s)1.8Precipitation Freq (Days)61Climate Zone5Operational Year2040

Utility Company Pacific Gas & Electric Company

 CO2 Intensity
 372.88
 CH4 Intensity
 0.029
 N20 Intensity
 0.006

 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity adjusted based on 50% RPS by year 2030

Land Use - Adjusted population based on average City household size of 2.42 persons per du

Construction Phase - Modeling operations only

Vehicle Trips - Trip rates from TIA adjusted based on City-recommended 40% reduction based on mixed-use in Downtown Santa Cruz

Water And Wastewater - Water demand based on City Water Department

Energy Mitigation - Residences and commerical uses that comply with 2016 Title 24 are 28% and 5% more efficient than 2013 Title 24, respectively. Weighted average for project = 28%

Waste Mitigation - 75% waste diversion consistent with AB 341

APPENDIX E

Table Name	Column Name	Default Value	New Value
tblLandUse	BuildingSpaceSquareFeet	2,190.00	2,191.00
tblLandUse	LandUseSquareFeet	2,190.00	2,191.00
tblLandUse	LotAcreage	17.92	0.00
tblLandUse	LotAcreage	10.26	6.00
tblLandUse	LotAcreage	20.06	5.00
tblLandUse	Population	1,115.00	944.00
tblLandUse	Population	918.00	777.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2018	2040
tblTripsAndVMT	WorkerTripNumber	169.00	0.00
tblVehicleTrips	ST_TR	6.39	3.83
tblVehicleTrips	ST_TR	5.67	4.39
tblVehicleTrips	ST_TR	2.46	1.47
tblVehicleTrips	SU_TR	5.86	3.52
tblVehicleTrips	SU_TR	4.84	3.75
tblVehicleTrips	SU_TR	1.05	0.63
tblVehicleTrips	WD_TR	6.65	3.99
tblVehicleTrips	WD_TR	5.81	4.50
tblVehicleTrips	WD_TR	11.03	6.57
tblWater	IndoorWaterUseRate	25,410,069.99	16,370,250.00
tblWater	IndoorWaterUseRate	20,914,442.22	13,473,975.00
tblWater	IndoorWaterUseRate	389,236.91	39,438.00
tblWater	OutdoorWaterUseRate	16,019,391.95	543,037.50
tblWater	OutdoorWaterUseRate	13,185,191.84	543,037.50
tblWater	OutdoorWaterUseRate	238,564.56	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Area	19.8467	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260	0.0000	106.0569	106.0569	0.1017	0.0000	108.5983
Energy	0.3992	3.4123	1.4568	0.0218		0.2758	0.2758		0.2758	0.2758		4,355.300 8	4,355.300 8	0.0835	0.0799	4,381.182 2
Mobile	2.2278	10.6877	30.8462	0.1407	18.3647	0.0702	18.4349	4.9046	0.0652	4.9698		14,256.99 26	14,256.99 26	0.3909		14,266.76 49
Total	22.4737	14.7760	90.9059	0.1655	18.3647	0.6720	19.0367	4.9046	0.6670	5.5716	0.0000	18,718.35 03	18,718.35 03	0.5760	0.0799	18,756.54 54

Mitigated Operational

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	lay		
Area	19.8467	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260	0.0000	106.0569	106.0569	0.1017	0.0000	108.5983
Energy	0.3029	2.5885	1.1050	0.0165		0.2092	0.2092		0.2092	0.2092		3,303.814 6	3,303.814 6	0.0633	0.0606	3,323.447 5
Mobile	2.2278	10.6877	30.8462	0.1407	18.3647	0.0702	18.4349	4.9046	0.0652	4.9698		14,256.99 26	14,256.99 26	0.3909		14,266.76 49
Total	22.3773	13.9521	90.5541	0.1603	18.3647	0.6054	18.9701	4.9046	0.6004	5.5050	0.0000	17,666.86 41	17,666.86 41	0.5559	0.0606	17,698.81 07

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.43	5.58	0.39	3.18	0.00	9.91	0.35	0.00	9.98	1.20	0.00	5.62	5.62	3.50	24.15	5.64

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	ay		
Mitigated	2.2278	10.6877	30.8462	0.1407	18.3647	0.0702	18.4349	4.9046	0.0652	4.9698		14,256.99 26	14,256.99 26	0.3909		14,266.76 49
Unmitigated	2.2278	10.6877	30.8462	0.1407	18.3647	0.0702	18.4349	4.9046	0.0652	4.9698		14,256.99 26	14,256.99 26	0.3909		14,266.76 49

4.2 Trip Summary Information

	Aver	age Daily Trip F	Rate	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,556.10	1,493.70	1372.80	4,381,832	4,381,832
Condo/Townhouse	1,444.50	1,409.19	1203.75	4,047,830	4,047,830
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	14.39	3.22	1.38	26,130	26,130
Total	3,014.99	2,906.11	2,577.93	8,455,792	8,455,792

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	e %
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	7.30	7.50	44.00	18.80	37.20	86	11	3
Condo/Townhouse	10.80	7.30	7.50	44.00	18.80	37.20	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.607849	0.022927	0.205901	0.103922	0.009867	0.003828	0.022612	0.014637	0.001269	0.001293	0.004540	0.000840	0.000515
Enclosed Parking with Elevator	0.607849	0.022927	0.205901	0.103922	0.009867	0.003828	0.022612	0.014637	0.001269	0.001293	0.004540	0.000840	0.000515
Apartments Mid Rise	0.607849	0.022927	0.205901	0.103922	0.009867	0.003828	0.022612	0.014637	0.001269	0.001293	0.004540	0.000840	0.000515
Condo/Townhouse	0.607849	0.022927	0.205901	0.103922	0.009867	0.003828	0.022612	0.014637	0.001269	0.001293	0.004540	0.000840	0.000515

i aye + oi c

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	ay		
NaturalGas Mitigated	0.3029	2.5885	1.1050	0.0165		0.2092	0.2092		0.2092	0.2092		3,303.814 6	3,303.814 6			3,323.447 5
NaturalGas Unmitigated	0.3992	3.4123	1.4568	0.0218		0.2758	0.2758		0.2758	0.2758		4,355.300 8	4,355.300 8		0.0799	4,381.182 2

5.2 Energy by Land Use - NaturalGas Unmitigated

	NaturalGa s Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					lb/	day							lb/d	day		
Apartments Mid Rise	12223.1	0.1318	1.1264	0.4793	7.1900e- 003		0.0911	0.0911		0.0911	0.0911		1,438.013 3	1,438.013 3	0.0276	0.0264	1,446.558 7
Condo/Townhous e	24680.4	0.2662	2.2745	0.9679	0.0145		0.1839	0.1839		0.1839	0.1839		2,903.573 0	2,903.573 0	0.0557	0.0532	2,920.827 5
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	116.573	1.2600e- 003	0.0114	9.6000e- 003	7.0000e- 005		8.7000e- 004	8.7000e- 004		8.7000e- 004	8.7000e- 004		13.7145	13.7145	2.6000e- 004	2.5000e- 004	13.7960
Total		0.3992	3.4123	1.4568	0.0218		0.2758	0.2758		0.2758	0.2758		4,355.300 8	4,355.300 8	0.0835	0.0798	4,381.182 2

Mitigated

	NaturalGa s Use	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					lb/	day							lb/c	lay		
Apartments Mid Rise	9.58299	0.1034	0.8831	0.3758	5.6400e- 003		0.0714	0.0714		0.0714	0.0714		1,127.410 8	1,127.410 8	0.0216	0.0207	1,134.110 5
Condo/Townhous e	18.4138	0.1986	1.6970	0.7221	0.0108		0.1372	0.1372		0.1372	0.1372		2,166.329 6	2,166.329 6	0.0415	0.0397	2,179.203 0
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0.0856303	9.2000e- 004	8.4000e- 003	7.0500e- 003	5.0000e- 005		6.4000e- 004	6.4000e- 004		6.4000e- 004	6.4000e- 004		10.0742	10.0742	1.9000e- 004	1.8000e- 004	10.1340
Total		0.3029	2.5885	1.1050	0.0165		0.2092	0.2092		0.2092	0.2092		3,303.814 6	3,303.814 6	0.0633	0.0606	3,323.447 5

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	ay		
Mitigated	19.8467	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260	0.0000	106.0569	106.0569	0.1017	0.0000	108.5983
Unmitigated	19.8467	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260	0.0000	106.0569	106.0569	0.1017	0.0000	108.5983

6.2 Area by SubCategory Unmitigated

APPENDIX E

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					lb/d	day							lb/d	lay		
Architectural Coating	2.5371					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	15.5444					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.7652	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260		106.0569	106.0569	0.1017		108.5983
Total	19.8467	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260	0.0000	106.0569	106.0569	0.1017	0.0000	108.5983

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					lb/d	day							lb/d	ay		
Architectural Coating	2.5371					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	15.5444					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.7652	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260		106.0569	106.0569	0.1017		108.5983
Total	19.8467	0.6759	58.6029	3.1100e- 003		0.3260	0.3260		0.3260	0.3260	0.0000	106.0569	106.0569	0.1017	0.0000	108.5983

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.1

Date: 5/24/2017 11:34 AM

Santa Cruz Downtown Recovery Plan Santa Cruz County, Mitigation Report

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
			Percent	Reduction								
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00	
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.63	15.63	15.63	15.65	15.63
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Natural Gas	24.14	24.15	24.15	23.93	24.14	24.14	0.00	24.14	24.14	24.11	24.07	24.14
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.09			
No	Land Use	Improve Walkability Design	0.00			

APPENDIX E

No	Land Use	Improve Destination Accessibility	0.00	
No	Land Use	Increase Transit Accessibility	0.25	
No	Land Use	Integrate Below Market Rate Housing	0.00	
	Land Use	Land Use SubTotal	0.00	
No	Neighborhood Enhancements	Improve Pedestrian Network		
No	Neighborhood Enhancements	Provide Traffic Calming Measures		
No	Neighborhood Enhancements	Implement NEV Network	0.00	
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00	
No	Parking Policy Pricing	Limit Parking Supply	0.00	
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	
No	Parking Policy Pricing	On-street Market Pricing	0.00	
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00	
No	Transit Improvements	Provide BRT System	0.00	
No	Transit Improvements	Expand Transit Network	0.00	
No	Transit Improvements	Increase Transit Frequency	0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00	
		Land Use and Site Enhancement Subtotal	0.00	
No	Commute	Implement Trip Reduction Program		
No	Commute	Transit Subsidy		
No	Commute	Implement Employee Parking "Cash Out"		
No	Commute	Workplace Parking Charge		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00	
No	Commute	Market Commute Trip Reduction Option	0.00	
No	Commute	Employee Vanpool/Shuttle	0.00	2.00
No	Commute	Provide Ride Sharing Program Page 2 of 4		

	Commute	Commute Subtotal	0.00		
No	'	Implement School Bus Program	0.00		
		Total VMT Reduction	0.00		

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	100.00
No	Use Low VOC Paint (Non-residential Interior)	150.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	Use Low VOC Paint (Parking)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	28.00	
Yes	Install High Efficiency Lighting	16.00	
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00

Page 3 of 4

Fan	50.00
Refrigerator	15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	75.00

Santa Cruz Downtown Recovery Plan – Reduced Commercial Uses CalEEMod Version 2016.3.1 Outputs

Annual, Summer, Winter, Mitigation Report

CalEEMod Version: CalEEMod.2016.3.1 Date: 5/24/2017 11:39 AM

Santa Cruz DRP - Reduced Commercial - Santa Cruz County, Annual

Santa Cruz DRP - Reduced Commercial Santa Cruz County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Strip Mall	14.69	1000sqft	0.34	14,693.00	0

1.2 Other Project Characteristics

 Urbanization
 Urban
 Wind Speed (m/s)
 1.8
 Precipitation Freq (Days)
 61

 Climate Zone
 5
 Operational Year
 2040

Utility Company Pacific Gas & Electric Company

 CO2 Intensity
 372.88
 CH4 Intensity
 0.029
 N20 Intensity
 0.006

 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity adjusted based on 50% RPS by year 2030

Land Use - Amount of commercial uses reduced

Construction Phase - Modeling operations only

Vehicle Trips - Trip rates from TIA adjusted based on City-recommended 40% reduction based on mixed-use in Downtown Santa Cruz

Energy Use - Historical energy use factors assumed for commercial uses to be removed

Water And Wastewater - Water use based on City Water Department

Waste Mitigation - 75% waste diversion consistent with AB 341

Table Name	Column Name	Default Value	New Value
tblLandUse	BuildingSpaceSquareFeet	14,690.00	14,693.00
tblLandUse	LandUseSquareFeet	14,690.00	14,693.00

APPENDIX E

tblOffRoadEquipment	UsageHours	6.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2018	2040
tblTripsAndVMT	WorkerTripNumber	1.00	0.00
tblVehicleTrips	ST_TR	42.04	25.10
tblVehicleTrips	SU_TR	20.43	12.20
tblVehicleTrips	WD_TR	44.32	26.46
tblWater	IndoorWaterUseRate	1,088,125.34	969,738.00
tblWater	OutdoorWaterUseRate	666,915.53	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	y tons/yr										MT/yr					
Area	0.0676	0.0000	1.9000e- 004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e- 004	3.6000e- 004	0.0000	0.0000	3.9000e- 004
Energy	4.3000e- 004	3.8700e- 003	3.2500e- 003	2.0000e- 005		2.9000e- 004	2.9000e- 004		2.9000e- 004	2.9000e- 004	0.0000	34.3875	34.3875	2.4300e- 003	5.6000e- 004	34.6159
Mobile	0.0378	0.1777	0.3923	1.6900e- 003	0.2035	8.9000e- 004	0.2044	0.0545	8.2000e- 004	0.0553	0.0000	155.0775	155.0775	4.5300e- 003	0.0000	155.1907
Waste						0.0000	0.0000		0.0000	0.0000	3.1301	0.0000	3.1301	0.1850	0.0000	7.7547
Water						0.0000	0.0000		0.0000	0.0000	0.3077	0.8875	1.1952	0.0317	7.6000e- 004	2.2135
Total	0.1059	0.1815	0.3957	1.7100e- 003	0.2035	1.1800e- 003	0.2047	0.0545	1.1100e- 003	0.0556	3.4378	190.3529	193.7906	0.2236	1.3200e- 003	199.7752

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	tons/yr											MT/yr					
Area	0.0676	0.0000	1.9000e- 004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e- 004	3.6000e- 004	0.0000	0.0000	3.9000e- 004	
Energy	4.3000e- 004	3.8700e- 003	3.2500e- 003	2.0000e- 005		2.9000e- 004	2.9000e- 004		2.9000e- 004	2.9000e- 004	0.0000	34.3875	34.3875	2.4300e- 003	5.6000e- 004	34.6159	
Mobile	0.0378	0.1777	0.3923	1.6900e- 003	0.2035	8.9000e- 004	0.2044	0.0545	8.2000e- 004	0.0553	0.0000	155.0775	155.0775	4.5300e- 003	0.0000	155.1907	
Waste						0.0000	0.0000		0.0000	0.0000	0.7825	0.0000	0.7825	0.0463	0.0000	1.9387	
Water						0.0000	0.0000		0.0000	0.0000	0.3077	0.8875	1.1952	0.0317	7.6000e- 004	2.2135	
Total	0.1059	0.1815	0.3957	1.7100e- 003	0.2035	1.1800e- 003	0.2047	0.0545	1.1100e- 003	0.0556	1.0902	190.3529	191.4430	0.0849	1.3200e- 003	193.9591	

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	68.29	0.00	1.21	62.04	0.00	2.91

Page 3 of 11

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Mitigated	0.0378	0.1777	0.3923	1.6900e- 003	0.2035	8.9000e- 004	0.2044	0.0545	8.2000e- 004	0.0553	0.0000	155.0775	155.0775	4.5300e- 003	0.0000	155.1907
Unmitigated	0.0378	0.1777	0.3923	1.6900e- 003	0.2035	8.9000e- 004	0.2044	0.0545	8.2000e- 004	0.0553	0.0000	155.0775	155.0775		0.0000	155.1907

4.2 Trip Summary Information

	Aver	age Daily Trip I	Rate	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Strip Mall	388.70	368.72	179.22	548,125	548,125
Total	388.70	368.72	179.22	548,125	548,125

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	e %
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Strip Mall	0.607849	0.022927	0.205901	0.103922	0.009867	0.003828	0.022612	0.014637	0.001269	0.001293	0.004540	0.000840	0.000515

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							МТ	-/yr		
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	30.1692	30.1692	2.3500e- 003	4.9000e- 004	30.3725
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	30.1692	30.1692	2.3500e- 003	4.9000e- 004	30.3725
NaturalGas Mitigated	4.3000e- 004	3.8700e- 003	3.2500e- 003	2.0000e- 005		2.9000e- 004	2.9000e- 004		2.9000e- 004	2.9000e- 004	0.0000	4.2183	4.2183	8.0000e- 005	8.0000e- 005	4.2434
NaturalGas Unmitigated	4.3000e- 004	3.8700e- 003	3.2500e- 003	2.0000e- 005		2.9000e- 004	2.9000e- 004		2.9000e- 004	2.9000e- 004	0.0000	4.2183	4.2183	8.0000e- 005	8.0000e- 005	4.2434

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa s Use	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					ton	s/yr							MT	-/yr		
Strip Mall	79048.3	4.3000e- 004	3.8700e- 003	3.2500e- 003	2.0000e- 005		2.9000e- 004	2.9000e- 004		2.9000e- 004	2.9000e- 004	0.0000	4.2183	4.2183	8.0000e- 005	8.0000e- 005	4.2434
Total		4.3000e- 004	3.8700e- 003	3.2500e- 003	2.0000e- 005		2.9000e- 004	2.9000e- 004		2.9000e- 004	2.9000e- 004	0.0000	4.2183	4.2183	8.0000e- 005	8.0000e- 005	4.2434

Mitigated

	NaturalGa s Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					ton	s/yr							MT	/yr		
Strip Mall		004	3.8700e- 003	003	2.0000e- 005		004	2.9000e- 004		2.9000e- 004	2.9000e- 004	0.0000	4.2183		8.0000e- 005	8.0000e- 005	4.2434

Total	4.3000e-	3.8700e-	3.2500e-	2.0000e-	2.9000e-	2.9000e-	2.9000e-	2.9000e-	0.0000	4.2183	4.2183	8.0000e-	8.0000e-	4.2434
	004	003	003	005	004	004	004	004				005	005	
														i

5.3 Energy by Land Use - Electricity <u>Unmitigated</u>

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		MT	Г/уг	
Strip Mall	178373	30.1692	2.3500e- 003	4.9000e- 004	30.3725
Total		30.1692	2.3500e- 003	4.9000e- 004	30.3725

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		M	√yr	
Strip Mall	178373	30.1692	2.3500e- 003	4.9000e- 004	30.3725
Total		30.1692	2.3500e- 003	4.9000e- 004	30.3725

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					ton	s/yr							MT	/yr		
Mitigated	0.0676	0.0000	1.9000e- 004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e- 004	3.6000e- 004	0.0000	0.0000	3.9000e- 004
Unmitigated	0.0676	0.0000	1.9000e- 004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e- 004	3.6000e- 004	0.0000	0.0000	3.9000e- 004

6.2 Area by SubCategory Unmitigated

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					ton	s/yr							MT	/yr		
Architectural Coating	0.0102					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0574					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e- 005	0.0000	1.9000e- 004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e- 004	3.6000e- 004	0.0000	0.0000	3.9000e- 004
Total	0.0676	0.0000	1.9000e- 004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e- 004	3.6000e- 004	0.0000	0.0000	3.9000e- 004

Mitigated

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					ton	s/yr							MT	/yr		

Architectural Coating	0.0102				0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0574				0.0000	0.0000	 0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e- 005	0.0000	1.9000e- 004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.6000e- 004	3.6000e- 004	0.0000	0.0000	3.9000e- 004
Total	0.0676	0.0000	1.9000e- 004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3.6000e- 004	3.6000e- 004	0.0000	0.0000	3.9000e- 004

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e	
Category	MT/yr				
Mitigated	1.1952	0.0317	7.6000e- 004	2.2135	
Unmitigated	1.1952	0.0317	7.6000e- 004	2.2135	

7.2 Water by Land Use <u>Unmitigated</u>

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Strip Mall	0.969738 / 0		0.0317	7.6000e- 004	2.2135
Total		1.1952	0.0317	7.6000e- 004	2.2135

Mitigated

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Strip Mall	0.969738 / 0	1.1952	0.0317	7.6000e- 004	2.2135
Total		1.1952	0.0317	7.6000e- 004	2.2135

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e		
	MT/yr					
Mitigated	0.7825	0.0463	0.0000	1.9387		
Unmitigated	3.1301	0.1850	0.0000	7.7547		

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		M	Γ/yr	
Strip Mall	15.42	3.1301	0.1850	0.0000	7.7547
Total		3.1301	0.1850	0.0000	7.7547

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		МТ	√yr	
Strip Mall	3.855	0.7825	0.0463	0.0000	1.9387
Total		0.7825	0.0463	0.0000	1.9387

9.0 Operational Offroad

Equipment Type Number	Hours/Day Days/Year	Horse Power	Load Factor	Fuel Type
-----------------------	---------------------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	------------------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type Number

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.1 Date: 5/24/2017 11:40 AM

Santa Cruz DRP - Reduced Commercial - Santa Cruz County, Summer

Santa Cruz DRP - Reduced Commercial

Santa Cruz County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Strip Mall	14.69	1000sqft	0.34	14,693.00	0

1.2 Other Project Characteristics

 Urbanization
 Urban
 Wind Speed (m/s)
 1.8
 Precipitation Freq (Days)
 61

 Climate Zone
 5
 Operational Year
 2040

 Utility Company
 Pacific Gas & Electric Company

 CO2 Intensity
 372.88
 CH4 Intensity
 0.029
 N2O Intensity
 0.006

 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)
 (lb/MWhr)

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity adjusted based on 50% RPS by year 2030

Land Use - Amount of commercial uses reduced

Construction Phase - Modeling operations only

Vehicle Trips - Trip rates from TIA adjusted based on City-recommended 40% reduction based on mixed-use in Downtown Santa Cruz

Energy Use - Historical energy use factors assumed for commercial uses to be removed

Water And Wastewater - Water use based on City Water Department

Waste Mitigation - 75% waste diversion consistent with AB 341

Table Name	Column Name	Default Value	New Value
tblLandUse	BuildingSpaceSquareFeet	14,690.00	14,693.00
tblLandUse	LandUseSquareFeet	14,690.00	14,693.00
tblOffRoadEquipment	UsageHours	Page 1 of 7	0.00

tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2018	2040
tblTripsAndVMT	WorkerTripNumber	1.00	0.00
tblVehicleTrips	ST_TR	42.04	25.10
tblVehicleTrips	SU_TR	20.43	12.20
tblVehicleTrips	WD_TR	44.32	26.46
tblWater	IndoorWaterUseRate	1,088,125.34	969,738.00
tblWater	OutdoorWaterUseRate	666,915.53	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category		lb/day									lb/day					
Area	0.3705	1.0000e- 005	1.4900e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005		3.2100e- 003	3.2100e- 003	1.0000e- 005		3.4200e- 003
Energy	2.3400e- 003	0.0212	0.0178	1.3000e- 004		1.6100e- 003	1.6100e- 003		1.6100e- 003	1.6100e- 003		25.4789	25.4789	4.9000e- 004	4.7000e- 004	25.6303
Mobile	0.2513	1.0449	2.3423	0.0105	1.2667	5.3200e- 003	1.2720	0.3383	4.9300e- 003	0.3432		1,065.189 2	1,065.189 2	0.0296		1,065.929 5
Total	0.6242	1.0661	2.3616	0.0106	1.2667	6.9400e- 003	1.2736	0.3383	6.5500e- 003	0.3448		1,090.671 3	1,090.671 3	0.0301	4.7000e- 004	1,091.563 2

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day									lb/day						
Area	0.3705	1.0000e- 005	1.4900e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005		3.2100e- 003	3.2100e- 003	1.0000e- 005		3.4200e- 003
Energy	2.3400e- 003	0.0212	0.0178	1.3000e- 004		1.6100e- 003	1.6100e- 003		1.6100e- 003	1.6100e- 003		25.4789	25.4789	4.9000e- 004	4.7000e- 004	25.6303
Mobile	0.2513	1.0449	2.3423	0.0105	1.2667	5.3200e- 003	1.2720	0.3383	4.9300e- 003	0.3432		1,065.189 2	1,065.189 2	0.0296		1,065.929 5
Total	0.6242	1.0661	2.3616	0.0106	1.2667	6.9400e- 003	1.2736	0.3383	6.5500e- 003	0.3448		1,090.671 3	1,090.671 3	0.0301	4.7000e- 004	1,091.563 2

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/e	day							lb/d	lay		
Mitigated	0.2513	1.0449	2.3423	0.0105	1.2667	5.3200e- 003	1.2720	0.3383	4.9300e- 003	0.3432		1,065.189 2	1,065.189 2	0.0296		1,065.929 5
Unmitigated	0.2513	1.0449	2.3423	0.0105	1.2667	5.3200e- 003	1.2720	0.3383	4.9300e- 003	0.3432		1,065.189 2	1,065.189 2	0.0296		1,065.929 5

4.2 Trip Summary Information

	Aver	age Daily Trip F	Rate	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Strip Mall	388.70	368.72	179.22	548,125	548,125
Total	388.70	368.72	179.22	548,125	548,125

4.3 Trip Type Information

		Miles			Trip %		, , ,		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Strip Mall	0.607849	0.022927	0.205901	0.103922	0.009867	0.003828	0.022612	0.014637	0.001269	0.001293	0.004540	0.000840	0.000515

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	lay		

NaturalGas	2.3400e-	0.0212	0.0178	1.3000e-	1.6100e-	1.6100e-	1.6100e-	1.6100e-	25.4789	25.4789	4.9000e-	4.7000e-	25.6303
Mitigated	003			004	003	003	003	003			004	004	
NaturalGas	2.3400e-	0.0212	0.0178	1.3000e-	 1.6100e-	1.6100e-	 1.6100e-	1.6100e-	 25.4789	25.4789	4.9000e-	4.7000e-	25.6303
NaturaiGas	2.34000-	0.0212	0.0176	1.3000e-	1.6100e-	1.61006-	1.6100e-	1.6100e-	25.4769	25.4769	4.9000e-	4.70000	25.6303
Unmitigated	003			004	003	003	003	003			004	004	

5.2 Energy by Land Use - NaturalGas <u>Unmitigated</u>

	NaturalGa s Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					lb/e	day							lb/d	day		
Strip Mall	216.571	2.3400e- 003	0.0212	0.0178	1.3000e- 004		1.6100e- 003	1.6100e- 003		1.6100e- 003	1.6100e- 003		25.4789	25.4789	4.9000e- 004	4.7000e- 004	25.6303
Total		2.3400e- 003	0.0212	0.0178	1.3000e- 004		1.6100e- 003	1.6100e- 003		1.6100e- 003	1.6100e- 003		25.4789	25.4789	4.9000e- 004	4.7000e- 004	25.6303

Mitigated

	NaturalGa s Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					lb/	day							lb/c	day		
Strip Mall	0.216571	2.3400e- 003	0.0212	0.0178	1.3000e- 004		1.6100e- 003	1.6100e- 003		1.6100e- 003	1.6100e- 003		25.4789	25.4789	4.9000e- 004	4.7000e- 004	25.6303
Total		2.3400e- 003	0.0212	0.0178	1.3000e- 004		1.6100e- 003	1.6100e- 003		1.6100e- 003	1.6100e- 003		25.4789	25.4789	4.9000e- 004	4.7000e- 004	25.6303

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/c	lay		
Mitigated	0.3705	1.0000e- 005	1.4900e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005		3.2100e- 003	3.2100e- 003	1.0000e- 005		3.4200e- 003
Unmitigated	0.3705	1.0000e- 005	1.4900e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005		3.2100e- 003	3.2100e- 003	1.0000e- 005		3.4200e- 003

6.2 Area by SubCategory Unmitigated

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					lb/d	day							lb/d	lay		
Architectural Coating	0.0560					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3144					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.4000e- 004	1.0000e- 005	1.4900e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005		3.2100e- 003	3.2100e- 003	1.0000e- 005		3.4200e- 003
Total	0.3706	1.0000e- 005	1.4900e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005		3.2100e- 003	3.2100e- 003	1.0000e- 005		3.4200e- 003

Mitigated

ROG NOx CO SO2 Fugitive Exhaust PM10 Fugitive Exhaust PM2.5 Bio-CO2 NBio-CO2 Total CO2 CF PM10 PM10 Total PM2.5 PM2.5 Total	4 N2O CO2	O2e
-----------------------------------------------------------------------------------------------------------------------------	-----------	-----

Page 6 of 7

SubCategory					lb/c	day					lb/d	lay	
Architectural Coating	0.0560					0.0000	0.0000	0.0000	0.0000		0.0000		0.0000
Consumer Products	0.3144					0.0000	0.0000	0.0000	0.0000		0.0000		0.0000
Landscaping	1.4000e- 004	1.0000e- 005	1.4900e- 003	0.0000		1.0000e- 005	1.0000e- 005	1.0000e- 005	1.0000e- 005	3.2100e- 003	3.2100e- 003	1.0000e- 005	3.4200e- 003
Total	0.3706	1.0000e- 005	1.4900e- 003	0.0000		1.0000e- 005	1.0000e- 005	1.0000e- 005	1.0000e- 005	3.2100e- 003	3.2100e- 003	1.0000e- 005	3.4200e- 003

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.1 Date: 5/24/2017 11:41 AM

Santa Cruz DRP - Reduced Commercial - Santa Cruz County, Winter

Santa Cruz DRP - Reduced Commercial Santa Cruz County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Strip Mall	14.69	1000sqft	0.34	14,693.00	0

1.2 Other Project Characteristics

Urbanization Urban Wind Speed (m/s) 1.8 Precipitation Freq (Days) 61 Climate Zone 5 **Operational Year** 2040 Pacific Gas & Electric Company **Utility Company** CO2 Intensity 372.88 **CH4 Intensity** 0.029 N2O Intensity 0.006 (lb/MWhr) (lb/MWhr) (lb/MWhr)

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity adjusted based on 50% RPS by year 2030

Land Use - Amount of commercial uses reduced

Construction Phase - Modeling operations only

Vehicle Trips - Trip rates from TIA adjusted based on City-recommended 40% reduction based on mixed-use in Downtown Santa Cruz

Energy Use - Historical energy use factors assumed for commercial uses to be removed

Water And Wastewater - Water use based on City Water Department

Waste Mitigation - 75% waste diversion consistent with AB 341

Table Name	Column Name	Default Value	New Value
tblLandUse	BuildingSpaceSquareFeet	14,690.00	14,693.00
tblLandUse	LandUseSquareFeet	14,690.00	14,693.00
tblOffRoadEquipment	UsageHours	Page 1 of 7	0.00

tblProjectCharacteristics	CO2IntensityFactor	641.35	372.88
tblProjectCharacteristics	OperationalYear	2018	2040
tblTripsAndVMT	WorkerTripNumber	1.00	0.00
tblVehicleTrips	ST_TR	42.04	25.10
tblVehicleTrips	SU_TR	20.43	12.20
tblVehicleTrips	WD_TR	44.32	26.46
tblWater	IndoorWaterUseRate	1,088,125.34	969,738.00
tblWater	OutdoorWaterUseRate	666,915.53	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day								lb/day							
Area	0.3705	1.0000e- 005	1.4900e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005		3.2100e- 003	3.2100e- 003	1.0000e- 005		3.4200e- 003
Energy	2.3400e- 003	0.0212	0.0178	1.3000e- 004		1.6100e- 003	1.6100e- 003		1.6100e- 003	1.6100e- 003		25.4789	25.4789	4.9000e- 004	4.7000e- 004	25.6303
Mobile	0.2229	1.0772	2.4956	0.0101	1.2667	5.3300e- 003	1.2720	0.3383	4.9500e- 003	0.3432		1,022.269 7	1,022.269 7	0.0308		1,023.039 4
Total	0.5958	1.0985	2.5149	0.0102	1.2667	6.9500e- 003	1.2736	0.3383	6.5700e- 003	0.3449		1,047.751 9	1,047.751 9	0.0313	4.7000e- 004	1,048.673 1

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day									lb/day						
Area	0.3705	1.0000e- 005	1.4900e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005		3.2100e- 003	3.2100e- 003	1.0000e- 005		3.4200e- 003
Energy	2.3400e- 003	0.0212	0.0178	1.3000e- 004		1.6100e- 003	1.6100e- 003		1.6100e- 003	1.6100e- 003		25.4789	25.4789	4.9000e- 004	4.7000e- 004	25.6303
Mobile	0.2229	1.0772	2.4956	0.0101	1.2667	5.3300e- 003	1.2720	0.3383	4.9500e- 003	0.3432		1,022.269 7	1,022.269 7	0.0308		1,023.039 4
Total	0.5958	1.0985	2.5149	0.0102	1.2667	6.9500e- 003	1.2736	0.3383	6.5700e- 003	0.3449		1,047.751 9	1,047.751 9	0.0313	4.7000e- 004	1,048.673 1

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	lay		
Mitigated	0.2229	1.0772	2.4956	0.0101	1.2667	5.3300e- 003	1.2720	0.3383	4.9500e- 003	0.3432		1,022.269 7	1,022.269 7	0.0308		1,023.039 4
Unmitigated	0.2229	1.0772	2.4956	0.0101	1.2667	5.3300e- 003	1.2720	0.3383	4.9500e- 003	0.3432		1,022.269 7	1,022.269 7	0.0308		1,023.039 4

4.2 Trip Summary Information

	Aver	age Daily Trip I	Rate	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Strip Mall	388.70	368.72	179.22	548,125	548,125
Total	388.70	368.72	179.22	548,125	548,125

4.3 Trip Type Information

		Miles			Trip %		Trip Purpose %				
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by		
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15		

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Strip Mall	0.607849	0.022927	0.205901	0.103922	0.009867	0.003828	0.022612	0.014637	0.001269	0.001293	0.004540	0.000840	0.000515

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	СО	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	ay		
NaturalGas Mitigated	2.3400e- 003	0.0212	0.0178	1.3000e- 004		1.6100e- 003	1.6100e- 003		1.6100e- 003	1.6100e- 003		25.4789	25.4789	4.9000e- 004	4.7000e- 004	25.6303
NaturalGas Unmitigated	2.3400e- 003	0.0212	0.0178	1.3000e- 004		1.6100e- 003	1.6100e- 003	l	1.6100e- Pag ^{eβ3} 4 c	1.6100e- f 7 ⁰⁰³		25.4789	25.4789	4.9000e- 004	4.7000e- 004	25.6303

5.2 Energy by Land Use - NaturalGas <u>Unmitigated</u>

	NaturalGa s Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					lb/	day							lb/c	lay		
Strip Mall	216.571	2.3400e- 003	0.0212	0.0178	1.3000e- 004		1.6100e- 003	1.6100e- 003		1.6100e- 003	1.6100e- 003		25.4789	25.4789	4.9000e- 004	4.7000e- 004	25.6303
Total		2.3400e- 003	0.0212	0.0178	1.3000e- 004		1.6100e- 003	1.6100e- 003		1.6100e- 003	1.6100e- 003		25.4789	25.4789	4.9000e- 004	4.7000e- 004	25.6303

Mitigated

	NaturalGa s Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr					lb/e	day							lb/d	day		
Strip Mall	0.216571	2.3400e- 003	0.0212	0.0178	1.3000e- 004		1.6100e- 003	1.6100e- 003		1.6100e- 003	1.6100e- 003		25.4789	25.4789	4.9000e- 004	4.7000e- 004	25.6303
Total		2.3400e- 003	0.0212	0.0178	1.3000e- 004		1.6100e- 003	1.6100e- 003		1.6100e- 003	1.6100e- 003		25.4789	25.4789	4.9000e- 004	4.7000e- 004	25.6303

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category					lb/d	day							lb/d	lay		
Mitigated	0.3705	1.0000e- 005	1.4900e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005		3.2100e- 003	3.2100e- 003	1.0000e- 005		3.4200e- 003
Unmitigated	0.3705	1.0000e- 005	1.4900e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005		3.2100e- 003	3.2100e- 003	1.0000e- 005		3.4200e- 003

6.2 Area by SubCategory Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					lb/d	day							lb/c	lay		
Architectural Coating	0.0560					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3144					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.4000e- 004	1.0000e- 005	1.4900e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005		3.2100e- 003	3.2100e- 003	1.0000e- 005		3.4200e- 003
Total	0.3706	1.0000e- 005	1.4900e- 003	0.0000		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005		3.2100e- 003	3.2100e- 003	1.0000e- 005		3.4200e- 003

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory					lb/d	day							lb/d	ay		

												, ,, ,
Architectural	0.0560				0.0000	0.0000	0.0000	0.0000		0.0000		0.0000
Coating												
Consumer	0.3144				0.0000	0.0000	0.0000	0.0000		0.0000		0.0000
Products												
Landscaping	1.4000e-	1.0000e-	1.4900e-	0.0000	1.0000e-	1.0000e-	1.0000e-	1.0000e-	3.2100e-		1.0000e-	3.4200e-
	004	005	003		005	005	005	005	003	003	005	003
Total	0.3706	1.0000e-	1.4900e-	0.0000	1.0000e-	1.0000e-	1.0000e-	1.0000e-		3.2100e-	1.0000e-	3.4200e-
		005	003		005	005	005	005	003	003	005	003

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

CalEEMod Version: CalEEMod.2016.3.1

Date: 5/24/2017 11:43 AM

Santa Cruz DRP - Reduced Commercial Santa Cruz County, Mitigation Report

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Percent Reduction													
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00		
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	-0.01	0.13		
No	Land Use	Improve Walkability Design	0.00			

No	Land Use	Improve Destination Accessibility	0.00	
No	Land Use	Increase Transit Accessibility	0.25	
No	Land Use	Integrate Below Market Rate Housing	0.00	
	Land Use	Land Use SubTotal	0.00	
No	Neighborhood Enhancements	Improve Pedestrian Network		
No	Neighborhood Enhancements	Provide Traffic Calming Measures		
No	Neighborhood Enhancements	Implement NEV Network	0.00	
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00	
No	Parking Policy Pricing	Limit Parking Supply	0.00	
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	
No	Parking Policy Pricing	On-street Market Pricing	0.00	
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00	
No	Transit Improvements	Provide BRT System	0.00	
No	Transit Improvements	Expand Transit Network	0.00	
No	Transit Improvements	Increase Transit Frequency	0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00	
		Land Use and Site Enhancement Subtotal	0.00	
No	Commute	Implement Trip Reduction Program		
No	Commute	Transit Subsidy		
No	Commute	Implement Employee Parking "Cash Out"		
No	Commute	Workplace Parking Charge		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00	
No	Commute	Market Commute Trip Reduction Option	0.00	
No	Commute	Employee Vanpool/Shuttle	0.00	2.00
No	Commute	Provide Ride Sharing Program Page 2 of 4		

	Commute	Commute Subtotal	0.00		
No	School Trip	Implement School Bus Program	0.00		
		Total VMT Reduction	0.00		

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	100.00
No	Use Low VOC Paint (Non-residential Interior)	150.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	Use Low VOC Paint (Parking)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	(1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00

Page 3 of 4

Fan	50.00
Refrigerator	15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	75.00

APPENDIX F Traffic Memo

Level of Service Calculations are available on CD & City Website at:

 $\underline{\text{http://www.cityofsantacruz.com/government/city-departments/planning-and-community-development-}} \\ \underline{\text{2/environmental-documents}}$



MEMORANDUM

To: Ron Powers, City of Santa Cruz

From: Frederik Venter, Reaa Ali, Kimley-Horn

Date: May 10, 2017

Subject: Santa Cruz Downtown Recovery Plan Amendment – Traffic Study

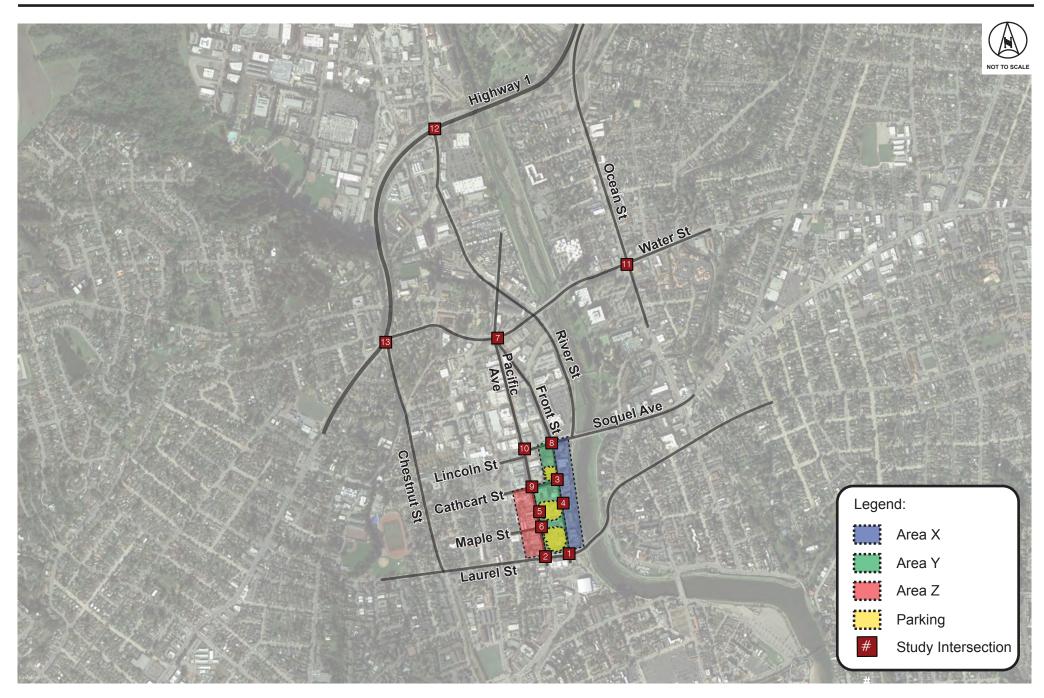
This memorandum contains the traffic analysis for the Downtown Recovery Plan Project (Project), located in the City of Santa Cruz Downtown area. The objective of this project is to evaluate the traffic and circulation impacts of increasing the building densities and land use changes in Downtown Santa Cruz. The study area bounded by the San Lorenzo River, Soquel Avenue in the north, Laurel Street in the south, and the first block immediately west of Pacific Avenue. The Pacific Avenue portion of the study area is bounded by Cathcart Street on the north and Laurel Street on the south. The Front Street portion of the study area is bounded by Soquel Avenue on the north and Laurel Street on the south. The study area is divided into three areas defined as Areas X, Y, and Z for traffic assignment and analysis purposes. **Figure 1** shows the Study Area.

The traffic analysis contained in this memorandum evaluates the addition of the Downtown Recovery Plan Specific Plan to the existing conditions and cumulative conditions. This memorandum discusses the results of the traffic volumes and LOS developed for the following development scenarios and peak periods:

- 1. Existing (AM and PM)
- 2. Existing plus Project (AM and PM)
- 3. Cumulative plus Project (PM only) The City General Plan was only developed for the PM peak hour, which represents the worst-case analysis. The PM peak hour volumes are typically higher in the PM compared to the AM peak hour.

The following intersections are included in the study:

- 1. Front Street and Laurel Street
- 2. Pacific Avenue and Laurel Street
- 3. Front Street and Cathcart Street
- 4. Front Street and Metro Station Access
- 5. Pacific Avenue and Metro Station Access
- 6. Pacific Avenue and Maple Street
- 7. Pacific Avenue and Front Street/Mission-Water Street
- 8. Front Street and Soquel Avenue
- 9. Pacific Avenue and Cathcart Street
- 10. Soquel Avenue and Pacific Avenue
- 11. Ocean Street and Water Street
- 12. Highway 1 and Highway 9
- 13. Chestnut Street and Mission Street





TRAFFIC VOLUMES/DATA COLLECTION

Intersection turning movement counts were collected for the AM (7:00 am - 9:00 am) and PM (4:00 pm - 6:00 pm) peak periods during the weekday when local schools were in session. Some data previously available was also used in the technical analysis. Previously available data was utilized for Intersections 1, 2, 3, 4, 8, and 11. The traffic counts for these intersections were collected on Thursday, May 22, 2014. For intersections 5, 6, 7, 9, 10, 12, and 13, data collection was conducted on Tuesday, November 17, 2015.

Cumulative conditions volumes were obtained from the City of Santa Cruz 2030 General Plan (GP) (PM peak hour only). This development scenario accounts for growth per the General Plan including growth for the University of Santa Cruz and also newer approved projects in and around the downtown area which were not reflected in the GP. The latter resulted in an approximate 5% increase in GP volumes at the study intersections.

TRIP GENERATION

The number of trips anticipated to be generated by the proposed project were derived using trip generation rates obtained from Appendix C of the City's General Plan for the Downtown area. The proposed project is understood to consist of commercial, office, and residential (townhomes and apartments) land uses. Since the General Plan only specifies the daily and PM peak hour trip rates, the AM peak hour trip rates were calculated by applying the proportion of the AM peak hour trip rate to the daily rate for these land uses as found in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 9th Edition. The following land use codes (LU) from the ITE *Trip Generation Manual* were used: Shopping Center (LU 820) for commercial; General Office Building (LU 710) for office; Residential Condominium/Townhouse (LU 230) for townhomes; and Apartment (LU 220) for apartments.

Trip generation calculations were performed by study area – Area X, Y, and Z of the project, and include a 40% trip reduction for mixed use development in the Downtown Area. The reductions are generated by proximity to the Transit center, mixed use development and, bicycle use and walking trips. The area also proposes added parking in downtown. Additional trips were assumed to be generated by the parking structure as indicted in the trip generation table. The added trips were based on the anticipated parking spaces that would not be utilized by the new land uses in the DRP and accounted for approximately 20% of the spaces at 85% parking occupancy, which is conservative. The anticipated trip generation characteristics for the proposed project are depicted in **Table 1**.

The proposed project trips were distributed on the transportation network based on distribution percentages provided by the City of Santa Cruz. **Figure 2** shows the in and out percent distribution near the project. The resulting AM and PM peak-hour traffic volumes attributed to the proposed project are illustrated in **Figure 3**.



Table 1. Project Trip Generation

			WEEKDAY		AM PEAK	HOUR ²				PM PEAK	PM PEAK HOUR			
Land Uses	Pı	roject Size ⁶	Daily Trips	Total Peak Hour	% Of ADT	IN		OUT	Total Peak Hour	% Of ADT	IN		OUT	
City of Santa Cruz General Plan 2030 Future City	y Buildout	Trip Generation R	ates ¹											
Commercial		1,000 Sq Ft	44.32	1.00	2%	62%	/	38%	2.71	6%	44%	/	56%	
Office		1,000 Sq Ft	11.01	1.56	14%	88%	/	12%	1.49	14%	17%	/	83%	
Townhomes ³		Dwelling Unit(s)	7.50	0.51	7%	22%	/	78%	0.62	8%	65%	/	35%	
Apartments		Dwelling Unit(s)	6.65	0.51	8%	20%	/	80%	0.62	9%	65%	/	35%	
Trips Generated														
Area X - Riverfront														
Commercial	11.171	1,000 Sq Ft	496	11		7	/	4	30		13	/	17	
Office	18.296	1,000 Sq Ft	202	29		26	/	3	27		5	/	22	
Townhomes	321	Dwelling Unit(s)	2,408	164		36	/	128	199		129	/	70	
Apartments	0	Dwelling Unit(s)	0	0		0	/	0	0		0	/	0	
Total Area X Trips			3,106	204		69	/	135	256		147	/	109	
40% Reduction for Downtown Area 4			(1,242)	(82)		(28)	/	(54)	(102)		(59)	/	(44)	
Net Area X Trips			1,864	122		41	/	81	154		88	/	65	
Area Y - E. Pacific/W. Front Pacific Station														
Commercial	(27.864)	1,000 Sq Ft	(1,236)	(28)		(17)	/	(11)	(76)		(33)	/	(43)	
Office	(16.105)	1,000 Sq Ft	(178)	(25)		(22)	/	(3)	(24)		(4)	/	(20)	
Townhomes	0	Dwelling Unit(s)	0	0		0	/	0	0		0	/	0	
Apartments	370	Dwelling Unit(s)	2,462	189		38	/	151	229		149	/	80	
Total Area Y Trips			1,048	136		(1)	/	137	129		112	/	17	
40% Reduction for Downtown Area 4			(419)	(54)		0	/	(55)	(52)		(45)	/	(7)	
Parking Garage Added Trips 5				26		20	/	6	52		26	/	26	
Net Area Y Trips			629	108		19	/	88	129		93	/	36	
Area Z - W. Pacific														
Commercial	2	1,000 Sq Ft	90	2		1	/	1	5		2	/	3	
Office	0	1,000 Sq Ft	0	0		0	/	0	0		0	/	0	
Townhomes	0	Dwelling Unit(s)	0	0		0	/	0	0		0	/	0	
Apartments	20	Dwelling Unit(s)	134	10		2	/	8	12		8	/	4	
Total Area Z Trips			224	12		3	/	9	17		10	/	7	
40% Reduction for Downtown Area 4			(90)	(5)		(1)	/	(4)	(7)		(4)	/	(3)	
Net Area Z Trips			134	7		2	/	5	10		6	/	4	
Total New Downtown Recovery Plan Buildout Trips			2,627	237		63	/	174	293		188	/	106	

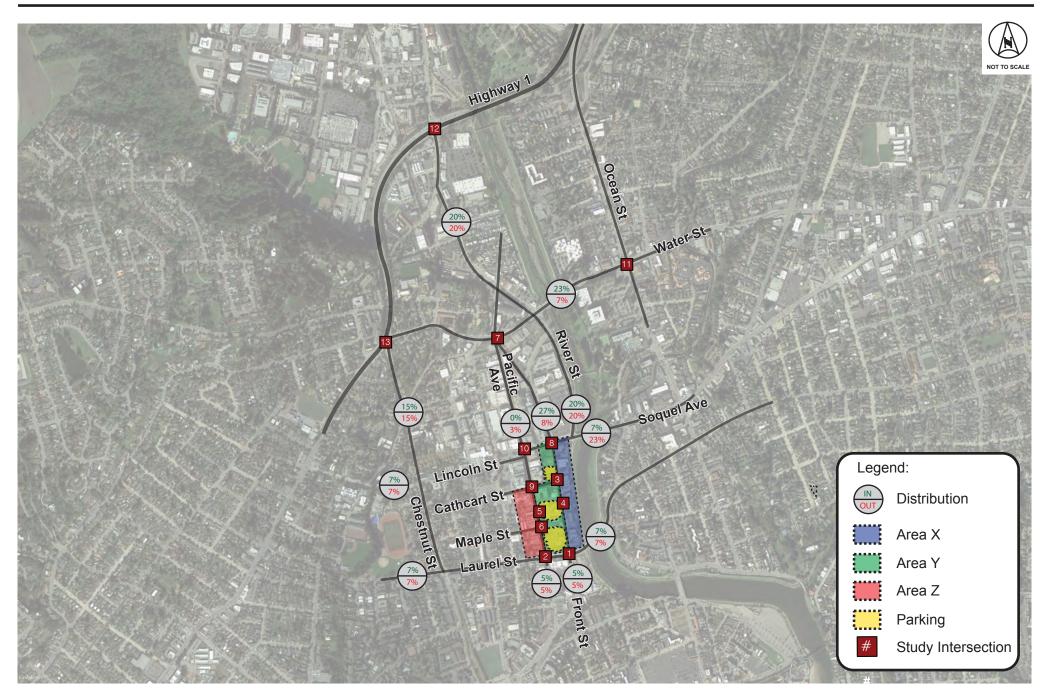
Notes:

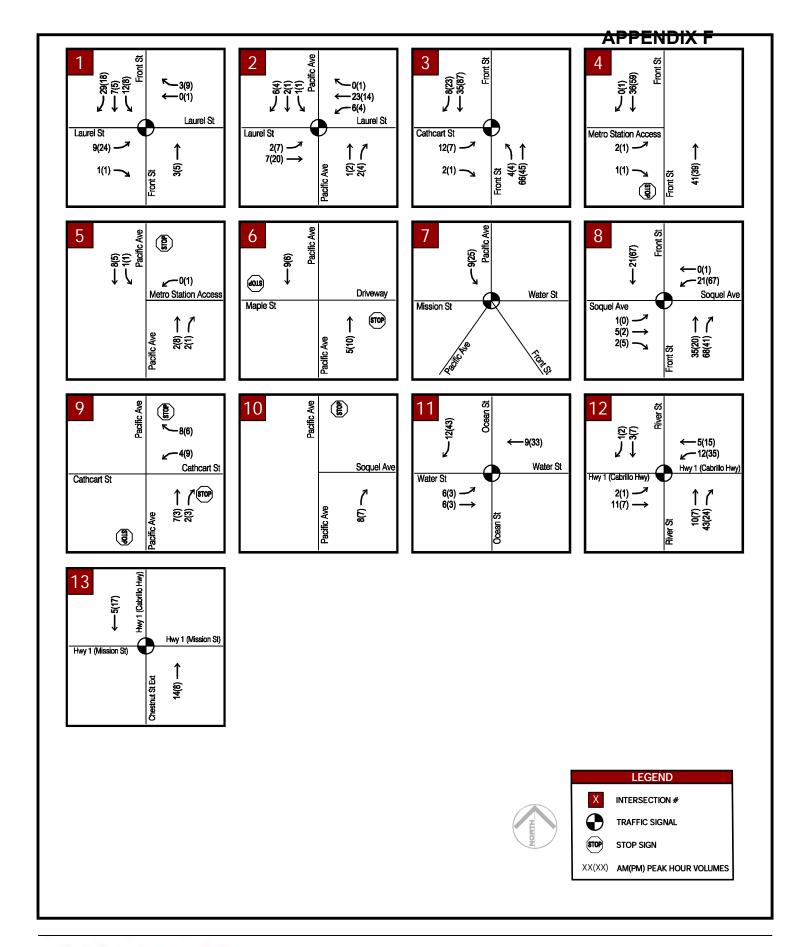
- 1. Trip generation rates obtained from Appendix C of the City of Santa Cruz General Plan 2030 Draft EIR, September 2011.
- 2. The AM Peak Hour rates for Commercial, Office, Townhomes, and Apartment uses was calculated by applying the proportion of the AM peak hour rate to the daily rate for Shopping Center (LUC 820), General Office Building (LUC 710), Residential Condominium/Townhouse (LU 230), and Apartment (LUC 220), respectively. The in/out percentages for the uses were obtained from these same ITE LUCs. 3. ITE Land Use 270 Rates used for Townhomes per City direction (email correspondence with Ron Marquez dated 04/22/16).
- 4.40% Reduction for mixed use development in Downtown Santa Cruz per City direction (email correspondence with Ron Marquez dated 04/22/16).
- 5. Required parking per City Code= 414+880+871=2,165 spaces. With 20% reduction=1,732, so 259 aditional spaces (1,991-1,732) that will generate traffic. 10% in the AM peak = 26 trips, 20% in the PM peak = 52 trips.
- 6. Total project size can be obtained by calculating the sum of each land use for Area X, Area Y, and Area Z.

Commercial land use = 11,171 sf + (-27,864 sf) + 2,000 sf = -14,693 sf

Office land use = 18,296 sf + (-16,105 sf) + 0 sf = +2,191 sfResidential land use = 321 units + 370 units + 20 units = +711 units











TRAFFIC IMPACT ANALYSIS METHODOLOGY

Consistent with the City of Santa Cruz TIA Guidelines, the concept of Level of Service (LOS) is utilized to analyze both the signalized and unsignalized study intersections. The LOS of a transportation facility is a qualitative measure used to describe operational conditions. LOS ranges from A (best), which represents minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity. As defined in Section 4.4 of the City of Santa Cruz 2030 General Plan Draft EIR, 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, due to environmental, economic, and/or feasibility constraints with implementing improvements at certain major regional intersections, the City accepts a lower LOS at these locations under the current General Plan per existing Circulation Policy 5.1.2. The threshold for each study intersection is specified in the LOS analysis tables below.

Intersection Levels of Service for this study were determined using methods defined in the *Highway Capacity Manual, 2010 and 2000 (HCM)*, and appropriate traffic analysis software. The *HCM* includes procedures for analyzing side-street stop controlled (SASS), all-way stop controlled (AWSC), and signalized intersections and *HCM 2010* uses multimodal analysis principles (bicycle and pedestrians). The SASS procedure defines LOS as a function of average control delay for each minor street approach movement. Conversely, the AWSC and signalized intersection procedures define LOS as a function of average control delay for the intersection. *HCM 2010* was used for all intersections except for Intersection 7 due to the presence of a fifth approach at this location, which HCM 2010 cannot analyze correctly and *HCM 2000* was used to analyze this study intersection.



EXISTING AND EXISTING PLUS PROJECT CONDITIONS

Traffic volumes for Existing conditions were obtained from traffic counts. Peak-hour traffic associated with the proposed Downtown Recovery Plan amendments was added to the Existing traffic volumes to generate traffic volumes for Existing plus Project conditions.

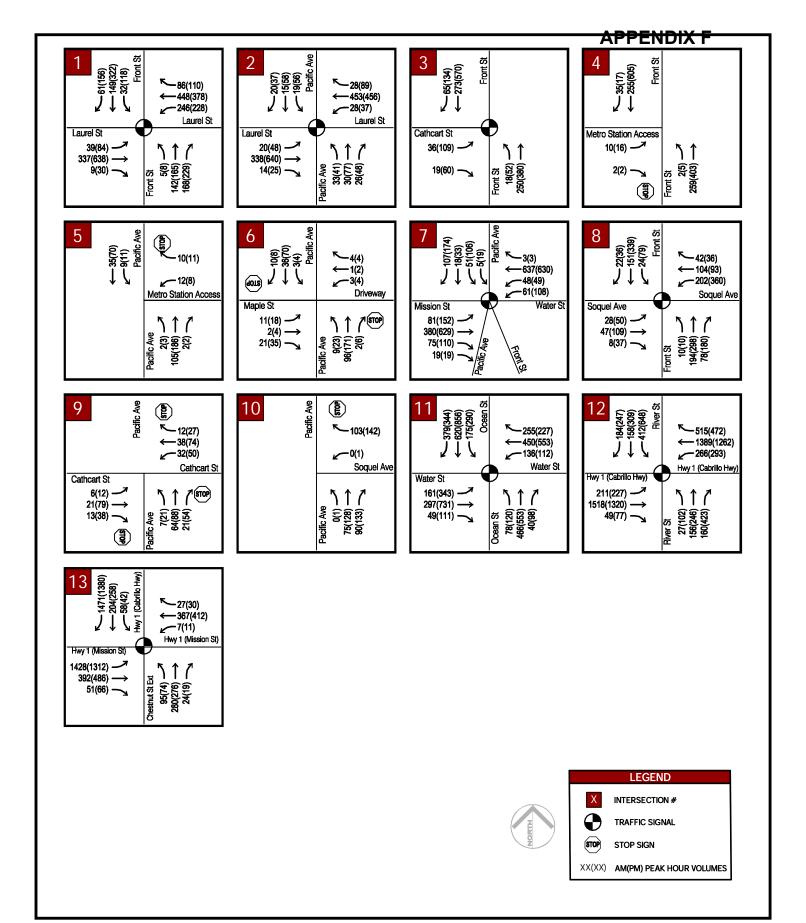
Figures 4 and 5 show the volumes at the study intersections under Existing and Existing plus Project conditions.

Table 2 below presents the peak-hour intersection operating conditions for the Existing and Existing plus Project development scenarios.

As indicated in **Table 2**, the study intersections operate at LOS A through LOS F under Existing conditions and with the addition of project traffic during the AM and PM peak hours. The addition of project trips does not worsen the LOS at the study intersections lower than the minimum acceptable LOS accept at the following intersection.

Intersection #12, Highway 1/Highway 9, is currently operating at LOS E and would continue to operate at LOS E with the addition of the project.

Intersection #13, Chestnut Street/Mission Street, is currently operating at LOS F in the AM peak hour and LOS E in the PM peak hour, and would continue to operate at these conditions with the addition of the project.



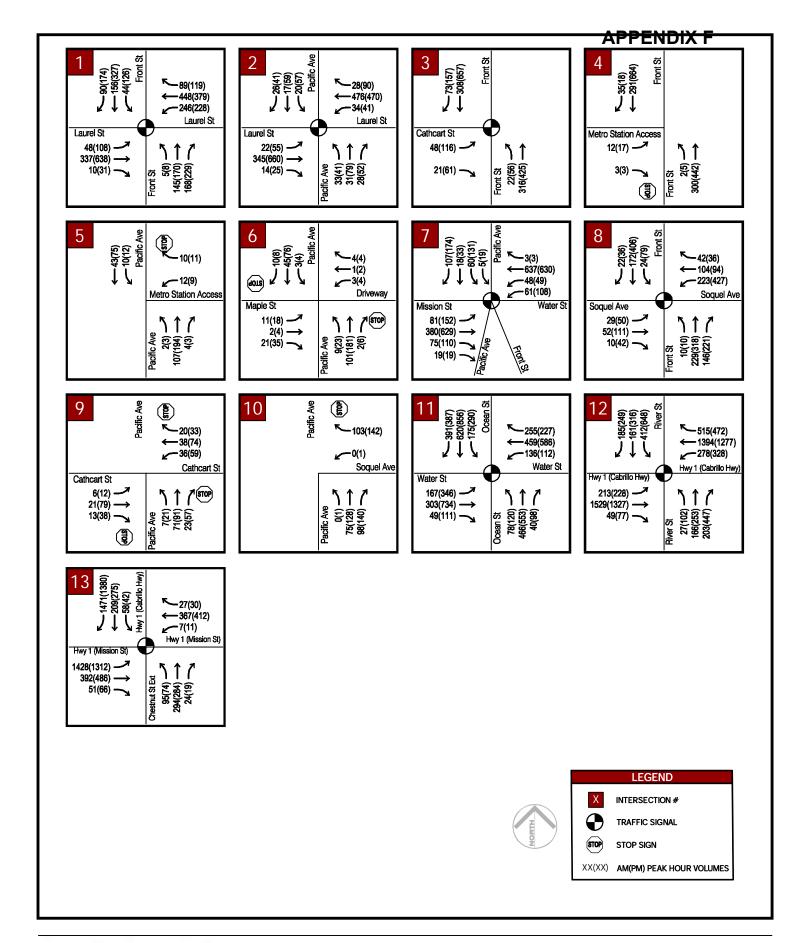






Table 2. Existing and Existing plus Project Conditions Levels of Service

			City of		Existing Conditions ¹						Existing Plus Project Conditions ¹						
#	Intersection	Control Type	Santa Cruz	AM Peak Hour		PM Peak Hour			AM Peak Hour			PM Peak Hour					
			Threshold ²	Movement	Delay ³	LOS	Movement	Delay ³	LOS	Movement	Delay ³	LOS	Movement	Delay ³	LOS		
1	Front Street / Laurel Street	Signal	D	Overall	26.4	С	Overall	30.8	С	Overall	27.2	С	Overall	31.2	С		
2	Pacific Avenue / Laurel Street	Signal	D	Overall	14.5	В	Overall	17.9	В	Overall	15.0	В	Overall	18.5	В		
3	Front Street / Cathcart Street	Signal	D	Overall	16.2	В	Overall	19.0	В	Overall	16.2	В	Overall	18.9	В		
4	Front Street / Metro Station Access	Signal	D	Overall	5.3	Α	Overall	4.9	Α	Overall	6.0	Α	Overall	5.1	Α		
5	Pacific Avenue /	SSSC	D	Overall	1.7	Α	Overall	1.1	Α	Overall	1.6	Α	Overall	1.1	Α		
5	Metro Station Access	Worst Approach	D	WB	9.5	Α	WB	11.4	В	WB	9.6	Α	WB	11.6	В		
6	Pacific Avenue / Maple Street	AWSC	D	Overall	7.6	Α	Overall	8.1	Α	Overall	7.7	Α	Overall	8.2	Α		
7	Pacific Avenue / Front Street / Mission-Water Street	Signal	D	Overall	17.7	В	Overall	20.2	С	Overall	17.7	В	Overall	21.1	С		
8	Front Street / Soquel Avenue	Signal	D	Overall	18.6	В	Overall	21.9	С	Overall	19.2	В	Overall	23.1	С		
9	Pacific Avenue / Cathcart Street	AWSC	D	Overall	8.0	Α	Overall	8.8	Α	Overall	8.1	Α	Overall	8.9	Α		
10	Soquel Avenue /	SSSC	D	Overall	3.7	Α	Overall	3.6	Α	Overall	3.6	Α	Overall	3.6	Α		
10	Pacific Avenue	Worst Approach	D	WB	9.6	Α	WB	10.3	В	WB	9.7	Α	WB	10.3	В		
11	Ocean Street / Water Street	Signal	F	Overall	22.6	С	Overall	35.3	D	Overall	22.8	С	Overall	35.6	D		
12	Highway 1 / Highway 9	Signal	F	Overall	58.0	Е	Overall	71.7	E	Overall	59.5	E	Overall	74.1	Е		
13	Chestnut Street / Mission Street	Signal	F	Overall	140.9	F	Overall	74.1	E	Overall	140.4	F	Overall	73.8	E		

Notes:

^{1.} Analysis performed using HCM 2010 methodologies, except for Intersection 7 where HCM 2000 methodology was applied.

^{2.} The City of Santa Cruz has established LOS D as the minimum acceptable LOS for overall intersection operations during the AM and PM peak hours. However, under the existing General Plan, the City accepts a lower LOS (F) at some major regional intersections per existing Circulation Policy 5.1.2.

^{3.} Delay indicated in seconds/vehicle.

^{4.} Intersections that fall below City standard are shown in **bold**.



CUMULATIVE PLUS PROJECT CONDITIONS

Peak-hour traffic volumes for Cumulative conditions were obtained from the City of Santa Cruz 2030 General Plan and include the growth anticipated by the University of Santa Cruz. These volumes were increased by an additional 5% at all approaches except at the bus driveways to account for other currently planned projects not envisioned in the General Plan Environmental Impact Report.

Figure 6 shows the traffic volumes at the study intersections under this development scenario. Planned improvements, included in the City Traffic Impact Fee Program, was assumed to be constructed for GP scenario analysis.

Peak-hour traffic associated with the proposed Downtown Recovery Plan amendments was added to the Cumulative traffic volumes and Levels of Service were determined at the study intersections.

Table 3 presents the peak-hour intersection operating conditions for this analysis scenario.

As indicated in **Table 3**, the study intersections operate at LOS A through LOS F during the PM peak hour.

- Intersection #1, Front Street and Laurel Street, would fail in the PM peak hour
- Intersection #2, Pacific Avenue and Laurel Street, would fail in the PM peak hour
- Intersection #8, Front Street and Soquel Avenue, would fail in the PM peak hour
- Intersection #11, Ocean Street and Water Street, would fail in the PM peak hour
- Intersection #12, Highway 1/Highway 9, would fail in the PM peak hour
- Intersection #13, Chestnut Street/Mission Street, would fail in the PM peak hour.

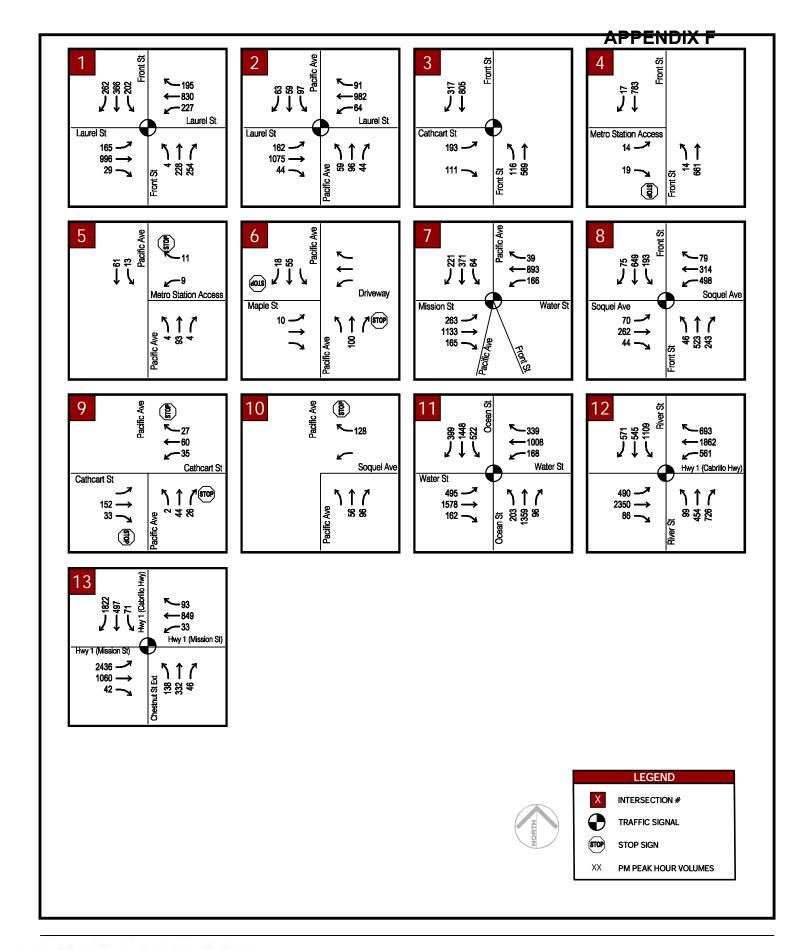


Table 3. Cumulative plus Project Conditions Levels of Service

#	Intersection	Control Type	City of Santa Cruz Threshold ²	Cumulative Plus Project Conditions ¹		
				PM Peak Hour		
				Movement	Delay ³	LOS
1	Front Street / Laurel Street	Signal	D	Overall	100.2	F
2	Pacific Avenue / Laurel Street	Signal	D	Overall	105.9	F
3	Front Street / Cathcart Street	Signal	D	Overall	23.5	С
4	Front Street / Metro Station Access	Signal	D	Overall	6.4	Α
5	Pacific Avenue / Metro Station Access	SSSC	D	Overall	1.7	Α
		Worst Approach	D	WB	10.5	В
6	Pacific Avenue / Maple Street	AWSC	D	Overall	7.7	Α
7	Pacific Avenue / Front Street / Mission-Water Street	Signal	D	Overall	32.3	С
8	Front Street / Soquel Avenue	Signal	D	Overall	59.9	E
9	Pacific Avenue / Cathcart Street	AWSC	D	Overall	8.3	Α
10	Soquel Avenue / Pacific Avenue	SSSC	D	Overall	4.3	Α
		Worst Approach	D	WB	9.5	Α
11	Ocean Street / Water Street	Signal	F	Overall	228.1	F
12	Highway 1 / Highway 9	Signal	F	Overall	269.2	F
13	Chestnut Street / Mission Street	Signal	F	Overall	344.0	F

Notes:

- 1. Analysis performed using HCM 2010 methodologies, except for Intersection 7 where HCM 2000 methodology was applied.
- 2. The City of Santa Cruz has established LOS D as the minimum acceptable LOS for overall intersection operations during the AM and PM peak hours. However, under the existing General Plan, the City accepts a lower LOS (F) at some major regional intersections per existing Circulation Policy 5.1.2.
- 3. Delay indicated in seconds/vehicle.
- 4. Intersection geometry under cumulative plus project conditions was improved at the following intersections per modifications noted under the City's Capital Improvement Projects list: Highway 1 & Highway 9; Ocean Street & Water Street; and Chestnut Street and Mission Street.
- 5. Intersections that fall below City standard are shown in **bold**.





APPENDIX F





APPENDICES

Appendix A. Synchro Analysis Reports

Appendix B. Synchro Timing Reports

APPENDIX F



Page 16

Appendix A

Synchro Analysis Reports

	۶	→	•	√	-	•	•	†	<u></u>	<u> </u>	+	√
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ř	∱ ∱		Ŋ	†	7	ň	†	7	۲	†	7
Traffic Volume (veh/h)	39	337	9	246	448	86	5	142	168	32	149	61
Future Volume (veh/h)	39	337	9	246	448	86	5	142	168	32	149	61
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1853	1900	1845	1863	1845	1583	1827	1881	1743	1827	1792
Adj Flow Rate, veh/h	42	366	10	267	487	93	5	154	183	35	162	66
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	2	2	3	2	3	20	4	1	9	4	6
Cap, veh/h	375	1466	40	317	710	597	8	285	249	46	326	272
Arrive On Green	0.22	0.42	0.42	0.18	0.38	0.38	0.01	0.16	0.16	0.03	0.18	0.18
Sat Flow, veh/h	1723	3501	95	1757	1863	1568	1508	1827	1599	1660	1827	1524
Grp Volume(v), veh/h	42	184	192	267	487	93	5	154	183	35	162	66
Grp Sat Flow(s), veh/h/ln	1723	1760	1836	1757	1863	1568	1508	1827	1599	1660	1827	1524
Q Serve(g_s), s	1.4	5.0	5.0	10.8	16.1	2.9	0.2	5.7	8.0	1.5	5.9	2.7
Cycle Q Clear(g_c), s	1.4	5.0	5.0	10.8	16.1	2.9	0.2	5.7	8.0	1.5	5.9	2.7
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	375	737	769	317	710	597	8	285	249	46	326	272
V/C Ratio(X)	0.11	0.25	0.25	0.84	0.69	0.16	0.63	0.54	0.73	0.76	0.50	0.24
Avail Cap(c_a), veh/h	375	737	769	502	710	597	82	398	348	90	398	332
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.0	13.9	13.9	29.1	19.1	15.0	36.5	28.6	29.6	35.5	27.2	25.9
Incr Delay (d2), s/veh	0.6	0.8	0.8	7.4	5.3	0.6	60.5	1.6	4.9	22.0	1.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.6	2.7	5.8	9.3	1.3	0.2	3.0	3.9	1.0	3.1	1.2
LnGrp Delay(d),s/veh	23.7	14.7	14.7	36.5	24.4	15.5	97.0	30.2	34.5	57.5	28.4	26.4
LnGrp LOS	С	В	В	D	С	В	F	С	С	Е	С	С
Approach Vol, veh/h		418			847			342			263	
Approach Delay, s/veh		15.6			27.2			33.5			31.8	
Approach LOS		В			С			С			С	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.2	34.8	4.4	17.1	20.0	32.0	6.0	15.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	21.0	23.0	4.0	16.0	16.0	28.0	4.0	16.0				
Max Q Clear Time (g_c+l1), s	12.8	7.0	2.2	7.9	3.4	18.1	3.5	10.0				
Green Ext Time (p_c), s	0.5	5.2	0.0	1.7	0.0	4.0	0.0	1.4				
Intersection Summary	0.0	J.E		,								
			26.4									
HCM 2010 Ctrl Delay			26.4 C									
HCM 2010 LOS			C									

		_		←	•	•	†	<u></u>	_	1	7
Movement EBL	EBT	EBR	₩BL	WBT	WBR	NBL	NBT	/ NBR	SBL	SBT	SBR
	<u>LB1</u>	LDK	VVDL	₩ <u>₩</u>	WDK	NDL	TAD I	NDK	SDL	3B1 ♣	SDK
Lane Configurations 7 Traffic Volume (veh/h) 20	338	14	28	453	28	33	30	26	19	15	20
, ,	338	14	28	453	28	33	30	26	19	15	20
Future Volume (veh/h) 20 Number 5	2	12	1	455	16	3	8	18	7	4	14
Initial Q (Qb), veh 0	0	0	0	0	0	0	0	0	0	0	0
• •	U	1.00	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00
Ped-Bike Adj(A_pbT) 1.00	1.00			1.00			1.00		1.00	1.00	
Parking Bus, Adj 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Adj Sat Flow, veh/h/ln 1520	1872	1900	1845	1862	1900	1900	1549	1900	1900 22	1630	1900
Adj Flow Rate, veh/h 23	393	16	33	527	33	38	35	30		17	23
Adj No. of Lanes 1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor 0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, % 25	1	1	3	2	2	0	13	13	13	13	13
Cap, veh/h 85	946	38	103	918	57	446	181	156	160	118	121
Arrive On Green 0.06	0.53	0.53	0.06	0.53	0.53	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h 1448	1786	73	1757	1734	109	1389	771	661	374	501	516
Grp Volume(v), veh/h 23	0	409	33	0	560	38	0	65	62	0	0
Grp Sat Flow(s), veh/h/ln1448	0	1859	1757	0	1843	1389	0	1432	1390	0	0
Q Serve(g_s), s 1.0	0.0	9.0	1.2	0.0	14.0	0.0	0.0	2.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s 1.0	0.0	9.0	1.2	0.0	14.0	1.1	0.0	2.5	2.2	0.0	0.0
Prop In Lane 1.00		0.04	1.00		0.06	1.00		0.46	0.35		0.37
Lane Grp Cap(c), veh/h 85	0	984	103	0	975	446	0	337	399	0	0
V/C Ratio(X) 0.27	0.00	0.42	0.32	0.00	0.57	0.09	0.00	0.19	0.16	0.00	0.00
Avail Cap(c_a), veh/h 341	0	984	413	0	975	446	0	337	399	0	0
HCM Platoon Ratio 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I) 1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh 30.6	0.0	9.7	30.7	0.0	10.8	20.3	0.0	20.8	20.7	0.0	0.0
Incr Delay (d2), s/veh 1.7	0.0	1.3	1.8	0.0	2.5	0.4	0.0	1.3	0.8	0.0	0.0
Initial Q Delay(d3),s/veh 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln0.5	0.0	4.9	0.6	0.0	7.7	0.6	0.0	1.1	1.0	0.0	0.0
LnGrp Delay(d),s/veh 32.3	0.0	10.9	32.4	0.0	13.3	20.7	0.0	22.1	21.6	0.0	0.0
LnGrp LOS C		В	С		В	С		С	С		
Approach Vol, veh/h	432			593			103			62	
Approach Delay, s/veh	12.1			14.3			21.6			21.6	
Approach LOS	В			В			С			С	
Timer 1	2	3	4	5	6	7	8				
Assigned Phs 1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s8.0	40.0		20.0	8.0	40.0		20.0				
Change Period (Y+Rc), s 4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmak), &	36.0		16.0	16.0	36.0		16.0				
Max Q Clear Time (q_c+l13,2			4.2	3.0	16.0		4.5				
Green Ext Time (p_c), s 0.0	7.0		0.6	0.0	6.5		0.5				
ų — <i>,</i>	7.0		0.0	0.0	0.0		0.0				
Intersection Summary		4									
HCM 2010 Ctrl Delay		14.5									
HCM 2010 LOS		В									

		`	•	†	Ţ	1	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	LDL	LDIX.	NDL	ND1	↑ ↑	JUIN	
Traffic Volume (veh/h)	36	19	18	250	273	65	
, ,	36	19	18	250	273	65	
Future Volume (veh/h)						14	
Number	5	12 0	3	8	4		
Initial Q (Qb), veh				0	U	1.00	
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1638	1810	1712	1743	1706	1900	
Adj Flow Rate, veh/h	41	22	21	287	314	75	
Adj No. of Lanes	1	1	1	1	2	0	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %	16	5	11	9	11	11	
Cap, veh/h	440	434	345	1087	950	224	
Arrive On Green	0.28	0.28	0.21	0.62	0.36	0.36	
Sat Flow, veh/h	1560	1538	1630	1743	2690	613	
Grp Volume(v), veh/h	41	22	21	287	194	195	ľ
Grp Sat Flow(s), veh/h/li		1538	1630	1743	1620	1598	
Q Serve(g_s), s	1.6	0.9	0.9	6.3	7.3	7.5	
Cycle Q Clear(q_c), s	1.6	0.9	0.9	6.3	7.3	7.5	
J 10_ /				0.3	7.3		
Prop In Lane	1.00	1.00	1.00	4007	E04	0.38	
Lane Grp Cap(c), veh/h		434	345	1087	591	583	
V/C Ratio(X)	0.09	0.05	0.06	0.26	0.33	0.34	
Avail Cap(c_a), veh/h	440	434	345	1087	591	583	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/vel	h 22.5	22.2	26.8	7.2	19.5	19.5	
Incr Delay (d2), s/veh	0.4	0.2	0.3	0.1	1.5	1.6	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),vel		0.4	0.4	3.1	3.5	3.6	
LnGrp Delay(d),s/veh	22.9	22.4	27.1	7.3	21.0	21.1	
	22.9 C	22.4 C	27.1 C		21.0 C	C C	
LnGrp LOS		C	U	A 200		C	
Approach Vol, veh/h	63			308	389		
Approach Delay, s/veh				8.7	21.0		
Approach LOS	С			Α	С		
Timer	1	2	3	4	5	6	
Assigned Phs		2	3	4			
Phs Duration (G+Y+Rc)) s	28.0	22.0	35.0			
Change Period (Y+Rc),		4.0	4.0	4.0			
Max Green Setting (Gm		24.0	18.0	31.0			
			2.9				
Max Q Clear Time (g_c		3.6		9.5			
Green Ext Time (p_c), s	>	0.1	0.0	4.2			
Intersection Summary							
HCM 2010 Ctrl Delay			16.2				
HCM 2010 LOS			В				
=			_				

	<u> </u>		•	+	 	1			
Movement	_	€BR	NBL	I NDT	♦ SBT	SBR			
Movement Lane Configurations	EBL W	EDK	NBL	NBT		SBK			
Lane Configurations		2		250	255	25			
Traffic Volume (veh/h)	10	2	2	259	255	35			
Future Volume (veh/h)	10	2	2	259	255	35			
Number	5	12	3	8	4	14			
Initial Q (Qb), veh	1.00	1.00	1.00	0	0	1.00			
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00	1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	950	1900	950	1810	1632	1900			
Adj Flow Rate, veh/h	12	2	2	305	300	41			
Adj No. of Lanes	0	0	1	1	1	0			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85			
Percent Heavy Veh, %	0	0	100	5	5	5			
Cap, veh/h	11	2	563	1425	1108	151			
Arrive On Green	0.02	0.02	0.79	0.79	0.79	0.79			
Sat Flow, veh/h	715	119	528	1810	1406	192			
Grp Volume(v), veh/h	15	0	2	305	0	341			
Grp Sat Flow(s), veh/h/li		0	528	1810	0	1598			
Q Serve(g_s), s	0.6	0.0	0.0	1.7	0.0	2.3			
Cycle Q Clear(g_c), s	0.6	0.0	2.4	1.7	0.0	2.3			
Prop In Lane	0.80	0.13	1.00			0.12			
Lane Grp Cap(c), veh/h		0	563	1425	0	1259			
V/C Ratio(X)	1.10	0.00	0.00	0.21	0.00	0.27			
Avail Cap(c_a), veh/h	440	0	563	1425	0	1259			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/vel	h 20.0	0.0	1.5	1.1	0.0	1.2			
Incr Delay (d2), s/veh		0.0	0.0	0.3	0.0	0.5			
Initial Q Delay(d3),s/vel		0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),vel		0.0	0.0	1.0	0.0	1.1			
LnGrp Delay(d),s/veh		0.0	1.5	1.4	0.0	1.7			
LnGrp LOS	F		A	Α		Α			
Approach Vol, veh/h	15			307	341				
Approach Delay, s/veh				1.4	1.7				
Approach LOS	F			A	Α				
• •									
Timer	1	2	3	4	5	6	7	8	
Assigned Phs		2		4				8	
Phs Duration (G+Y+Rc)		4.6		36.0				6.0	
Change Period (Y+Rc),		4.0		4.0				4.0	
Max Green Setting (Gm		20.0		32.0			3	2.0	
Max Q Clear Time (g_c	+I1), s	2.6		4.3				4.4	
Green Ext Time (p_c), s	S	0.0		4.3				4.3	
Intersection Summary									
HCM 2010 Ctrl Delay			5.3						
HCM 2010 LOS			Α						
Notes									
User approved volume	balanci	ing amo	na the	lanes fo	or turnir	na move	ement.		
COST approved voidine	~ararro	ig arric	g tilo	.3110010	. tarrill	.9			

Intersection							
	1.7						
Movement	WBL	WBR		NBT	NBR	SBL	SBT
Lane Configurations	W			f)			र्स
Traffic Vol, veh/h	12	10		105	2	9	35
Future Vol, veh/h	12	10		105	2	9	35
Conflicting Peds, #/hr	0	0		0	0	0	0
Sign Control	Stop	Stop		Free	Free	Free	Free
RT Channelized	-	None		-	None	-	None
Storage Length	0	-		-	-	-	-
Veh in Median Storage, #	0	-		0	-	-	0
Grade, %	0	-		0	-	-	0
Peak Hour Factor	81	81		81	81	81	81
Heavy Vehicles, %	12	10		13	100	100	8
Mvmt Flow	15	12		130	2	11	43
Major/Minor	Minor1			Major1		Major2	
Conflicting Flow All	196	131		0	0	132	0
Stage 1	131	-		-	-	-	_
Stage 2	65	-		-	-	-	-
Critical Hdwy	6.52	6.3		-	-	5.1	-
Critical Hdwy Stg 1	5.52	-		-	-	-	-
Critical Hdwy Stg 2	5.52	-		-	-	-	-
Follow-up Hdwy	3.608	3.39		-	-	3.1	-
Pot Cap-1 Maneuver	771	898		-	-	1019	-
Stage 1	871	-		-	-	-	-
Stage 2	933	-		-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	763	898		-	-	1019	-
Mov Cap-2 Maneuver	763	-		-	-	-	-
Stage 1	871	-		_	-	-	-
Stage 2	923	-		-	-	-	-
Approach	WB			NB		SB	
HCM Control Delay, s	9.5			0		1.8	
HCM LOS	Α.						
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT			
Capacity (veh/h)	-		1019	-			
HCM Lane V/C Ratio	_	- 0.033		_			
HCM Control Delay (s)	_	- 9.5	8.6	0			
HCM Lane LOS	_	- A	Α	A			
HCM 95th %tile Q(veh)	_	- 0.1	0	-			
		0.1					

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	Α

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			4				4				4	
Traffic Vol, veh/h	0	11	2	21	0	3	1	4	0	9	96	2
Future Vol, veh/h	0	11	2	21	0	3	1	4	0	9	96	2
Peak Hour Factor	0.92	0.80	0.80	0.80	0.92	0.80	0.80	0.80	0.92	0.80	0.80	0.80
Heavy Vehicles, %	2	9	50	14	2	33	0	0	2	0	16	0
Mvmt Flow	0	14	3	26	0	4	1	5	0	11	120	3
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach		EB				WB				NB		
Opposing Approach		WB				EB				SB		
Opposing Lanes		1				1				1		
Conflicting Approach Left		SB				NB				EB		
Conflicting Lanes Left		1				1				1		
Conflicting Approach Right		NB				SB				WB		
Conflicting Lanes Right		1				1				1		
HCM Control Delay		7.4				7.8				7.8		
HCM LOS		Α				Α				Α		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	8%	32%	38%	6%	
Vol Thru, %	90%	6%	12%	73%	
Vol Right, %	2%	62%	50%	20%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	107	34	8	49	
LT Vol	9	11	3	3	
Through Vol	96	2	1	36	
RT Vol	2	21	4	10	
Lane Flow Rate	134	42	10	61	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.15	0.048	0.013	0.068	
Departure Headway (Hd)	4.044	4.09	4.606	3.983	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Cap	884	862	766	892	
Service Time	2.083	2.179	2.703	2.038	
HCM Lane V/C Ratio	0.152	0.049	0.013	0.068	
HCM Control Delay	7.8	7.4	7.8	7.3	
HCM Lane LOS	Α	Α	Α	Α	
HCM 95th-tile Q	0.5	0.2	0	0.2	

Intersection						
Intersection Delay, s/veh						
Intersection LOS						
Movement	CRII	SBI	CRT	CRD		

Movement	SBU	SBL	SBT	SBR
Lane Configurations			4	
Traffic Vol, veh/h	0	3	36	10
Future Vol, veh/h	0	3	36	10
Peak Hour Factor	0.92	0.80	0.80	0.80
Heavy Vehicles, %	2	0	41	10
Mvmt Flow	0	4	45	13
Number of Lanes	0	0	1	0
Approach		SB		
Opposing Approach		NB		
Opposing Lanes		1		
Conflicting Approach Left		WB		
Conflicting Lanes Left		1		
Conflicting Approach Right		EB		
Conflicting Lanes Right		1		
HCM Control Delay		7.3		
HCM LOS		Α		

Santa Cruz DRP Study 7: Pacific Street & Front Street & Mission Street/Water Street

	۶	→	7(•	~	•	+	•	/	Ļ	↓	- ✓
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	SBL2	SBL	SBT	SBR
Lane Configurations	ሻ	^	Ž.		ň	ሻ	∱ 1≽				4	7
Traffic Volume (vph)	81	380	75	19	61	48	637	3	5	51	18	107
Future Volume (vph)	81	380	75	19	61	48	637	3	5	51	18	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0				4.0	4.0
Lane Util. Factor	1.00	0.95	1.00		1.00	1.00	0.95				1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	1.00				1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	0.95	1.00				0.96	1.00
Satd. Flow (prot)	1736	3471	1524		1597	1770	3537				1619	1599
Flt Permitted	0.95	1.00	1.00		0.95	0.95	1.00				0.96	1.00
Satd. Flow (perm)	1736	3471	1524		1597	1770	3537				1619	1599
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	91	427	84	21	69	54	716	3	6	57	20	120
RTOR Reduction (vph)	0	0	31	0	0	0	1	0	0	0	0	88
Lane Group Flow (vph)	91	427	74	0	69	54	718	0	0	0	83	32
Heavy Vehicles (%)	4%	4%	5%	10%	13%	2%	2%	0%	0%	19%	0%	1%
Turn Type	Prot	NA	Perm		Prot	Prot	NA		Perm	Perm	NA	Perm
Protected Phases	5	2			1	1	6				8	
Permitted Phases			2						8	8		8
Actuated Green, G (s)	8.2	40.9	40.9		7.6	7.6	40.3				22.1	22.1
Effective Green, g (s)	8.2	40.9	40.9		7.6	7.6	40.3				22.1	22.1
Actuated g/C Ratio	0.10	0.50	0.50		0.09	0.09	0.49				0.27	0.27
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0	4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0				3.0	3.0
Lane Grp Cap (vph)	172	1718	754		146	162	1725				433	427
v/s Ratio Prot	c0.05	0.12			0.04	0.03	c0.20					
v/s Ratio Perm			0.05								0.05	0.02
v/c Ratio	0.53	0.25	0.10		0.47	0.33	0.42				0.19	0.08
Uniform Delay, d1	35.4	12.0	11.1		35.6	35.1	13.6				23.4	22.6
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00
Incremental Delay, d2	2.9	0.1	0.1		2.4	1.2	0.7				1.0	0.3
Delay (s)	38.3	12.1	11.1		38.0	36.3	14.3				24.3	23.0
Level of Service	D	В	В		D	D	В				С	С
Approach Delay (s)		15.7					17.7				23.5	
Approach LOS		В					В				С	
Intersection Summary												
HCM 2000 Control Delay			17.7	H	ICM 2000	Level of	Service		В			
HCM 2000 Volume to Capa	city ratio		0.36	_								
Actuated Cycle Length (s)			82.6		um of lost				12.0			
Intersection Capacity Utiliza	tion		36.2%	[(CU Level o	of Service			Α			
Analysis Period (min)			15									
c Critical Lane Group												

Kimley-Horn HCM Signalized Intersection Capacity Analysis

	ၨ	→	•	•	←	•	•	†	~	\	Ţ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		414		*	4	7		414		ሻ	1>	
Traffic Volume (veh/h)	28	47	8	202	104	42	10	194	78	24	151	22
Future Volume (veh/h)	28	47	8	202	104	42	10	194	78	24	151	22
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1837	1900	1792	1827	1827	1900	1729	1900	1638	1607	1900
Adj Flow Rate, veh/h	33	55	9	178	201	0	12	226	91	28	176	26
Adj No. of Lanes	0	2	0	1	1	1	0	2	0	1	1	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	6	3	4	8	8	8	16	19	19
Cap, veh/h	62	109	18	929	994	845	71	469	180	223	288	43
Arrive On Green	0.05	0.05	0.05	0.54	0.54	0.00	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1156	2054	346	1707	1827	1553	45	2227	853	931	1369	202
Grp Volume(v), veh/h	51	0	46	178	201	0	177	0	152	28	0	202
Grp Sat Flow(s),veh/h/lr		0	1776	1707	1827	1553	1702	0	1422	931	0	1571
Q Serve(g_s), s	1.7	0.0	1.6	3.3	3.5	0.0	0.0	0.0	5.9	1.7	0.0	7.3
Cycle Q Clear(q_c), s	1.7	0.0	1.6	3.3	3.5	0.0	5.6	0.0	5.9	7.6	0.0	7.3
Prop In Lane	0.65		0.19	1.00		1.00	0.07		0.60	1.00		0.13
Lane Grp Cap(c), veh/h		0	95	929	994	845	420	0	300	223	0	331
V/C Ratio(X)	0.54	0.00	0.49	0.19	0.20	0.00	0.42	0.00	0.51	0.13	0.00	0.61
Avail Cap(c_a), veh/h	541	0	540	929	994	845	1001	0	797	549	0	880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Jpstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veł		0.0	28.8	7.2	7.3	0.0	21.7	0.0	21.8	25.2	0.0	22.3
Incr Delay (d2), s/veh	4.6	0.0	3.9	0.5	0.5	0.0	0.7	0.0	1.3	0.2	0.0	1.8
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),vel		0.0	0.9	1.7	1.9	0.0	2.7	0.0	2.4	0.5	0.0	3.3
LnGrp Delay(d),s/veh	33.5	0.0	32.6	7.7	7.8	0.0	22.4	0.0	23.1	25.4	0.0	24.2
LnGrp LOS	С		С	Α	Α		С		С	С		С
Approach Vol, veh/h		97			379			329			230	
Approach Delay, s/veh		33.0			7.7			22.7			24.3	
Approach LOS		С			Α			С			С	
imer	1	2	3	4	5	6	7	8				
Assigned Phs		2	<u> </u>	4	<u> </u>	6	-	8				
Phs Duration (G+Y+Rc)	S .	7.3		17.2		38.0		17.2				
Change Period (Y+Rc),		4.0		4.0		4.0		4.0				
Max Green Setting (Gm		19.0		35.0		34.0		35.0				
Max Q Clear Time (g_c		3.7		9.6		5.5		7.9				
Green Ext Time (p_c), s		0.4		3.6		1.7		3.6				
ntersection Summary												
ICM 2010 Ctrl Delay			18.6									
ICM 2010 CIT Delay			В									
Notes	halanci	ina ama	na tha	lance fo	or turnir	na move	mont					
User approved volume I	valaliü	ny and	my me	iai162 [(ภ เนเไม่ไ	ig move	ment.					

		•

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	Α

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			4				4				4					
Traffic Vol, veh/h	0	6	21	13	0	32	38	12	0	7	64	21	0	0	0	0
Future Vol, veh/h	0	6	21	13	0	32	38	12	0	7	64	21	0	0	0	0
Peak Hour Factor	0.92	0.81	0.81	0.81	0.92	0.81	0.81	0.81	0.92	0.81	0.81	0.81	0.92	0.81	0.81	0.81
Heavy Vehicles, %	2	16	9	15	2	28	2	25	2	0	4	28	2	0	0	0
Mvmt Flow	0	7	26	16	0	40	47	15	0	9	79	26	0	0	0	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0

Approach	EB	WB	NB	
Opposing Approach	WB	EB		
Opposing Lanes	1	1	0	
Conflicting Approach Left		NB	EB	
Conflicting Lanes Left	0	1	1	
Conflicting Approach Right	NB		WB	
Conflicting Lanes Right	1	0	1	
HCM Control Delay	7.7	8.4	7.8	
HCM LOS	Α	Α	А	

Lane	NBLn1	EBLn1\	VBLn1
Vol Left, %	8%	15%	39%
Vol Thru, %	70%	53%	46%
Vol Right, %	23%	33%	15%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	92	40	82
LT Vol	7	6	32
Through Vol	64	21	38
RT Vol	21	13	12
Lane Flow Rate	114	49	101
Geometry Grp	1	1	1
Degree of Util (X)	0.131	0.059	0.129
Departure Headway (Hd)	4.14	4.285	4.605
Convergence, Y/N	Yes	Yes	Yes
Cap	871	823	771
Service Time	2.14	2.38	2.678
HCM Lane V/C Ratio	0.131	0.06	0.131
HCM Control Delay	7.8	7.7	8.4
HCM Lane LOS	Α	А	Α
HCM 95th-tile Q	0.5	0.2	0.4

Kimley-Horn Synchro 9 Report HCM 2010 AWSC Page 10

Intersection						
	3.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		7	(1			
Traffic Vol, veh/h	0	103	75	90	0	0
Future Vol, veh/h	0	103	75	90	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	-
Grade, %	0	-	0	-	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	4	6	5	0	0
Mvmt Flow	0	123	89	107	0	0
Major/Minor	Minor1		Major1			
Conflicting Flow All	-	143	0	0		
Stage 1	-	-	-	-		
Stage 2	-	-	-	-		
Critical Hdwy	-	6.24	-	-		
Critical Hdwy Stg 1	-	-	-	-		
Critical Hdwy Stg 2	-	-	-	-		
Follow-up Hdwy	-	3.336	-	-		
Pot Cap-1 Maneuver	0	899	-	-		
Stage 1	0	-	-	-		
Stage 2	0	-	-	-		
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	899	-	-		
Mov Cap-2 Maneuver	-	-	-	-		
Stage 1	-	-	-	-		
Stage 2	-	-	-	-		
Approach	WB		NB			
HCM Control Delay, s	9.6		0			
HCM LOS	7.0 A		0			
TIOW E03	,,					
Minor Lano/Major Mumt	NBT	NBRWBLn1				
Minor Lane/Major Mvmt	INDT					
Capacity (veh/h)	-	- 899				
HCM Captrol Doloy (c)	-	- 0.136				
HCM Lang LOS	-	- 9.6				
HCM CEth (Villa O(vah)	-	- A - 0.5				
HCM 95th %tile Q(veh)	-	- 0.5				

	•	→	•	•	—	•	•	†	<i>></i>	<u> </u>	+	/
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1,1	∱ ∱		¥	^	7	Ť	^	7	¥	^	7
Traffic Volume (veh/h)	161	297	49	136	450	255	78	466	40	175	620	379
Future Volume (veh/h)	161	297	49	136	450	255	78	466	40	175	620	379
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1822	1900	1881	1827	1863	1845	1845	1900	1863	1845	1845
Adj Flow Rate, veh/h	173	319	53	146	484	0	84	501	43	188	667	0
Adj No. of Lanes	2	2	0	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	4	4	4	1	4	2	3	3	0	2	3	3
Cap, veh/h	276	664	109	191	861	393	109	991	457	241	1250	559
Arrive On Green	0.08	0.22	0.22	0.11	0.25	0.00	0.06	0.28	0.28	0.14	0.36	0.00
Sat Flow, veh/h	3375	2977	489	1792	3471	1583	1757	3505	1615	1774	3505	1568
Grp Volume(v), veh/h	173	184	188	146	484	0	84	501	43	188	667	0
Grp Sat Flow(s), veh/h/ln	1688	1731	1736	1792	1736	1583	1757	1752	1615	1774	1752	1568
Q Serve(g_s), s	3.2	5.9	6.0	5.0	7.8	0.0	3.0	7.6	1.2	6.5	9.6	0.0
Cycle Q Clear(g_c), s	3.2	5.9	6.0	5.0	7.8	0.0	3.0	7.6	1.2	6.5	9.6	0.0
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	276	386	387	191	861	393	109	991	457	241	1250	559
V/C Ratio(X)	0.63	0.48	0.49	0.76	0.56	0.00	0.77	0.51	0.09	0.78	0.53	0.00
Avail Cap(c_a), veh/h	689	734	736	619	1963	895	386	1652	761	697	2257	1010
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.3	21.5	21.5	27.6	20.9	0.0	29.4	19.1	16.8	26.6	16.3	0.0
Incr Delay (d2), s/veh	2.3	0.9	0.9	6.2	0.6	0.0	10.9	0.4	0.1	5.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.9	3.0	2.8	3.8	0.0	1.8	3.7	0.6	3.5	4.7	0.0
LnGrp Delay(d),s/veh	30.6	22.4	22.5	33.8	21.5	0.0	40.3	19.5	16.9	32.0	16.6	0.0
LnGrp LOS	С	С	С	С	С		D	В	В	С	В	
Approach Vol, veh/h		545			630			628			855	
Approach Delay, s/veh		25.0			24.4			22.1			20.0	
Approach LOS		С			С			С			С	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	18.2	7.9	26.7	9.2	19.8	12.6	22.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	22.0	27.0	14.0	41.0	13.0	36.0	25.0	30.0				
Max Q Clear Time (g_c+l1), s	7.0	8.0	5.0	11.6	5.2	9.8	8.5	9.6				
Green Ext Time (p_c), s	0.3	5.4	0.1	9.7	0.3	6.0	0.5	8.4				
Intersection Summary	3.0	J	J	,,,	J.5	3.0	3.0	J				
HCM 2010 Ctrl Delay			22.6									
HCM 2010 Cur Delay			22.6 C									
HCIVI 2010 LOS			C									

	_											
J	•	-	•	•	•	•	1	†	~	-	ţ	4
Movement EB	3L	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሽ	ተተኈ		44	ተተተ	7	ሻ	↑	77	44	↑	7
Traffic Volume (veh/h) 21	11	1518	49	266	1389	515	27	156	160	412	158	184
Future Volume (veh/h) 21	11	1518	49	266	1389	515	27	156	160	412	158	184
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT) 1.0	00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj 1.0	00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln 184	45	1845	1900	1827	1827	1792	1712	1810	1810	1610	1727	1743
Adj Flow Rate, veh/h 21	18	1565	0	274	1432	0	28	161	165	425	163	190
Adj No. of Lanes	1	3	0	2	3	1	1	1	2	2	1	1
Peak Hour Factor 0.9	97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	4	4	6	11	5	5	18	10	9
Cap, veh/h 23	38	2388	0	314	2154	658	235	261	391	613	356	305
Arrive On Green 0.1	14	0.47	0.00	0.09	0.43	0.00	0.14	0.14	0.14	0.21	0.21	0.21
Sat Flow, veh/h 175	57	5204	0	3375	4988	1524	1630	1810	2707	2975	1727	1482
Grp Volume(v), veh/h 21	18	1565	0	274	1432	0	28	161	165	425	163	190
Grp Sat Flow(s), veh/h/ln175		1679	0	1688	1663	1524	1630	1810	1354	1487	1727	1482
Q Serve(g_s), s 23		46.0	0.0	15.5	44.4	0.0	2.9	16.2	10.8	25.7	16.1	22.7
Cycle Q Clear(g_c), s 23		46.0	0.0	15.5	44.4	0.0	2.9	16.2	10.8	25.7	16.1	22.7
Prop In Lane 1.0			0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h 23	38	2388	0	314	2154	658	235	261	391	613	356	305
V/C Ratio(X) 0.9		0.66	0.00	0.87	0.66	0.00	0.12	0.62	0.42	0.69	0.46	0.62
	44	2388	0	417	2154	658	235	261	391	613	356	305
HCM Platoon Ratio 1.0	00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I) 1.0	00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh 82	8.2	38.9	0.0	86.9	43.9	0.0	72.3	78.0	75.7	71.3	67.5	70.1
Incr Delay (d2), s/veh 22		1.4	0.0	14.4	1.6	0.0	1.0	10.5	3.3	6.3	4.2	9.2
Initial Q Delay(d3),s/veh 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/1/1/3		21.6	0.0	7.9	20.7	0.0	1.4	8.9	4.2	11.1	8.1	10.1
LnGrp Delay(d),s/veh 105	5.2	40.4	0.0	101.3	45.6	0.0	73.3	88.4	79.0	77.7	71.7	79.4
LnGrp LOS	F	D		F	D		Е	F	Е	Е	Е	Е
Approach Vol, veh/h		1783			1706			354			778	
Approach Delay, s/veh		48.3			54.5			82.8			76.8	
Approach LOS		D			D			F			Ε	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	<u> </u>	4	5	6		8				
Phs Duration (G+Y+Rc), 32		96.0		32.0	30.2	87.8		44.0				
Change Period (Y+Rc), s 4		4.0		4.0	4.0	4.0		44.0				
Max Green Setting (Gmax),		92.0		28.0	38.0	78.0		40.0				
Max Q Clear Time (g_c+fff)		48.0		18.2	25.8	46.4		27.7				
Green Ext Time (p_c), s 0		35.9		1.1	0.5	27.2		2.7				
	,.J	JJ.7		1.1	0.5	۷۱.۷		۷.1				
Intersection Summary			F0.0									
HCM 2010 Ctrl Delay			58.0									
HCM 2010 LOS			Е									

	•	→	•	•	←	•	•	†	<u> </u>	<u> </u>	1	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	414	LDIT	WDL	414	WBIT	ሻ	†	NDIX	ሻ	† †	77
	1428	392	51	7	367	27	95	280	24	58	204	1471
Future Volume (veh/h)		392	51	7	367	27	95	280	24	58	204	1471
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1845	1839	1900	1900	1849	1900	1881	1883	1900	1881	1845	1827
	1587	436	57	8	408	0	106	311	27	64	227	1634
Adj No. of Lanes	2	1	0	0	2	0	1	2	0	1	2	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	4	4	3	3	3	1	1	1	1	3	4
Cap, veh/h	1222	554	72	10	520	0	139	1052	91	84	1000	1182
Arrive On Green	0.35	0.35	0.35	0.15	0.15	0.00	0.08	0.32	0.32	0.05	0.29	0.29
Sat Flow, veh/h	3514	1594	208	66	3629	0.00	1792	3333	288	1792	3505	2733
	1587	0	493	223	193	0	106	166	172	64	227	1634
Grp Sat Flow(s), veh/h/lr		0	1803	1846	1757	0	1792	1789	1832	1792	1752	1367
Q Serve(g_s), s	39.0	0.0	27.5	13.1	11.8	0.0	6.5	7.9	8.0	4.0	5.6	32.0
Cycle Q Clear(g_c), s	39.0	0.0	27.5	13.1	11.8	0.0	6.5	7.9	8.0	4.0	5.6	32.0
Prop In Lane	1.00	0.0	0.12	0.04	1110	0.00	1.00	7.7	0.16	1.00	0.0	1.00
Lane Grp Cap(c), veh/h		0	627	271	258	0	139	564	578	84	1000	1182
V/C Ratio(X)	1.30	0.00	0.79	0.82	0.75	0.00	0.77	0.29	0.30	0.76	0.23	1.38
	1222	0	627	362	345	0	655	564	578	639	1000	1182
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		0.0	32.8	46.4	45.8	0.0	50.7	29.0	29.0	52.8	30.6	27.2
Incr Delay (d2), s/veh		0.0	6.6	10.7	6.1	0.0	8.5	0.3	0.3	13.0	0.1	177.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh		0.0	14.8	7.5	6.2	0.0	3.5	3.9	4.1	2.3	2.7	47.4
LnGrp Delay(d),s/veh		0.0	39.4	57.1	51.9	0.0	59.2	29.2	29.3	65.8		204.8
LnGrp LOS	F		D	Е	D		Е	С	С	Е	С	F
Approach Vol, veh/h		2080			416			444			1925	
Approach Delay, s/veh		144.6			54.7			36.4			179.7	
Approach LOS		F			D			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc)	S	20.5	12.7	36.0		43.0	9.3	39.4				
Change Period (Y+Rc),		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gm		22.0	41.0	32.0		39.0	40.0	33.0				
Max Q Clear Time (g_c-		15.1	8.5	34.0		41.0	6.0	10.0				
Green Ext Time (p_c), s		1.3	0.6	0.0		0.0	0.0	2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			140.9									
HCM 2010 LOS			F									
Notes												
User approved volume I	balanc	ing amo	ng the	lanes fo	or turnir	ng move	ement.					
		. 5	.55			3						

	•	→	•	•	←	•	•	†	<u></u>	<u> </u>	+	→
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦	∱ Љ		ħ	†	7	ሻ	†	7	Ŋ	†	7
Traffic Volume (veh/h)	84	638	30	228	378	110	8	165	229	118	322	156
Future Volume (veh/h)	84	638	30	228	378	110	8	165	229	118	322	156
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1897	1900	1900	1881	1900	1900	1881	1900	1827	1900	1900
Adj Flow Rate, veh/h	89	679	32	243	402	117	9	176	244	126	343	166
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	0	0	0	1	0	0	1	0	4	0	0
Cap, veh/h	372	1237	58	286	567	486	16	355	305	158	514	437
Arrive On Green	0.21	0.35	0.35	0.16	0.30	0.30	0.01	0.19	0.19	0.09	0.27	0.27
Sat Flow, veh/h	1774	3506	165	1810	1881	1615	1810	1881	1615	1740	1900	1615
Grp Volume(v), veh/h	89	349	362	243	402	117	9	176	244	126	343	166
Grp Sat Flow(s), veh/h/ln	1774	1803	1868	1810	1881	1615	1810	1881	1615	1740	1900	1615
Q Serve(g_s), s	3.2	11.9	11.9	10.0	14.5	4.2	0.4	6.4	11.0	5.4	12.3	6.4
Cycle Q Clear(g_c), s	3.2	11.9	11.9	10.0	14.5	4.2	0.4	6.4	11.0	5.4	12.3	6.4
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	372	636	659	286	567	486	16	355	305	158	514	437
V/C Ratio(X)	0.24	0.55	0.55	0.85	0.71	0.24	0.55	0.50	0.80	0.80	0.67	0.38
Avail Cap(c_a), veh/h	372	636	659	332	567	486	95	394	338	205	523	444
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	19.8	19.8	31.3	23.7	20.1	37.7	27.7	29.6	34.0	24.8	22.6
Incr Delay (d2), s/veh	1.5	3.4	3.3	16.7	7.3	1.2	25.3	1.1	11.8	15.1	3.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	6.5	6.7	6.3	8.6	2.0	0.3	3.4	5.9	3.3	6.8	2.9
LnGrp Delay(d),s/veh	26.6	23.2	23.1	48.0	31.1	21.3	63.0	28.8	41.4	49.1	28.0	23.2
LnGrp LOS	С	С	С	D	С	С	Е	С	D	D	С	С
Approach Vol, veh/h		800			762			429			635	
Approach Delay, s/veh		23.5			35.0			36.7			30.9	
Approach LOS		С			С			D			С	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.1	30.9	4.7	24.7	20.0	27.0	10.9	18.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	14.0	25.0	4.0	21.0	16.0	23.0	9.0	16.0				
Max Q Clear Time (g_c+l1), s	12.0	13.9	2.4	14.3	5.2	16.5	7.4	13.0				
Green Ext Time (p_c), s	0.1	5.5	0.0	2.6	0.1	3.7	0.0	1.4				
Intersection Summary	J. 1	0.0	0.0	2.0	J. 1	5.7	0.0	1.7				
			20.0									
HCM 2010 Ctrl Delay			30.8									
HCM 2010 LOS			С									

	•	_	_	_	—	•	•	<u></u>	<u> </u>	_	1	1
Movement	EBL	EBT	EBR	₩BL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	LDL	<u>LDI</u>	LDK	VVDL	₩D1	WDK	NDL	14D1	NDK	SDL	3B1 ♣	JUK
Traffic Volume (veh/h)	48	640	25	37	456	89	41	77	48	56	58	37
Future Volume (veh/h)	48	640	25	37	456	89	41	77	48	56	58	37
Number	5	2	12	1	450	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
• •	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00
Ped-Bike Adj(A_pbT) Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1900	1900	1900	1894	1900	1900	1843	1900	1900	1808	1900
Adj Flow Rate, veh/h	51	681	27	39	485	95	44	82	51	60	62	39
,		1						02			1	
Adj No. of Lanes Peak Hour Factor	0.94	0.94	0.94	1 0.94	1 0.94	0.94	1 0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	10	0	0	104	0	150	0	5	5 154	5	5	5 81
Cap, veh/h	99	962	38	106	814	159	402	250	156	167	161	
Arrive On Green	0.06	0.53	0.53	0.06	0.53	0.53	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1645	1815	72	1810	1539	301	1314	1064	662	401	684	347
Grp Volume(v), veh/h	51	0	708	39	0	580	44	0	133	161	0	0
Grp Sat Flow(s), veh/h/l		0	1887	1810	0	1841	1314	0	1726	1431	0	0
Q Serve(g_s), s	2.0	0.0	19.2	1.4	0.0	14.8	0.0	0.0	4.3	2.6	0.0	0.0
Cycle Q Clear(g_c), s	2.0	0.0	19.2	1.4	0.0	14.8	2.0	0.0	4.3	6.9	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.16	1.00		0.38	0.37		0.24
Lane Grp Cap(c), veh/h		0	1001	106	0	973	402	0	406	409	0	0
V/C Ratio(X)	0.51	0.00	0.71	0.37	0.00	0.60	0.11	0.00	0.33	0.39	0.00	0.00
Avail Cap(c_a), veh/h	386	0	1001	425	0	973	402	0	406	409	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/vel		0.0	12.0	30.8	0.0	11.1	20.7	0.0	21.6	22.4	0.0	0.0
Incr Delay (d2), s/veh	4.1	0.0	4.2	2.1	0.0	2.7	0.5	0.0	2.2	2.8	0.0	0.0
Initial Q Delay(d3),s/vel		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),ve		0.0	11.0	0.8	0.0	8.1	0.7	0.0	2.3	3.0	0.0	0.0
LnGrp Delay(d),s/veh	35.1	0.0	16.2	32.9	0.0	13.7	21.2	0.0	23.7	25.2	0.0	0.0
LnGrp LOS	D		В	С		В	С		С	С		
Approach Vol, veh/h		759			619			177			161	
Approach Delay, s/veh		17.5			15.0			23.1			25.2	
Approach LOS		В			В			С			С	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc)), \$8.0	40.1		20.0	8.1	40.0		20.0				
Change Period (Y+Rc),		4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gm		36.0		16.0	16.0	36.0		16.0				
Max Q Clear Time (g_c		21.2		8.9	4.0	16.8		6.3				
Green Ext Time (p_c),		7.7		1.1	0.1	9.0		1.3				
Intersection Summary	3 0.0	,.,		1.1	0.1	7.0		1.0				
			17.0									
HCM 2010 Ctrl Delay			17.9									
HCM 2010 LOS			В									

•	•	•	•	†	ļ	4	
Movement EBL	EBR	EBR	NBL	NBT	SBT	SBR	
Lane Configurations 7	7		ሻ	†	† ‡	JJI	
Traffic Volume (veh/h) 109	60		52	380	570	134	
Future Volume (veh/h) 109	60		52	380	570	134	
Number 5	12		3	8	4	14	
Initial Q (Qb), veh 0	0		0	0	0	0	
Ped-Bike Adj(A_pbT) 1.00	1.00		1.00			1.00	
Parking Bus, Adj 1.00	1.00		1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln 1881	1845		1810	1827	1860	1900	
Adj Flow Rate, veh/h 114	62		54	396	594	140	
Adj No. of Lanes 1	1		1	1	2	0	
Peak Hour Factor 0.96	0.96	-	0.96	0.96	0.96	0.96	
Percent Heavy Veh, % 1	3		5	4	1	1	
Cap, veh/h 464	406		365	1182	1103	259	
Arrive On Green 0.26	0.26		0.21	0.65	0.39	0.39	
Sat Flow, veh/h 1792	1568		1723	1827	2934	668	
	62		54	396	369	365	
Grp Sat Flow(s), veh/h/ln1792	1568		1723	1827	1767	1742	
Q Serve(g_s), s 4.3	2.6		2.2	8.3	13.7	13.8	
Cycle Q Clear(g_c), s 4.3	2.6		2.2	8.3	13.7	13.8	
Prop In Lane 1.00	1.00		1.00	1100		0.38	
Lane Grp Cap(c), veh/h 464	406		365	1182	686	676	
V/C Ratio(X) 0.25	0.15		0.15	0.33	0.54	0.54	
Avail Cap(c_a), veh/h 464	406		365	1182	686	676	
HCM Platoon Ratio 1.00	1.00		1.00	1.00	1.00	1.00	
Upstream Filter(I) 1.00	1.00		1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh 24.9	24.3		27.3	6.8	20.1	20.1	
Incr Delay (d2), s/veh 1.3	8.0	8.0	0.9	0.2	3.0	3.1	
Initial Q Delay(d3),s/veh 0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln2.3	1.2	1.2	1.1	4.2	7.2	7.2	
LnGrp Delay(d),s/veh 26.2	25.1	25.1	28.1	6.9	23.1	23.2	
LnGrp LOS C	С	С	С	Α	С	С	
Approach Vol, veh/h 176				450	734		
Approach Delay, s/veh 25.8				9.5	23.2		
Approach LOS C				A	C		
•							
Timer 1	2		3	4	5	6	
Assigned Phs	2		3	4			
Phs Duration (G+Y+Rc), s	26.0	26.0	22.0	37.0			
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0			
Max Green Setting (Gmax), s		22.0	18.0	33.0			
Max Q Clear Time (g_c+I1), s			4.2	15.8			
Green Ext Time (p_c), s	0.4		0.1	6.8			
Intersection Summary							
			10.0				
HCM 2010 Ctrl Delay			19.0				
HCM 2010 LOS			В				

	۶	•	1	†	+	4			
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations	¥		ሻ	†	↑				
Traffic Volume (veh/h)	16	2	5	403	605	17			
Future Volume (veh/h)	16	2	5	403	605	17			
Number	5	12	3	8	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	976	1900	1056	1900	1839	1900			
Adj Flow Rate, veh/h	17	2	5	420	630	18			
Adj No. of Lanes	0	0	1	1	1	0			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	0	0	80	0	1	1			
Cap, veh/h	15	2	469	1508	1412	40			
Arrive On Green	0.02	0.02	0.79	0.79	0.79	0.79			
Sat Flow, veh/h	782	92	442	1900	1779	51			
Grp Volume(v), veh/h	20	0	5	420	0	648			
Grp Sat Flow(s), veh/h/li		0	442	1900	0	1830			
Q Serve(g_s), s	0.8	0.0	0.2	2.5	0.0	4.8			
Cycle Q Clear(g_c), s	0.8	0.0	5.0	2.5	0.0	4.8			
Prop In Lane	0.85	0.10	1.00	2.0	0.0	0.03			
Lane Grp Cap(c), veh/h		0.10	469	1508	0	1452			
V/C Ratio(X)	1.10	0.00	0.01	0.28	0.00	0.45			
. ,									
Avail Cap(c_a), veh/h	387	1.00	469	1508	1.00	1452			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/vel		0.0	2.2	1.2	0.0	1.4			
Incr Delay (d2), s/veh		0.0	0.0	0.5	0.0	1.0			
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),vel		0.0	0.0	1.5	0.0	2.7			
LnGrp Delay(d),s/veh		0.0	2.3	1.6	0.0	2.4			
LnGrp LOS	<u>F</u>		A	A		A			
Approach Vol, veh/h	20			425	648				
Approach Delay, s/veh	153.1			1.6	2.4				
Approach LOS	F			Α	Α				
Timer	1	2	3	4	5	6	7	8	
Assigned Phs		2		4				8	
Phs Duration (G+Y+Rc)) s	4.8		38.0				38.0	
Change Period (Y+Rc),		4.0		4.0				4.0	
Max Green Setting (Gm		18.0		34.0				34.0	
Max Q Clear Time (g_c		2.8		6.8				7.0	
Green Ext Time (p_c), s		0.0		8.3				8.3	
, , , , , , , , , , , , , , , , , , ,)	0.0		0.3				0.3	
Intersection Summary									
HCM 2010 Ctrl Delay			4.9						
HCM 2010 LOS			Α						
Notes									
User approved volume	halanci	ing amo	na the	lanes fo	or turnir	na move	ment		

Intersection							
Int Delay, s/veh	1.1						
Movement	WBL	WBR		NBT	NBR	SBL	SBT
Lane Configurations	¥	- TIDIL		16N		ODL	4
Traffic Vol, veh/h	8	11		186	2	11	70
Future Vol, veh/h	8	11		186	2	11	70
Conflicting Peds, #/hr	0	0		0	0	0	0
Sign Control	Stop	Stop		Free	Free	Free	Free
RT Channelized	-	None		-		-	None
Storage Length	0	-		-	-	-	-
Veh in Median Storage, #	ŧ 0	-		0	-	-	0
Grade, %	0	-		0	-	-	0
Peak Hour Factor	90	90		90	90	90	90
Heavy Vehicles, %	100	90		4	100	90	1
Mvmt Flow	9	12		207	2	12	78
Major/Minor	Minor1			Major1		Major2	
Conflicting Flow All	310	208		0	0	209	0
Stage 1	208	-		-	-	-	-
Stage 2	102	-		-	-	-	-
Critical Hdwy	7.4	7.1		-	-	5	-
Critical Hdwy Stg 1	6.4	-		-	-	-	-
Critical Hdwy Stg 2	6.4	-		-	-	-	-
Follow-up Hdwy	4.4	4.11		-	-	3.01	-
Pot Cap-1 Maneuver	520	653		-	-	975	-
Stage 1	640	-		-	-	-	-
Stage 2	726	-		-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	513	653		-	-	975	-
Mov Cap-2 Maneuver	513	-		-	-	-	-
Stage 1	640	-			-	-	-
Stage 2	717	-		-	-	-	-
Approach	WB			NB		SB	
HCM Control Delay, s	11.4			0		1.2	
HCM LOS	В						
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT			
Capacity (veh/h)		- 586	975	-			
HCM Lane V/C Ratio	_	- 0.036		-			
HCM Control Delay (s)	_	- 11.4	8.7	0			
HCM Lane LOS	_	- B	Α	A			
HCM 95th %tile Q(veh)	_	- 0.1	0	-			
TOW YOU YOU Q(VOII)		U.1					

Intersection			
Intersection Delay, s/veh	8.1		
Intersection LOS	Α		

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			4				4				4	
Traffic Vol, veh/h	0	18	4	35	0	4	2	4	0	23	171	6
Future Vol, veh/h	0	18	4	35	0	4	2	4	0	23	171	6
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	0	0	0	2	0	0	0	2	0	7	0
Mvmt Flow	0	19	4	38	0	4	2	4	0	25	184	6
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach		EB				WB				NB		
Opposing Approach		WB				EB				SB		
Opposing Lanes		1				1				1		
Conflicting Approach Left		SB				NB				EB		
Conflicting Lanes Left		1				1				1		
Conflicting Approach Right		NB				SB				WB		
Conflicting Lanes Right		1				1				1		
HCM Control Delay		7.6				7.5				8.5		
HCM LOS		Α				Α				Α		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	32%	40%	5%
Vol Thru, %	85%	7%	20%	85%
Vol Right, %	3%	61%	40%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	200	57	10	82
LT Vol	23	18	4	4
Through Vol	171	4	2	70
RT Vol	6	35	4	8
Lane Flow Rate	215	61	11	88
Geometry Grp	1	1	1	1
Degree of Util (X)	0.245	0.073	0.013	0.101
Departure Headway (Hd)	4.097	4.267	4.47	4.141
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	869	845	805	852
Service Time	2.161	2.267	2.474	2.232
HCM Lane V/C Ratio	0.247	0.072	0.014	0.103
HCM Control Delay	8.5	7.6	7.5	7.7
HCM Lane LOS	А	Α	Α	Α
HCM 95th-tile Q	1	0.2	0	0.3

Intersection					
Intersection Delay, s/veh			<u> </u>		
Intersection LOS					
Movement	SBU	SBL	SBT	SBR	
Lane Configurations			4		
Traffic Vol, veh/h	0	4	70	8	
Future Vol, veh/h	0	4	70	8	
Peak Hour Factor	0.92	0.93	0.93	0.93	
Heavy Vehicles, %	2	0	17	0	
Mvmt Flow	0	4	75	9	
Number of Lanes	0	0	1	0	
Approach		SB			
Opposing Approach		NB			Ī
Opposing Lanes		1			
Conflicting Approach Left		WB			
Conflicting Lanes Left		1			
Conflicting Approach Right		EB			
Conflicting Lanes Right		1			
HCM Control Delay		7.7			
HCM LOS		Α			

Santa Cruz DRP Study 7: Pacific Street & Front Street & Mission Street/Water Street

	۶	→	74	•	4	•	+	•	/	Ļ	+	1
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	SBL2	SBL	SBT	SBR
Lane Configurations	ሻ	† †	Ž.		7	ሻ	∱ 1≽				4	7
Traffic Volume (vph)	152	629	110	19	108	49	630	3	19	106	33	174
Future Volume (vph)	152	629	110	19	108	49	630	3	19	106	33	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0				4.0	4.0
Lane Util. Factor	1.00	0.95	1.00		1.00	1.00	0.95				1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	1.00				1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	0.95	1.00				0.96	1.00
Satd. Flow (prot)	1787	3574	1590		1787	1770	3572				1747	1599
Flt Permitted	0.95	1.00	1.00		0.95	0.95	1.00				0.96	1.00
Satd. Flow (perm)	1787	3574	1590		1787	1770	3572				1747	1599
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	163	676	118	20	116	53	677	3	20	114	35	187
RTOR Reduction (vph)	0	0	32	0	0	0	1	0	0	0	0	129
Lane Group Flow (vph)	163	676	106	0	116	53	679	0	0	0	169	58
Heavy Vehicles (%)	1%	1%	1%	5%	1%	2%	1%	0%	5%	5%	3%	1%
Turn Type	Prot	NA	Perm		Prot	Prot	NA		Perm	Perm	NA	Perm
Protected Phases	5	2			1	1	6				8	
Permitted Phases			2						8	8		8
Actuated Green, G (s)	12.6	39.4	39.4		9.2	9.2	36.0				22.0	22.0
Effective Green, g (s)	12.6	39.4	39.4		9.2	9.2	36.0				22.0	22.0
Actuated g/C Ratio	0.15	0.48	0.48		0.11	0.11	0.44				0.27	0.27
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0	4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0				3.0	3.0
Lane Grp Cap (vph)	272	1704	758		199	197	1556				465	425
v/s Ratio Prot	c0.09	c0.19			0.06	0.03	c0.19					
v/s Ratio Perm			0.07								0.10	0.04
v/c Ratio	0.60	0.40	0.14		0.58	0.27	0.44				0.36	0.14
Uniform Delay, d1	32.6	13.9	12.1		34.9	33.6	16.2				24.6	23.1
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00
Incremental Delay, d2	3.5	0.2	0.1		4.3	0.7	0.9				2.2	0.7
Delay (s)	36.2	14.1	12.2		39.2	34.4	17.1				26.8	23.7
Level of Service	D	В	В		D	С	В				С	С
Approach Delay (s)		17.5					21.2				25.2	
Approach LOS		В					С				С	
Intersection Summary												
HCM 2000 Control Delay			20.2	Н	ICM 2000	Level of	Service		С			
HCM 2000 Volume to Capa	city ratio		0.43									
Actuated Cycle Length (s)			82.6		um of lost				12.0			
Intersection Capacity Utiliza	ition		44.6%	[(CU Level o	of Service			А			
Analysis Period (min)			15									
c Critical Lane Group												

Kimley-Horn HCM Signalized Intersection Capacity Analysis

Synchro 9 Report Page 1

	•	→	•	√	←	•	•	†	<u></u>	<u> </u>	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		414		ሻ	4	7		414		ሻ	ĵ.	
Traffic Volume (veh/h)	50	109	37	360	93	36	10	298	180	79	339	36
Future Volume (veh/h)	50	109	37	360	93	36	10	298	180	79	339	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
nitial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	- U	1.00	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1859	1900	1900	1877	1900	1900	1831	1900	1881	1818	1900
Adj Flow Rate, veh/h	53	115	39	238	295	0	11	314	189	83	357	38
Adj No. of Lanes	0	2	0	1	1	1	0	2	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	0.75	3	0.75	5	5	5	1	5	5
Cap, veh/h	83	187	66	757	786	676	58	668	385	274	525	56
Arrive On Green	0.09	0.09	0.09	0.42	0.42	0.00	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	880	1978	693	1810	1877	1615	24	2056	1186	901	1616	172
Grp Volume(v), veh/h	109	0	98	238	295	0	282	0	232	83	0	395
Grp Sat Flow(s), veh/h/li		0	1736	1810	1877	1615	1809	0	1457	901	0	1788
2	4.3	0.0	4.0	6.5	8.0	0.0	0.0	0.0	9.5	6.0	0.0	14.2
Cycle Q Clear(g_c), s	4.3	0.0	4.0	6.5	8.0	0.0	9.1	0.0	9.5	15.5	0.0	14.2
Prop In Lane	0.49	0.0	0.40	1.00	0.0	1.00	0.04	0.0	0.81	1.00	0.0	0.10
Lane Grp Cap(c), veh/h		0	165	757	786	676	638	0	473	274	0	581
V/C Ratio(X)	0.64	0.00	0.59	0.31	0.38	0.00	0.44	0.00	0.49	0.30	0.00	0.68
Avail Cap(c_a), veh/h	441	0.00	422	757	786	676	995	0.00	767	456	0.00	941
ICM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Jpstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Jniform Delay (d), s/vel		0.00	32.2	14.4	14.9	0.00	20.0	0.00	20.1	26.3	0.00	21.7
ncr Delay (d2), s/veh	3.9	0.0	3.4	1.1	1.4	0.0	0.5	0.0	0.8	0.6	0.0	1.4
nitial Q Delay(d3),s/vel		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),vel		0.0	2.1	3.5	4.4	0.0	4.7	0.0	3.9	1.5	0.0	7.2
%ile BackOlQ(30%),vei LnGrp Delay(d),s/veh	36.2	0.0	35.6	15.5	16.2	0.0	20.4	0.0	20.9	26.9	0.0	23.1
LnGrp LOS	30.2 D	0.0	33.0 D	15.5 B	10.2 B	0.0	20.4 C	0.0	20.9 C	20.9 C	0.0	23.1 C
Approach Vol, veh/h	U	207	U	D	533		U	514	U	C	478	C
Approach Voi, ven/n Approach Delay, s/veh		35.9			15.9			20.6			23.8	
11 7								20.6 C			23.8 C	
pproach LOS		D			В			C			C	
imer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc)), S	11.0		28.1		35.0		28.1				
Change Period (Y+Rc),	S	4.0		4.0		4.0		4.0				
Max Green Setting (Gm		18.0		39.0		31.0		39.0				
Max Q Clear Time (g_c		6.3		17.5		10.0		11.5				
Green Ext Time (p_c), s		8.0		6.5		2.4		7.1				
ntersection Summary												
HCM 2010 Ctrl Delay			21.9									
HCM 2010 LOS			С									
Notes												
Jser approved volume	balanci	ing amo	ng the	lanes fo	or turnir	ng move	ement.					
		.5	.55			3						

_/\.\	9
PM	Peak

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	Α

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			4				4				4					
Traffic Vol, veh/h	0	12	79	38	0	50	74	27	0	21	88	54	0	0	0	0
Future Vol, veh/h	0	12	79	38	0	50	74	27	0	21	88	54	0	0	0	0
Peak Hour Factor	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91
Heavy Vehicles, %	2	0	0	2	2	22	2	14	2	0	1	9	2	0	0	0
Mvmt Flow	0	13	87	42	0	55	81	30	0	23	97	59	0	0	0	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0

Approach	EB	WB	NB	
Opposing Approach	WB	EB		
Opposing Lanes	1	1	0	
Conflicting Approach Left		NB	EB	
Conflicting Lanes Left	0	1	1	
Conflicting Approach Right	NB		WB	
Conflicting Lanes Right	1	0	1	
HCM Control Delay	8.3	9.2	8.7	
HCM LOS	А	A	А	

Lane	NBLn1	EBLn1\	VBLn1
Vol Left, %	13%	9%	33%
Vol Thru, %	54%	61%	49%
Vol Right, %	33%	29%	18%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	163	129	151
LT Vol	21	12	50
Through Vol	88	79	74
RT Vol	54	38	27
Lane Flow Rate	179	142	166
Geometry Grp	1	1	1
Degree of Util (X)	0.221	0.171	0.221
Departure Headway (Hd)	4.444	4.355	4.803
Convergence, Y/N	Yes	Yes	Yes
Cap	810	824	748
Service Time	2.466	2.382	2.829
HCM Lane V/C Ratio	0.221	0.172	0.222
HCM Control Delay	8.7	8.3	9.2
HCM Lane LOS	Α	Α	Α
HCM 95th-tile Q	0.8	0.6	8.0

Kimley-Horn Synchro 9 Report HCM 2010 AWSC Page 10

Intersection							
Int Delay, s/veh	3.6						
		14/00	NET	NDD	0.01	ODT	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations		7	4				
Traffic Vol, veh/h	1	142	128	133	0	0	
Future Vol, veh/h	1	142	128	133	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Stop	Stop	Free	Free	Free	Free	
RT Channelized	-	None	-	None	-	None	
Storage Length	-	0	-	-	-	-	
Veh in Median Storage, #	0	-	0	-	-	-	
Grade, %	0	-	0	-	-	0	
Peak Hour Factor	92	92	92	92	92	92	
Heavy Vehicles, %	0	0	2	1	0	0	
Mvmt Flow	1	154	139	145	0	0	
Major/Minor	Minor1		Major1				
Conflicting Flow All	211	211	0	0			
Stage 1	211	-	-	-			
Stage 2	0	_	-	_			
Critical Hdwy	6.4	6.2	-	_			
Critical Hdwy Stg 1	5.4	-	_	_			
Critical Hdwy Stg 2	-	_	_	_			
Follow-up Hdwy	3.5	3.3	_	_			
Pot Cap-1 Maneuver	782	834	_	_			
Stage 1	829	-	_	_			
Stage 2	-	_		_			
Platoon blocked, %			<u>-</u>	-			
Mov Cap-1 Maneuver	782	834	_	_			
Mov Cap 1 Maneuver	782	-	-	_			
Stage 1	829	_	_	_			
Stage 2	- 027	<u>-</u>	-	_			
Jiago Z	_		_				
Annroach	WB		NB				
Approach HCM Control Dolay 6							
HCM Control Delay, s	10.3		0				
HCM LOS	В						
N 41 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NDT	NDDWD					
Minor Lane/Major Mvmt	NBT	NBRWBLn1					
Capacity (veh/h)	-	- 834					
HCM Lane V/C Ratio	-	- 0.185					
HCM Control Delay (s)	-	- 10.3					
HCM Lane LOS	-	- B					
HCM 95th %tile Q(veh)	-	- 0.7					

	•	→	`*	•	←	•	•	†	<i>></i>	<u> </u>	+	-√
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1,1	∱ ∱		¥	^	7	ħ	† †	7	¥	† †	7
Traffic Volume (veh/h)	343	731	111	112	553	227	120	553	98	290	856	344
Future Volume (veh/h)	343	731	111	112	553	227	120	553	98	290	856	344
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1881	1900	1900	1881	1900	1900	1881	1881	1881	1900	1863
Adj Flow Rate, veh/h	357	761	116	117	576	0	125	576	102	302	892	0
Adj No. of Lanes	2	2	0	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	1	0	1	0	0	1	1	1	0	2
Cap, veh/h	447	1016	155	148	996	450	157	832	372	343	1219	535
Arrive On Green	0.13	0.33	0.33	0.08	0.28	0.00	0.09	0.23	0.23	0.19	0.34	0.00
Sat Flow, veh/h	3442	3111	474	1810	3574	1615	1810	3574	1599	1792	3610	1583
Grp Volume(v), veh/h	357	437	440	117	576	0	125	576	102	302	892	0
Grp Sat Flow(s), veh/h/ln	1721	1787	1798	1810	1787	1615	1810	1787	1599	1792	1805	1583
Q Serve(g_s), s	9.6	20.8	20.9	6.1	13.3	0.0	6.5	14.1	5.0	15.7	20.8	0.0
Cycle Q Clear(g_c), s	9.6	20.8	20.9	6.1	13.3	0.0	6.5	14.1	5.0	15.7	20.8	0.0
Prop In Lane	1.00		0.26	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	447	584	587	148	996	450	157	832	372	343	1219	535
V/C Ratio(X)	0.80	0.75	0.75	0.79	0.58	0.00	0.80	0.69	0.27	0.88	0.73	0.00
Avail Cap(c_a), veh/h	684	710	714	246	1196	541	265	935	418	525	1472	646
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	40.4	28.7	28.7	43.1	29.7	0.0	42.8	33.6	30.1	37.6	27.9	0.0
Incr Delay (d2), s/veh	3.9	3.5	3.5	9.1	0.5	0.0	8.8	1.9	0.4	10.7	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	10.8	10.8	3.4	6.6	0.0	3.6	7.2	2.2	8.7	10.5	0.0
LnGrp Delay(d),s/veh	44.3	32.2	32.2	52.2	30.2	0.0	51.7	35.5	30.5	48.2	29.4	0.0
LnGrp LOS	D	С	С	D	С		D	D	С	D	С	
Approach Vol, veh/h		1234			693			803			1194	
Approach Delay, s/veh		35.7			33.9			37.4			34.2	
Approach LOS		D			С			D			С	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	35.2	12.3	36.3	16.4	30.6	22.3	26.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	38.0	14.0	39.0	19.0	32.0	28.0	25.0				
Max Q Clear Time (g_c+l1), s	8.1	22.9	8.5	22.8	11.6	15.3	17.7	16.1				
Green Ext Time (p_c), s	0.1	8.4	0.1	9.5	0.8	8.9	0.7	6.1				
Intersection Summary	J. 1	J. T	5.1	7.0	5.0	5.7	5.1	0.1				
			25.2									
HCM 2010 Ctrl Delay			35.3									
HCM 2010 LOS			D									

	•	→	•	√	-	•	•	†	~	<u> </u>	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	††	LDIX	ሻሻ	↑	7	ሻ	1	77	ሻሻ	<u> </u>	7
Traffic Volume (veh/h)	227	1320	77	293	1262	472	102	246	423	648	309	247
Future Volume (veh/h)	227	1320	77	293	1262	472	102	246	423	648	309	247
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	Ü	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1847	1900	1845	1863	1810	1881	1845	1881	1863	1845	1863
Adj Flow Rate, veh/h	241	1404	0	312	1343	0	109	262	450	689	329	263
Adj No. of Lanes	1	3	0	2	3	1	1	1	2	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	3	3	3	2	5	1	3	1	2	3	2
Cap, veh/h	260	1922	0	353	1727	522	341	352	536	833	447	383
Arrive On Green	0.15	0.38	0.00	0.10	0.34	0.00	0.19	0.19	0.19	0.24	0.24	0.24
Sat Flow, veh/h	1792	5208	0	3408	5085	1538	1792	1845	2814	3442	1845	1583
Grp Volume(v), veh/h	241	1404	0	312	1343	0	109	262	450	689	329	263
Grp Sat Flow(s), veh/h/l		1680	0	1704	1695	1538	1792	1845	1407	1721	1845	1583
Q Serve(g_s), s	25.8	46.4	0.0	17.5	46.0	0.0	10.2	26.0	29.9	36.8	31.9	29.3
Cycle Q Clear(g_c), s	25.8	46.4	0.0	17.5	46.0	0.0	10.2	26.0	29.9	36.8	31.9	29.3
Prop In Lane	1.00	70.7	0.00	1.00	70.0	1.00	1.00	20.0	1.00	1.00	01.7	1.00
Lane Grp Cap(c), veh/h		1922	0.00	353	1727	522	341	352	536	833	447	383
V/C Ratio(X)	0.93	0.73	0.00	0.88	0.78	0.00	0.32	0.75	0.84	0.83	0.74	0.69
Avail Cap(c_a), veh/h	323	1922	0.00	456	1727	522	341	352	536	833	447	383
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/ve		51.5	0.0	85.8	57.5	0.0	67.7	74.1	75.7	69.7	67.9	66.9
Incr Delay (d2), s/veh	28.3	2.5	0.0	15.0	3.5	0.0	2.5	13.4	14.6	9.2	10.4	9.6
Initial Q Delay(d3),s/vel		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),ve		22.0	0.0	9.0	22.1	0.0	5.3	14.6	12.7	18.6	17.6	13.9
LnGrp Delay(d),s/veh		54.0	0.0	100.9	61.0	0.0	70.2	87.5	90.3	78.9	78.2	76.5
LnGrp LOS	F	D		F	E		E	F	F	E	E	E
Approach Vol, veh/h		1645			1655			821			1281	
Approach Delay, s/veh		62.2			68.5			86.7			78.3	
Approach LOS		E			E			F			7 O.S	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc) 34 1	78.0		41.0	32.2	69.9		51.0				
Change Period (Y+Rc)		4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gn		74.0		37.0	35.0	65.0		47.0				
Max Q Clear Time (q_c		48.4		31.9	27.8	48.0		38.8				
Green Ext Time (p_c),	•	21.5		1.8	0.4	15.0		3.7				
Intersection Summary	- 5.0				5.1	. 5.0		3.,				
HCM 2010 Ctrl Delay			71.7									
HCM 2010 Clir Delay			/ I./									
HOW ZUTU LUS			E									

	•	→	•	•	←	•	•	†	<u> </u>	<u> </u>	1	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	414	LDIT	WDL	414	WBIT	ሻ	†	NDIC	ሻ	† †	77
Traffic Volume (veh/h)	1312	486	66	11	412	30	74	276	19	42	258	1380
Future Volume (veh/h)		486	66	11	412	30	74	276	19	42	258	1380
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1882	1900	1900	1850	1900	1881	1900	1900	1900	1900	1863
Adj Flow Rate, veh/h	1353	501	68	11	425	0	76	285	20	43	266	1423
Adj No. of Lanes	2	1	0	0	2	0	1	2	0	1	2	2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	3	3	3	1	0.77	0.,,	0.77	0.77	2
Cap, veh/h	1237	561	76	13	539	0	100	1112	78	56	1083	1263
Arrive On Green	0.35	0.35	0.35	0.15	0.15	0.00	0.06	0.32	0.32	0.03	0.30	0.30
Sat Flow, veh/h	3583	1623	220	87	3608	0	1792	3424	239	1810	3610	2787
Grp Volume(v), veh/h	1353	0	569	234	202	0	76	149	156	43	266	1423
Grp Sat Flow(s), veh/h/li		0	1843	1845	1757	0	1792	1805	1858	1810	1805	1393
Q Serve(g_s), s	38.0	0.0	32.2	13.5	12.1	0.0	4.6	6.7	6.8	2.6	6.1	33.0
Cycle Q Clear(g_c), s	38.0	0.0	32.2	13.5	12.1	0.0	4.6	6.7	6.8	2.6	6.1	33.0
Prop In Lane	1.00	0.0	0.12	0.05	12	0.00	1.00	0.7	0.13	1.00	0.1	1.00
Lane Grp Cap(c), veh/h		0	637	283	269	0	100	586	603	56	1083	1263
V/C Ratio(X)	1.09	0.00	0.89	0.83	0.75	0.00	0.76	0.26	0.26	0.76	0.25	1.13
Avail Cap(c_a), veh/h	1237	0.00	637	369	351	0	668	586	603	756	1083	1263
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/vel		0.0	34.1	45.2	44.6	0.0	51.2	27.4	27.4	52.9	29.1	25.5
Incr Delay (d2), s/veh	55.0	0.0	15.1	11.2	6.4	0.0	11.0	0.2	0.2	18.7	0.1	67.7
Initial Q Delay(d3),s/vel		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),vel		0.0	18.9	7.8	6.4	0.0	2.6	3.4	3.5	1.6	3.1	31.0
LnGrp Delay(d),s/veh	91.0	0.0	49.2	56.4	51.0	0.0	62.2	27.6	27.6	71.6	29.2	93.1
LnGrp LOS	F		D	Е	D		Е	С	С	Е	С	F
Approach Vol, veh/h		1922			436			381			1732	
Approach Delay, s/veh		78.6			53.9			34.5			82.8	
Approach LOS		Е			D			С			F	
Γimer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc)) s	20.9	10.2	37.0		42.0	7.4	39.7				
Change Period (Y+Rc),		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gm		22.0	41.0	33.0		38.0	46.0	28.0				
Max Q Clear Time (g_c		15.5	6.6	35.0		40.0	4.6	8.8				
Green Ext Time (p_c), s		1.4	0.4	0.0		0.0	0.1	1.8				
Intersection Summary												
HCM 2010 Ctrl Delay			74.1									
HCM 2010 LOS			E									
Notes												
User approved volume	balanci	ing amo	ng the	lanes fo	or turnir	na move	ement.					
S. Sppiorod voidino	Jaiaiio	g arric	90	100 10		.9						

	۶	→	•	•	←	•	•	†	<i>></i>	\		-√
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	∱ ∱		7	†	7	ሻ	†	7	7	†	7
Traffic Volume (veh/h)	48	337	10	246	448	89	5	145	168	44	156	90
Future Volume (veh/h)	48	337	10	246	448	89	5	145	168	44	156	90
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1852	1900	1845	1863	1845	1583	1827	1881	1743	1827	1792
Adj Flow Rate, veh/h	52	366	11	267	487	97	5	158	183	48	170	98
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	2	2	3	2	3	20	4	1	9	4	6
Cap, veh/h	372	1441	43	316	703	592	8	286	250	58	340	284
Arrive On Green	0.22	0.41	0.41	0.18	0.38	0.38	0.01	0.16	0.16	0.03	0.19	0.19
Sat Flow, veh/h	1723	3489	105	1757	1863	1568	1508	1827	1599	1660	1827	1524
Grp Volume(v), veh/h	52	184	193	267	487	97	5	158	183	48	170	98
Grp Sat Flow(s), veh/h/ln	1723	1760	1834	1757	1863	1568	1508	1827	1599	1660	1827	1524
Q Serve(g_s), s	1.8	5.1	5.1	10.9	16.4	3.0	0.2	5.9	8.1	2.1	6.2	4.2
Cycle Q Clear(q_c), s	1.8	5.1	5.1	10.9	16.4	3.0	0.2	5.9	8.1	2.1	6.2	4.2
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	372	727	757	316	703	592	8	286	250	58	340	284
V/C Ratio(X)	0.14	0.25	0.25	0.84	0.69	0.16	0.63	0.55	0.73	0.83	0.50	0.35
Avail Cap(c_a), veh/h	372	727	757	497	703	592	81	394	345	89	394	328
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	14.3	14.3	29.4	19.5	15.3	36.8	28.9	29.8	35.6	27.1	26.3
Incr Delay (d2), s/veh	0.8	0.8	0.8	7.7	5.6	0.6	60.6	1.7	5.0	29.3	1.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.6	2.7	5.9	9.5	1.4	0.2	3.1	3.9	1.4	3.2	1.8
LnGrp Delay(d),s/veh	24.3	15.1	15.1	37.1	25.0	15.9	97.4	30.6	34.8	64.9	28.2	27.0
LnGrp LOS	С	В	В	D	С	В	F	С	С	E	С	С
Approach Vol, veh/h		429			851			346			316	
Approach Delay, s/veh		16.2			27.8			33.8			33.4	
Approach LOS		В			С			С			С	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.3	34.7	4.4	17.8	20.0	32.0	6.6	15.6				
Change Period (Y+Rc), s	4.0	4.0	4.4	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s		23.0	4.0		16.0	28.0	4.0	16.0				
Max Q Clear Time (g_c+l1), s	21.0 12.9	7.1	2.2	16.0 8.2	3.8	18.4	4.0	10.0				
Green Ext Time (p_c), s	0.5	5.3	0.0	1.8	0.1	4.0	0.0	10.1				
	0.5	ა.ა	0.0	1.0	U. I	4.0	0.0	1.0				
Intersection Summary UCM 2010 Ctrl Dolov			27.2									
HCM 2010 Ctrl Delay			27.2									
HCM 2010 LOS			С									

Existing + Project

AM Peak

	_					_		_				,
-	•	→	•	•	•	•	1	†		-	¥	4
Movement E	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	7		ሻ	f)		ሻ	f)			4	
Traffic Volume (veh/h)	22	345	14	34	476	28	33	31	28	20	17	26
Future Volume (veh/h)	22	345	14	34	476	28	33	31	28	20	17	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
J\ −I /	.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
	.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
•	520	1872	1900	1845	1862	1900	1900	1544	1900	1900	1611	1900
Adj Flow Rate, veh/h	26	401	16	40	553	33	38	36	33	23	20	30
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
).86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	25	1	1	3	2	2	0	13	13	13	13	13
Cap, veh/h	85	947	38	103	921	55	447	175	160	143	118	134
	0.06	0.53	0.53	0.06	0.53	0.53	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h 14	448	1788	71	1757	1740	104	1376	743	681	314	501	569
Grp Volume(v), veh/h	26	0	417	40	0	586	38	0	69	73	0	0
Grp Sat Flow(s), veh/h/ln14		0	1859	1757	0	1843	1376	0	1424	1384	0	0
	1.2	0.0	9.3	1.5	0.0	14.9	0.0	0.0	2.6	0.0	0.0	0.0
7 (0- /-	1.2	0.0	9.3	1.5	0.0	14.9	1.1	0.0	2.6	2.7	0.0	0.0
•	.00		0.04	1.00		0.06	1.00		0.48	0.32		0.41
	85	0	984	103	0	976	447	0	335	395	0	0
` ').31	0.00	0.42	0.39	0.00	0.60	0.09	0.00	0.21	0.18	0.00	0.00
1 \ - /-	341	0	984	413	0	976	447	0	335	395	0	0
	.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh 3		0.0	9.7	30.8	0.0	11.0	20.3	0.0	20.9	20.9	0.0	0.0
J \ /·	2.0	0.0	1.3	2.4	0.0	2.7	0.4	0.0	1.4	1.0	0.0	0.0
J \ /·	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/lr		0.0	5.0	0.8	0.0	8.2	0.6	0.0	1.2	1.2	0.0	0.0
1 3 . ,	32.7	0.0	11.0	33.2	0.0	13.8	20.7	0.0	22.3	21.9	0.0	0.0
LnGrp LOS	С		В	С		В	С		С	С		
Approach Vol, veh/h		443			626			107			73	
Approach Delay, s/veh		12.3			15.0			21.7			21.9	
Approach LOS		В			В			С			С	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	40.0		20.0	8.0	40.0		20.0				
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax		36.0		16.0	16.0	36.0		16.0				
Max Q Clear Time (g_c+I1		11.3		4.7	3.2	16.9		4.6				
Green Ext Time (p_c), s		7.3		0.6	0.0	6.6		0.6				
Intersection Summary												
HCM 2010 Ctrl Delay			15.0									
HCM 2010 LOS			В									

•	•	<i>•</i>	4	†	ļ	4	
Movement EBL	EBR	FBI F	NBL	NBT	SBT	SBR	Į
Lane Configurations	7		NDE N	1	† ‡	JJIV	
Traffic Volume (veh/h) 48	21		22	316	308	73	
Future Volume (veh/h) 48	21	•	22	316	308	73	
Number 5	12	,	3	8	4	14	
Initial Q (Qb), veh 0	0		0	0	0	0	
Ped-Bike Adj(A_pbT) 1.00	1.00		1.00			1.00	
Parking Bus, Adj 1.00	1.00	•	1.00	1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln 1638	1810		1712	1743	1706	1900	
Adj Flow Rate, veh/h 55	24		25	363	354	84	
Adj No. of Lanes 1	1		1	1	2	0	
Peak Hour Factor 0.87	0.87		0.87	0.87	0.87	0.87	
Percent Heavy Veh, % 16	5		11	9	11	11	
Cap, veh/h 422	416		364	1107	951	223	
Arrive On Green 0.27	0.27		0.22	0.64	0.36	0.36	
Sat Flow, veh/h 1560	1538		1630	1743	2692	611	
							ĺ
Grp Volume(v), veh/h 55	24		25	363	218	220	
Grp Sat Flow(s), veh/h/ln1560	1538		1630	1743	1621	1598	
Q Serve(g_s), s 2.3	1.0		1.0	8.2	8.4	8.6	
Cycle Q Clear(g_c), s 2.3	1.0		1.0	8.2	8.4	8.6	
Prop In Lane 1.00	1.00		1.00			0.38	
Lane Grp Cap(c), veh/h 422	416		364	1107	591	583	
V/C Ratio(X) 0.13	0.06		0.07	0.33	0.37	0.38	
Avail Cap(c_a), veh/h 422	416		364	1107	591	583	
HCM Platoon Ratio 1.00	1.00		1.00	1.00	1.00	1.00	
Upstream Filter(I) 1.00	1.00	1.00 1	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh 23.4	23.0	s/veh 23.4 2	26.0	7.1	19.8	19.9	
Incr Delay (d2), s/veh 0.6	0.3	/eh 0.6	0.4	0.2	1.8	1.9	
Initial Q Delay(d3),s/veh 0.0	0.0		0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln1.1	0.4		0.5	3.9	4.1	4.1	
LnGrp Delay(d),s/veh 24.1	23.2	•	26.4	7.3	21.6	21.7	
LnGrp LOS C	C		С	A	С	С	
Approach Vol, veh/h 79				388	438		
Approach Delay, s/veh 23.8				8.5	21.7		
Approach LOS C				Α	C C		
•				А			
Timer 1	2	1	3	4	5	6	
Assigned Phs	2		3	4			
Phs Duration (G+Y+Rc), s	27.0	′+Rc), s 2	23.0	35.0			
Change Period (Y+Rc), s	4.0		4.0	4.0			
Max Green Setting (Gmax), s			19.0	31.0			
Max Q Clear Time (g_c+l1), s			3.0	10.6			
Green Ext Time (p_c), s	0.2		0.0	5.0			
Intersection Summary		•					
			1/0				
HCM 2010 Ctrl Delay		ıay	16.2				
HCM 2010 LOS			В				

	<u> </u>	_	•	<u></u>	1	1			
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations	W/	LDIN	NDL	<u>ND1</u>	<u> </u>	JUIN			
Traffic Volume (veh/h)	12	3	2	300	291	35			
Future Volume (veh/h)	12	3	2	300	291	35			
Number	5	12	3	8	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	U	U	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	950	1900	950	1810	1650	1900			
Adj Flow Rate, veh/h	14	4	2	353	342	41			
Adj No. of Lanes	0	0	1	1	1	0			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85			
Percent Heavy Veh, %		0.03	100	5	5	5			
Cap, veh/h	12	4	540	1429	1142	137			
Arrive On Green	0.02	0.02	0.79	0.79	0.79	0.79			
Sat Flow, veh/h	652	186	508	1810	1446	173			
Grp Volume(v), veh/h	19	0	2	353	0	383			
Grp Sat Flow(s), veh/h/l		0	508	1810	0	1619			
Q Serve(g_s), s	0.8	0.0	0.0	2.1	0.0	2.7			
Cycle Q Clear(g_c), s	0.8	0.0	2.8	2.1	0.0	2.7			
Prop In Lane	0.74	0.0	1.00	۷.۱	0.0	0.11			
Lane Grp Cap(c), veh/h		0.21	540	1429	0	1279			
V/C Ratio(X)	1.13	0.00	0.00	0.25	0.00	0.30			
Avail Cap(c_a), veh/h	402	0.00	540	1429	0.00	1279			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/ve		0.00	1.6	1.1	0.00	1.00			
Incr Delay (d2), s/veh		0.0	0.0	0.4	0.0	0.6			
Initial Q Delay(d3),s/vel		0.0	0.0	0.4	0.0	0.0			
%ile BackOfQ(50%),ve		0.0	0.0	1.1	0.0	1.4			
LnGrp Delay(d),s/veh		0.0	1.6	1.6	0.0	1.8			
LnGrp LOS	172.0 F	0.0	Α	Α	0.0	Α			
Approach Vol, veh/h	19			355	383				
Approach Delay, s/veh				1.6	1.8				
Approach LOS	172.0 F			Α	Α				
				А					
Timer	1	2	3	4	5	6	7	8	
Assigned Phs		2		4				8	
Phs Duration (G+Y+Rc		4.8		37.0				37.0	
Change Period (Y+Rc)		4.0		4.0				4.0	
Max Green Setting (Gn		19.0		33.0				33.0	
Max Q Clear Time (g_c		2.8		4.7				4.8	
Green Ext Time (p_c),	S	0.0		5.1				5.1	
Intersection Summary									
HCM 2010 Ctrl Delay			6.0						
HCM 2010 LOS			Α						
Notes									
User approved volume	balanci	ing amo	ng the	lanes fo	or turnir	ng move	ement.		

Intersection							
Int Delay, s/veh	1.6						
Movement	WBL	WBR		NBT	NBR	SBL	SBT
Lane Configurations	W			4			र्स
Traffic Vol, veh/h	12	10		107	4	10	43
Future Vol, veh/h	12	10		107	4	10	43
Conflicting Peds, #/hr	0	0		0	0	0	0
Sign Control	Stop	Stop		Free	Free	Free	Free
RT Channelized	-	None		-	None	-	None
Storage Length	0	-		-	-	-	-
Veh in Median Storage, #	0	-		0	-	-	0
Grade, %	0	-		0	-	-	0
Peak Hour Factor	81	81		81	81	81	81
Heavy Vehicles, %	12	10		13	100	100	8
Mvmt Flow	15	12		132	5	12	53
Major/Minor	Minor1			Major1		Major2	
Conflicting Flow All	213	135		0	0	137	0
Stage 1	135	-		-	-	-	-
Stage 2	78	-		-	-	-	-
Critical Hdwy	6.52	6.3		-	-	5.1	-
Critical Hdwy Stg 1	5.52	-		-	-	-	-
Critical Hdwy Stg 2	5.52	-		-	-	-	-
Follow-up Hdwy	3.608	3.39		-	-	3.1	-
Pot Cap-1 Maneuver	753	893		-	-	1014	-
Stage 1	867	-		-	-	-	-
Stage 2	920	-		-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	744	893		-	-	1014	-
Mov Cap-2 Maneuver	744	-		-	-	-	-
Stage 1	867	-		-	-	-	-
Stage 2	909	-		-	-	-	-
Approach	WB			NB		SB	
HCM Control Delay, s	9.6			0		1.6	
HCM LOS	А						
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT			
Capacity (veh/h)		- 805	1014				
HCM Lane V/C Ratio	-	- 0.034		-			
HCM Control Delay (s)	<u>-</u>	- 9.6	8.6	0			
HCM Lane LOS	-	- 9.0 - A	0.0 A	A			
HCM 95th %tile Q(veh)	<u>-</u>	- 0.1	0	-			
	-	U. I					

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	Α

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			4				4				4	
Traffic Vol, veh/h	0	11	2	21	0	3	1	4	0	9	101	2
Future Vol, veh/h	0	11	2	21	0	3	1	4	0	9	101	2
Peak Hour Factor	0.92	0.80	0.80	0.80	0.92	0.80	0.80	0.80	0.92	0.80	0.80	0.80
Heavy Vehicles, %	2	9	50	14	2	33	0	0	2	0	16	0
Mvmt Flow	0	14	3	26	0	4	1	5	0	11	126	3
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach		EB				WB				NB		
Opposing Approach		WB				EB				SB		
Opposing Lanes		1				1				1		
Conflicting Approach Left		SB				NB				EB		
Conflicting Lanes Left		1				1				1		
Conflicting Approach Right		NB				SB				WB		
Conflicting Lanes Right		1				1				1		
HCM Control Delay		7.4				7.8				7.9		
HCM LOS		Α				Α				Α		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	32%	38%	5%
Vol Thru, %	90%	6%	12%	78%
Vol Right, %	2%	62%	50%	17%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	112	34	8	58
LT Vol	9	11	3	3
Through Vol	101	2	1	45
RT Vol	2	21	4	10
Lane Flow Rate	140	42	10	72
Geometry Grp	1	1	1	1
Degree of Util (X)	0.158	0.049	0.013	0.081
Departure Headway (Hd)	4.052	4.118	4.744	4.004
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	881	854	759	887
Service Time	2.096	2.218	2.744	2.064
HCM Lane V/C Ratio	0.159	0.049	0.013	0.081
HCM Control Delay	7.9	7.4	7.8	7.4
HCM Lane LOS	А	Α	Α	Α
HCM 95th-tile Q	0.6	0.2	0	0.3

ln	ter	S	e	ct	İC	n

Intersection Delay, s/veh Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			4	
Traffic Vol, veh/h	0	3	45	10
Future Vol, veh/h	0	3	45	10
Peak Hour Factor	0.92	0.80	0.80	0.80
Heavy Vehicles, %	2	0	41	10
Mvmt Flow	0	4	56	13
Number of Lanes	0	0	1	0
Approach		SB		
Opposing Approach		NB		
Opposing Lanes		1		
Conflicting Approach Left		WB		
Conflicting Lanes Left		1		
Conflicting Approach Right		EB		
Conflicting Lanes Right		1		
Confidency Lanes Right				
HCM Control Delay		7.4		

	۶	→	7	•	~	•	+	•	/	Į,	↓	- ✓
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	SBL2	SBL	SBT	SBR
Lane Configurations	ሻ	† †	Ž.		7	ሻ	∱ ∱				4	7
Traffic Volume (vph)	81	380	75	19	61	48	637	3	5	60	18	107
Future Volume (vph)	81	380	75	19	61	48	637	3	5	60	18	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0				4.0	4.0
Lane Util. Factor	1.00	0.95	1.00		1.00	1.00	0.95				1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	1.00				1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	0.95	1.00				0.96	1.00
Satd. Flow (prot)	1736	3471	1524		1597	1770	3537				1608	1599
Flt Permitted	0.95	1.00	1.00		0.95	0.95	1.00				0.96	1.00
Satd. Flow (perm)	1736	3471	1524		1597	1770	3537				1608	1599
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	91	427	84	21	69	54	716	3	6	67	20	120
RTOR Reduction (vph)	0	0	31	0	0	0	1	0	0	0	0	88
Lane Group Flow (vph)	91	427	74	0	69	54	718	0	0	0	93	32
Heavy Vehicles (%)	4%	4%	5%	10%	13%	2%	2%	0%	0%	19%	0%	1%
Turn Type	Prot	NA	Perm		Prot	Prot	NA		Perm	Perm	NA	Perm
Protected Phases	5	2			1	1	6				8	
Permitted Phases			2						8	8		8
Actuated Green, G (s)	8.2	40.9	40.9		7.6	7.6	40.3				22.1	22.1
Effective Green, g (s)	8.2	40.9	40.9		7.6	7.6	40.3				22.1	22.1
Actuated g/C Ratio	0.10	0.50	0.50		0.09	0.09	0.49				0.27	0.27
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0	4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0				3.0	3.0
Lane Grp Cap (vph)	172	1718	754		146	162	1725				430	427
v/s Ratio Prot	c0.05	0.12			0.04	0.03	c0.20					
v/s Ratio Perm			0.05								0.06	0.02
v/c Ratio	0.53	0.25	0.10		0.47	0.33	0.42				0.22	0.08
Uniform Delay, d1	35.4	12.0	11.1		35.6	35.1	13.6				23.5	22.6
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00
Incremental Delay, d2	2.9	0.1	0.1		2.4	1.2	0.7				1.2	0.3
Delay (s)	38.3	12.1	11.1		38.0	36.3	14.3				24.7	23.0
Level of Service	D	В	В		D	D	В				C	С
Approach Delay (s)		15.7					17.7				23.7	
Approach LOS		В					В				С	
Intersection Summary												
HCM 2000 Control Delay			17.7	Н	ICM 2000	Level of	Service		В			
HCM 2000 Volume to Capa	city ratio		0.37									
Actuated Cycle Length (s)			82.6		um of lost				12.0			
Intersection Capacity Utiliza	ation		36.7%	10	CU Level o	of Service	1		А			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

Synchro 9 Report Page 1

	•	→	•	•	←	•	1	†	~	/		4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		414		*	सी	7		414		ሻ	1	
Traffic Volume (veh/h)	29	52	10	223	104	42	10	229	146	24	172	22
Future Volume (veh/h)	29	52	10	223	104	42	10	229	146	24	172	22
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	-	1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1841	1900	1792	1825	1827	1900	1714	1900	1638	1606	1900
Adj Flow Rate, veh/h	34	60	12	190	218	0	12	266	170	28	200	26
Adj No. of Lanes	0	2	0	1	1	1	0	2	0	1	1	0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	6	3	4	8	8	8	16	19	19
Cap, veh/h	62	116	24	855	914	778	65	489	296	218	362	47
Arrive On Green	0.06	0.06	0.06	0.50	0.50	0.00	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1093	2040	420	1707	1825	1553	30	1883	1141	834	1393	181
Grp Volume(v), veh/h	56	0	50	190	218	0	246	0	202	28	0	226
Grp Sat Flow(s),veh/h/li		0	1767	1707	1825	1553	1696	0	1359	834	0	1574
Q Serve(g_s), s	2.0	0.0	1.8	4.1	4.5	0.0	0.0	0.0	8.5	2.0	0.0	8.2
Cycle Q Clear(g_c), s	2.0	0.0	1.8	4.1	4.5	0.0	8.1	0.0	8.5	10.5	0.0	8.2
Prop In Lane	0.61		0.24	1.00		1.00	0.05		0.84	1.00		0.12
Lane Grp Cap(c), veh/h		0	101	855	914	778	498	0	353	218	0	409
V/C Ratio(X)	0.55	0.00	0.50	0.22	0.24	0.00	0.49	0.00	0.57	0.13	0.00	0.55
Avail Cap(c_a), veh/h	515	0	510	855	914	778	975	0	743	457	0	860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/vel		0.0	30.2	9.2	9.3	0.0	21.1	0.0	21.2	25.8	0.0	21.1
Incr Delay (d2), s/veh	4.5	0.0	3.8	0.6	0.6	0.0	0.8	0.0	1.5	0.3	0.0	1.2
Initial Q Delay(d3),s/vel		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),vel		0.0	1.0	2.0	2.4	0.0	3.9	0.0	3.4	0.5	0.0	3.6
LnGrp Delay(d),s/veh	34.7	0.0	34.0	9.8	9.9	0.0	21.8	0.0	22.7	26.0	0.0	22.2
LnGrp LOS	С		С	Α	Α		С		С	С		С
Approach Vol, veh/h		106			408			448			254	
Approach Delay, s/veh		34.4			9.9			22.2			22.7	
Approach LOS		С			Α			С			С	
imer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc)). s	7.8		21.1		37.0		21.1				
Change Period (Y+Rc),		4.0		4.0		4.0		4.0				
Max Green Setting (Gm		19.0		36.0		33.0		36.0				
Max Q Clear Time (q_c		4.0		12.5		6.5		10.5				
Green Ext Time (p_c), s		0.4		4.6		1.8		4.7				
ntersection Summary												
HCM 2010 Ctrl Delay			19.2									
HCM 2010 LOS			В									
Notes												
User approved volume	balanci	ing amo	ng the	lanes fo	or turnir	ng move	ement.					
		J	J .			J						

Inte		

Intersection Delay, s/veh 8.1 Intersection LOS A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			4				4				4					
Traffic Vol, veh/h	0	6	21	13	0	36	38	20	0	7	71	23	0	0	0	0
Future Vol, veh/h	0	6	21	13	0	36	38	20	0	7	71	23	0	0	0	0
Peak Hour Factor	0.92	0.81	0.81	0.81	0.92	0.81	0.81	0.81	0.92	0.81	0.81	0.81	0.92	0.81	0.81	0.81
Heavy Vehicles, %	2	16	9	15	2	28	2	25	2	0	4	28	2	0	0	0
Mvmt Flow	0	7	26	16	0	44	47	25	0	9	88	28	0	0	0	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0

Approach	EB	WB	NB	
Opposing Approach	WB	EB		
Opposing Lanes	1	1	0	
Conflicting Approach Left		NB	EB	
Conflicting Lanes Left	0	1	1	
Conflicting Approach Right	NB		WB	
Conflicting Lanes Right	1	0	1	
HCM Control Delay	7.7	8.5	7.9	
HCM LOS	Α	А	A	

Lane	NBLn1	EBLn1\	VBLn1
Vol Left, %	7%	15%	38%
Vol Thru, %	70%	53%	40%
Vol Right, %	23%	33%	21%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	101	40	94
LT Vol	7	6	36
Through Vol	71	21	38
RT Vol	23	13	20
Lane Flow Rate	125	49	116
Geometry Grp	1	1	1
Degree of Util (X)	0.145	0.061	0.148
Departure Headway (Hd)	4.175	4.418	4.584
Convergence, Y/N	Yes	Yes	Yes
Cap	863	814	773
Service Time	2.179	2.426	2.667
HCM Lane V/C Ratio	0.145	0.06	0.15
HCM Control Delay	7.9	7.7	8.5
HCM Lane LOS	А	Α	Α
HCM 95th-tile Q	0.5	0.2	0.5

Intersection						
Int Delay, s/veh	3.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	VVDL	7	161	ווטוז	JDL	וטנ
Traffic Vol, veh/h	0	103	75	98	0	0
Future Vol, veh/h	0	103	75	98	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	- -	None	-	None		None
Storage Length	_	0	-	-	_	-
Veh in Median Storage, #	. 0	-	0	_	_	_
Grade, %	0	-	0	_	-	0
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	4	6	5	0	0
Mvmt Flow	0	123	89	117	0	0
Major/Minor	Minor1		Major1			
Conflicting Flow All	-	148	0	0		
Stage 1	-	-	-	-		
Stage 2	_	-	-	_		
Critical Hdwy	-	6.24	-	_		
Critical Hdwy Stg 1		-	<u>-</u>	_		
Critical Hdwy Stg 2	-	-	-	-		
Follow-up Hdwy	-	3.336	-	-		
Pot Cap-1 Maneuver	0	894	-	-		
Stage 1	0	-	-	-		
Stage 2	0	-	-	-		
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	894	-	-		
Mov Cap-2 Maneuver	-	-	-	-		
Stage 1	-	-	-	-		
Stage 2	-	-	-	-		
Approach	WB		NB			
HCM Control Delay, s	9.7		0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1				
Capacity (veh/h)	-	- 894				
HCM Lane V/C Ratio	-	- 0.137				
HCM Control Delay (s)	_	- 9.7				
HCM Lane LOS	-	- A				
HCM 95th %tile Q(veh)	-	- 0.5				
/ 541 / 5410 (2(1011)		0.0				

	•	→	•	-	←	•	•	†	<u> </u>	<u> </u>	+	- ✓
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1,4	ተ ኈ		Ť	† †	7	7	† †	7	ř	^	7
Traffic Volume (veh/h)	167	303	49	136	459	255	78	466	40	175	620	391
Future Volume (veh/h)	167	303	49	136	459	255	78	466	40	175	620	391
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1822	1900	1881	1827	1863	1845	1845	1900	1863	1845	1845
Adj Flow Rate, veh/h	180	326	53	146	494	0	84	501	43	188	667	0
Adj No. of Lanes	2	2	0	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	4	4	4	1	4	2	3	3	0	2	3	3
Cap, veh/h	284	682	110	191	871	397	109	984	454	241	1242	556
Arrive On Green	0.08	0.23	0.23	0.11	0.25	0.00	0.06	0.28	0.28	0.14	0.35	0.00
Sat Flow, veh/h	3375	2987	481	1792	3471	1583	1757	3505	1615	1774	3505	1568
Grp Volume(v), veh/h	180	187	192	146	494	0	84	501	43	188	667	0
Grp Sat Flow(s), veh/h/ln	1688	1731	1737	1792	1736	1583	1757	1752	1615	1774	1752	1568
Q Serve(g_s), s	3.3	6.0	6.2	5.1	8.0	0.0	3.0	7.7	1.3	6.6	9.8	0.0
Cycle Q Clear(g_c), s	3.3	6.0	6.2	5.1	8.0	0.0	3.0	7.7	1.3	6.6	9.8	0.0
Prop In Lane	1.00		0.28	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	284	395	397	191	871	397	109	984	454	241	1242	556
V/C Ratio(X)	0.63	0.47	0.48	0.76	0.57	0.00	0.77	0.51	0.09	0.78	0.54	0.00
Avail Cap(c_a), veh/h	681	725	728	612	1940	885	382	1632	752	688	2230	998
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.5	21.5	21.6	28.0	21.1	0.0	29.8	19.4	17.1	26.9	16.6	0.0
Incr Delay (d2), s/veh	2.3	0.9	0.9	6.2	0.6	0.0	10.9	0.4	0.1	5.5	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.0	3.0	2.8	3.9	0.0	1.8	3.7	0.6	3.6	4.8	0.0
LnGrp Delay(d),s/veh	30.9	22.4	22.5	34.2	21.7	0.0	40.6	19.8	17.2	32.4	16.9	0.0
LnGrp LOS	С	С	С	С	С		D	В	В	С	В	
Approach Vol, veh/h		559			640			628			855	
Approach Delay, s/veh		25.1			24.5			22.4			20.3	
Approach LOS		С			С			С			С	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	18.7	8.0	26.8	9.4	20.2	12.7	22.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	22.0	27.0	14.0	41.0	13.0	36.0	25.0	30.0				
Max Q Clear Time (g_c+I1), s	7.1	8.2	5.0	11.8	5.3	10.0	8.6	9.7				
Green Ext Time (p_c), s	0.3	5.5	0.1	9.7	0.3	6.2	0.4	8.4				
Intersection Summary												
HCM 2010 Ctrl Delay			22.8									
HCM 2010 LOS			С									

	ၨ	→	•	√	←	•	•	†	<u> </u>	<u> </u>	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	11	25.1	ሻሻ	^	7	ሻ	†	77	ሻሻ	†	7
Traffic Volume (veh/h)	213	1529	49	278	1394	515	27	166	203	412	161	185
Future Volume (veh/h)	213	1529	49	278	1394	515	27	166	203	412	161	185
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1827	1827	1792	1712	1810	1810	1610	1727	1743
Adj Flow Rate, veh/h	220	1576	0	287	1437	0	28	171	209	425	166	191
Adj No. of Lanes	1	3	0	2	3	1	1	1	2	2	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	4	4	6	11	5	5	18	10	9
Cap, veh/h	239	2339	0	328	2120	648	252	280	419	599	348	298
Arrive On Green	0.14	0.46	0.00	0.10	0.43	0.00	0.15	0.15	0.15	0.20	0.20	0.20
Sat Flow, veh/h	1757	5204	0.00	3375	4988	1524	1630	1810	2707	2975	1727	1482
Grp Volume(v), veh/h	220	1576	0	287	1437	0	28	171	209	425	166	191
Grp Sat Flow(s), veh/h/li		1679	0	1688	1663	1524	1630	1810	1354	1487	1727	1482
Q Serve(g_s), s	24.0	47.3	0.0	16.3	45.1	0.0	2.9	17.1	13.7	25.8	16.5	22.9
Cycle Q Clear(q_c), s	24.0	47.3	0.0	16.3	45.1	0.0	2.9	17.1	13.7	25.8	16.5	22.9
Prop In Lane	1.00	47.5	0.00	1.00	40.1	1.00	1.00	17.1	1.00	1.00	10.5	1.00
Lane Grp Cap(c), veh/h		2339	0.00	328	2120	648	252	280	419	599	348	298
V/C Ratio(X)	0.92	0.67	0.00	0.88	0.68	0.00	0.11	0.61	0.50	0.71	0.48	0.64
Avail Cap(c_a), veh/h	335	2339	0.00	435	2120	648	252	280	419	599	348	298
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/vel		40.5	0.00	86.3	45.0	0.00	70.4	76.5	75.0	72.1	68.4	71.0
Incr Delay (d2), s/veh	23.7	1.6	0.0	14.3	1.8	0.0	0.9	9.6	4.2	7.0	4.6	10.1
Initial Q Delay(d3),s/vel		0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),vel		22.2	0.0	8.3	21.1	0.0	1.4	9.3	5.4	11.2	8.3	10.2
LnGrp Delay(d),s/veh		42.0	0.0	100.7	46.8	0.0	71.3	86.0	79.2	79.1	73.1	81.1
LnGrp LOS	F	42.0 D	0.0	F	40.0 D	0.0	71.3 E	60.0 F	7 7.Z E	7 7. 1 E	73.1 E	61.1 F
Approach Vol, veh/h	'	1796		'	1724			408			782	'
Approach Delay, s/veh		49.9			55.7			81.5			78.3	
Approach LOS		49.9 D			55.7 E			61.5 F			70.3 E	
Appluacii EU3		U			L			Г			L	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc)		94.0		34.0	30.4	86.4		43.0				
Change Period (Y+Rc),		4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gm		90.0		30.0	37.0	78.0		39.0				
Max Q Clear Time (g_c		49.3		19.1	26.0	47.1		27.8				
Green Ext Time (p_c), s	0.6	33.8		1.4	0.5	26.7		2.6				
Intersection Summary												
HCM 2010 Ctrl Delay			59.5									
HCM 2010 LOS			Е									

	•	→	•	•	←	•	•	<u>†</u>	<u> </u>	<u> </u>		1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	4TÞ			414		ሻ	†		ሻ	† †	77
Traffic Volume (veh/h)	1428	392	51	7	367	27	95	294	24	58	209	1471
Future Volume (veh/h)		392	51	7	367	27	95	294	24	58	209	1471
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1839	1900	1900	1849	1900	1881	1883	1900	1881	1845	1827
Adj Flow Rate, veh/h	1587	436	57	8	408	0	106	327	27	64	232	1634
Adj No. of Lanes	2	1	0	0	2	0	1	2	0	1	2	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	4	4	3	3	3	1	1	1	1	3	4
Cap, veh/h	1209	548	72	10	518	0	138	1075	88	84	1020	1196
Arrive On Green	0.34	0.34	0.34	0.15	0.15	0.00	0.08	0.32	0.32	0.05	0.29	0.29
Sat Flow, veh/h	3514	1594	208	66	3629	0.00	1792	3348	275	1792	3505	2733
Grp Volume(v), veh/h	1587	0	493	223	193	0	106	174	180	64	232	1634
Grp Volume(v), ven/m Grp Sat Flow(s),veh/h/li		0	1803	1846	1757	0	1792	1788	1834	1792	1752	1367
Q Serve(g_s), s	39.0	0.0	28.0	13.3	11.9	0.0	6.6	8.3	8.4	4.0	5.7	33.0
Cycle Q Clear(g_c), s	39.0	0.0	28.0	13.3	11.9	0.0	6.6	8.3	8.4	4.0	5.7	33.0
Prop In Lane	1.00	0.0	0.12	0.04	11.7	0.00	1.00	0.0	0.15	1.00	5.7	1.00
Lane Grp Cap(c), veh/h		0	620	271	257	0.00	138	574	589	84	1020	1196
V/C Ratio(X)	1.31	0.00	0.79	0.82	0.75	0.00	0.77	0.30	0.31	0.76	0.23	1.37
Avail Cap(c_a), veh/h	1209	0.00	620	358	341	0.00	632	574	589	711	1020	1196
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/vel		0.0	33.6	47.0	46.4	0.0	51.3	28.9	29.0	53.4	30.5	27.2
Incr Delay (d2), s/veh		0.0	7.1	11.2	6.3	0.0	8.5	0.3	0.3	12.9	0.1	170.2
Initial Q Delay(d3),s/vel		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),vel		0.0	15.2	7.6	6.2	0.0	3.6	4.2	4.3	2.3	2.8	46.9
LnGrp Delay(d),s/veh		0.0	40.7	58.1	52.7	0.0	59.8	29.2	29.3	66.3	30.6	197.4
LnGrp LOS	F		D	E	D		E	C	C	E	С	F
Approach Vol, veh/h		2080			416			460			1930	
Approach Delay, s/veh		150.0			55.6			36.3			173.0	
Approach LOS		F			E			D			F	
•	1					,	-					
Timer	T	2	3	4	5	6		8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc)		20.6	12.8	37.0		43.0	9.3	40.4				
Change Period (Y+Rc),		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gm		22.0	40.0	33.0		39.0	45.0	28.0				
Max Q Clear Time (g_c		15.3	8.6	35.0		41.0	6.0	10.4				
Green Ext Time (p_c), s	5	1.3	0.6	0.0		0.0	0.2	2.2				
Intersection Summary												
HCM 2010 Ctrl Delay			140.4									
HCM 2010 LOS			F									
Notes												
User approved volume	balanc	ing amo	ng the	lanes fo	or turnir	ng move	ement.					
		J	J .			J						

	۶	-	`	•	←	•	•	†	~	\	Ţ	√
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	, N	∱ }		Ĭ	†	7	ħ	†	7	ħ	†	7
Traffic Volume (veh/h)	108	638	31	228	379	119	8	170	229	126	327	174
Future Volume (veh/h)	108	638	31	228	379	119	8	170	229	126	327	174
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1897	1900	1900	1881	1900	1900	1881	1900	1827	1900	1900
Adj Flow Rate, veh/h	115	679	33	243	403	127	9	181	244	134	348	185
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	0	0	0	1	0	0	1	0	4	0	0
Cap, veh/h	370	1226	60	285	564	484	16	353	303	167	522	443
Arrive On Green	0.21	0.35	0.35	0.16	0.30	0.30	0.01	0.19	0.19	0.10	0.27	0.27
Sat Flow, veh/h	1774	3500	170	1810	1881	1615	1810	1881	1615	1740	1900	1615
Grp Volume(v), veh/h	115	350	362	243	403	127	9	181	244	134	348	185
Grp Sat Flow(s), veh/h/ln	1774	1802	1867	1810	1881	1615	1810	1881	1615	1740	1900	1615
Q Serve(g_s), s	4.2	12.0	12.0	10.0	14.7	4.6	0.4	6.6	11.1	5.8	12.5	7.2
Cycle Q Clear(g_c), s	4.2	12.0	12.0	10.0	14.7	4.6	0.4	6.6	11.1	5.8	12.5	7.2
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	370	631	654	285	564	484	16	353	303	167	522	443
V/C Ratio(X)	0.31	0.55	0.55	0.85	0.72	0.26	0.55	0.51	0.81	0.80	0.67	0.42
Avail Cap(c_a), veh/h	370	631	654	330	564	484	94	392	337	204	522	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	20.1	20.1	31.5	24.0	20.4	37.9	28.0	29.9	34.0	24.7	22.8
Incr Delay (d2), s/veh	2.2	3.5	3.4	16.9	7.6	1.3	25.3	1.2	12.3	16.9	3.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	6.5	6.8	6.3	8.8	2.2	0.3	3.5	5.9	3.6	6.9	3.3
LnGrp Delay(d),s/veh	27.9	23.6	23.5	48.4	31.5	21.8	63.2	29.2	42.1	50.9	28.0	23.4
LnGrp LOS	С	С	С	D	С	С	Е	С	D	D	С	С
Approach Vol, veh/h		827			773			434			667	
Approach Delay, s/veh		24.1			35.2			37.2			31.3	
Approach LOS		С			D			D			С	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.1	30.9	4.7	25.1	20.0	27.0	11.4	18.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	14.0	25.0	4.0	21.0	16.0	23.0	9.0	16.0				
Max Q Clear Time (g_c+l1), s	12.0	14.0	2.4	14.5	6.2	16.7	7.8	13.1				
Green Ext Time (p_c), s	0.1	5.5	0.0	2.6	0.2	3.7	0.0	1.3				
Intersection Summary												
HCM 2010 Ctrl Delay			31.2									
HCM 2010 LOS			31.2 C									
HOW ZUTU LUS			C									

	•		$\overline{}$		←	•	•	†	<u> </u>	_	1	7
Movement	EBL	EBT	€BR	₩BL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
	TDL	<u>₽</u>	LDIN	VVDL	₩D1	WDIN	NDL	10D1	NDIX	JDL	3D1 ↔	JUIN
Lane Configurations		660	25		470	90	41	79	52	57	59	41
Traffic Volume (veh/h)	55 55	660	25	41 41	470	90	41	79	52	57	59	41
Future Volume (veh/h)		2	12			16			18	7	4	14
Number	5			1	6		3	8			0	
Initial Q (Qb), veh	0	0	1.00	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00
Ped-Bike Adj(A_pbT)	1.00	1 00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1900
•	1727	1900	1900	1900	1894	1900	1900	1844	1900	1900	1805	
Adj Flow Rate, veh/h	59	702	27	44	500	96	44	84	55	61	63	44
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	107	0	0	104	012	154	0	5	5 150	5	5 155	5
Cap, veh/h	107	968	37	106	812	156	392	243	159	161	155	87
Arrive On Green	0.07	0.53	0.53	0.06	0.53	0.53	0.23	0.23	0.23	0.23	0.23	0.23
	1645	1818	70	1810	1545	297	1307	1042	682	381	665	371
Grp Volume(v), veh/h	59	0	729	44	0	596	44	0	139	168	0	0
Grp Sat Flow(s), veh/h/ln		0	1888	1810	0	1842	1307	0	1724	1416	0	0
Q Serve(g_s), s	2.4	0.0	20.1	1.6	0.0	15.5	0.0	0.0	4.6	2.8	0.0	0.0
Cycle Q Clear(g_c), s	2.4	0.0	20.1	1.6	0.0	15.5	2.1	0.0	4.6	7.4	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.16	1.00		0.40	0.36		0.26
Lane Grp Cap(c), veh/h		0	1005	106	0	968	392	0	403	403	0	0
V/C Ratio(X)	0.55	0.00	0.73	0.42	0.00	0.62	0.11	0.00	0.34	0.42	0.00	0.00
Avail Cap(c_a), veh/h	384	0	1005	423	0	968	392	0	403	403	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		0.0	12.2	31.1	0.0	11.4	20.9	0.0	21.9	22.8	0.0	0.0
Incr Delay (d2), s/veh	4.4	0.0	4.6	2.6	0.0	2.9	0.6	0.0	2.3	3.2	0.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh		0.0	11.6	0.9	0.0	8.6	0.7	0.0	2.5	3.1	0.0	0.0
LnGrp Delay(d),s/veh	35.4	0.0	16.7	33.7	0.0	14.3	21.5	0.0	24.2	25.9	0.0	0.0
LnGrp LOS	D		В	С		В	С		С	С		
Approach Vol, veh/h		788			640			183			168	
Approach Delay, s/veh		18.1			15.6			23.5			25.9	
Approach LOS		В			В			С			С	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc)	•	40.5		20.0	8.5	40.0		20.0				
Change Period (Y+Rc),		4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gm.		36.0		16.0	16.0	36.0		16.0				
Max Q Clear Time (g_c+		22.1		9.4	4.4	17.5		6.6				
Green Ext Time (p_c), s		7.7		1.1	0.1	9.1		1.3				
u — ,	0.0	7.7		1.1	0.1	7.1		1.0				
Intersection Summary HCM 2010 Ctrl Delay			18.5									
HCM 2010 LOS			10.3 B									
TICIVI ZUTU LUS			D									

	•	•	•	†	+	4		
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations	T T	Į,	NDL	<u>ND1</u>	†	ODIN		
Traffic Volume (veh/h)	116	61	56	425	657	157		
Future Volume (veh/h)	116	61	56	425	657	157		
Number	5	12	3	8	4	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
	1881	1845	1810	1827	1860	1900		
Adj Flow Rate, veh/h	121	64	58	443	684	164		
Adj No. of Lanes	1	1	1	1	2	0		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	1	3	5	4	1	1		
Cap, veh/h	443	387	345	1204	1165	279		
Arrive On Green	0.25	0.25	0.20	0.66	0.41	0.41		
	1792	1568	1723	1827	2922	678		
Grp Volume(v), veh/h	121	64	58	443	427	421		
Grp Sat Flow(s), veh/h/ln		1568	1723	1827	1767	1740		
Q Serve(g_s), s	4.6	2.7	2.4	9.3	15.9	16.0		
Cycle Q Clear(g_c), s	4.6	2.7	2.4	9.3	15.9	16.0		
Prop In Lane	1.00	1.00	1.00	,	. 3.7	0.39		
Lane Grp Cap(c), veh/h		387	345	1204	728	717		
V/C Ratio(X)	0.27	0.17	0.17	0.37	0.59	0.59		
Avail Cap(c_a), veh/h	443	387	345	1204	728	717		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh		25.1	28.1	6.5	19.4	19.4		
Incr Delay (d2), s/veh	1.5	0.9	1.1	0.2	3.5	3.5		
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh		1.3	1.2	4.6	8.4	8.3		
LnGrp Delay(d),s/veh	27.4	26.0	29.2	6.7	22.8	22.9		
LnGrp LOS	C	C	C	Α	C	C		
Approach Vol, veh/h	185			501	848			
				9.3	22.9			
Approach LOS	C C			7.3 A	C			
	U							
Timer	1	2	3	4	5	6	7 8	
Assigned Phs		2	3	4			8	
Phs Duration (G+Y+Rc)		25.0	21.0	39.0			60.0	
Change Period (Y+Rc),		4.0	4.0	4.0			4.0	
Max Green Setting (Gma	ax), s	21.0	17.0	35.0			56.0	
Max Q Clear Time (g_c+	+I1), s	6.6	4.4	18.0			11.3	
Green Ext Time (p_c), s		0.4	0.1	7.9			11.2	
Intersection Summary								
HCM 2010 Ctrl Delay			18.9					
HCM 2010 LOS			В					

	۶	•	•	†	↓	4						
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	¥		ሻ	†	†							
Traffic Volume (veh/h)	17	3	5	442	664	18						
Future Volume (veh/h)	17	3	5	442	664	18						
Number	5	12	3	8	4	14						
nitial Q (Qb), veh	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Adj Sat Flow, veh/h/ln	985	1900	1056	1900	1841	1900						
Adj Flow Rate, veh/h	18	3	5	460	692	19						
dj No. of Lanes	0	0	1	1	1	0						
eak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96						
Percent Heavy Veh, %	0	0	80	0	1	1						
Cap, veh/h	16	3	443	1505	1412	39						
Arrive On Green	0.02	0.02	0.79	0.79	0.79	0.79						
Sat Flow, veh/h	757	126	417	1900	1783	49						
Grp Volume(v), veh/h	22	0	5	460	0	711						
Grp Sat Flow(s), veh/h/li		0	417	1900	0	1832						
)	0.9	0.0	0.2	2.9	0.0	5.7						
Cycle Q Clear(g_c), s	0.9	0.0	5.8	2.9	0.0	5.7						
rop In Lane	0.82	0.14	1.00	2.7	0.0	0.03						
ane Grp Cap(c), veh/h		0.14	443	1505	0	1451						
//C Ratio(X)	1.11	0.00	0.01	0.31	0.00	0.49						
vail Cap(c_a), veh/h	388	0.00	443	1505	0.00	1451						
ICM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Ipstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00						
Jniform Delay (d), s/vel		0.00	2.5	1.00	0.00	1.5						
			0.0	0.5		1.3						
ncr Delay (d2), s/veh		0.0			0.0							
nitial Q Delay(d3),s/vel		0.0	0.0	0.0	0.0	0.0						
6ile BackOfQ(50%),vel		0.0	0.0	1.6	0.0	3.2						
nGrp Delay(d),s/veh		0.0	2.6	1.7	0.0	2.7						
nGrp LOS	F		A	A	744	A						_
pproach Vol, veh/h	22			465	711							
pproach Delay, s/veh	_			1.8	2.7							
pproach LOS	F			Α	Α							
mer	1	2	3	4	5	6	7	8				
ssigned Phs		2		4				8				
hs Duration (G+Y+Rc)), S	4.9		38.0			3	8.0				
hange Period (Y+Rc),	S	4.0		4.0				4.0				
lax Green Setting (Gm		18.0		34.0			3	4.0				
lax Q Clear Time (g_c	+l1), s	2.9		7.7				7.8				
Green Ext Time (p_c), s		0.0		9.3				9.3				
ntersection Summary												
CM 2010 Ctrl Delay			5.1									
ICM 2010 LOS			Α									
otes												
Iser approved volume	balanci	ng amo	na the	lanes fo	or turnir	na move	ement.					

Intersection							
Int Delay, s/veh	1.1						
Movement	WBL	WBR		NBT	NBR	SBL	SBT
Lane Configurations	¥			4			र्स
Traffic Vol, veh/h	9	11		194	3	12	75
Future Vol, veh/h	9	11		194	3	12	75
Conflicting Peds, #/hr	0	0		0	0	0	0
Sign Control	Stop	Stop		Free	Free	Free	Free
RT Channelized	-	None		-	None	-	None
Storage Length	0	-		-	-	-	-
Veh in Median Storage, #	0	-		0	-	-	0
Grade, %	0	-		0	-	-	0
Peak Hour Factor	90	90		90	90	90	90
Heavy Vehicles, %	100	90		4	100	90	1
Mvmt Flow	10	12		216	3	13	83
Major/Minor	Minor1			Major1		Major2	
Conflicting Flow All	327	217		0	0	219	0
Stage 1	217	-		-	-	-	-
Stage 2	110	-		-	-	-	-
Critical Hdwy	7.4	7.1		-	-	5	-
Critical Hdwy Stg 1	6.4	-		-	-	-	-
Critical Hdwy Stg 2	6.4	-		-	-	_	-
Follow-up Hdwy	4.4	4.11		-	-	3.01	-
Pot Cap-1 Maneuver	507	645		-	-	966	-
Stage 1	633	-		-	-	-	-
Stage 2	719	-		-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	500	645		-	-	966	-
Mov Cap-2 Maneuver	500	-		-	-	-	-
Stage 1	633	-		-	-	-	-
Stage 2	709	-		-	-	-	-
Approach	WB			NB		SB	
HCM Control Delay, s	11.6			0		1.2	
HCM LOS	В			0		1.2	
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT			
Capacity (veh/h)	- IVD1	- 571	966	-			
HCM Lane V/C Ratio	-	- 0.039		-			
HCM Control Delay (s)	<u>-</u>	- 11.6	8.8	0			
HCM Lane LOS	-	- 11.0 - B	Α	A			
HCM 95th %tile Q(veh)	<u>-</u>	- 0.1	0	- -			
HOW FOUT FOUT Q(VOII)		U. I	- 0				

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	А

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			4				4				4	
Traffic Vol, veh/h	0	18	4	35	0	4	2	4	0	23	181	6
Future Vol, veh/h	0	18	4	35	0	4	2	4	0	23	181	6
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	0	0	0	2	0	0	0	2	0	7	0
Mvmt Flow	0	19	4	38	0	4	2	4	0	25	195	6
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach		EB				WB				NB		
Opposing Approach		WB				EB				SB		
Opposing Lanes		1				1				1		
Conflicting Approach Left		SB				NB				EB		
Conflicting Lanes Left		1				1				1		
Conflicting Approach Right		NB				SB				WB		
Conflicting Lanes Right		1				1				1		
HCM Control Delay		7.6				7.6				8.6		
HCM LOS		Α				Α				Α		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	11%	32%	40%	5%	
Vol Thru, %	86%	7%	20%	86%	
Vol Right, %	3%	61%	40%	9%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	210	57	10	88	
LT Vol	23	18	4	4	
Through Vol	181	4	2	76	
RT Vol	6	35	4	8	
Lane Flow Rate	226	61	11	95	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.257	0.073	0.013	0.109	
Departure Headway (Hd)	4.102	4.304	4.509	4.152	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Cap	867	837	798	850	
Service Time	2.168	2.304	2.511	2.246	
HCM Lane V/C Ratio	0.261	0.073	0.014	0.112	
HCM Control Delay	8.6	7.6	7.6	7.8	
HCM Lane LOS	Α	Α	Α	Α	
HCM 95th-tile Q	1	0.2	0	0.4	

ı	n	t	Д	rs	Д	ct	i	n	n
	ш	ι	ᆫ	ıs	ᆫ	U	ч	U	П

Intersection Delay, s/veh Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			4	
Traffic Vol, veh/h	0	4	76	8
Future Vol, veh/h	0	4	76	8
Peak Hour Factor	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	0	17	0
Mvmt Flow	0	4	82	9
Number of Lanes	0	0	1	0
A marine a sh		CD		
Approach		SB		
Opposing Approach		NB		
Opposing Lanes		1		
Conflicting Approach Left		WB		
Conflicting Lanes Left		1		
Conflicting Approach Right		EB		
Conflicting Lanes Right		1		
HCM Control Delay		7.8		
HCM LOS		Α		

Santa Cruz DRP Study 7: Pacific Street & Front Street & Mission Street/Water Street

Existing + Project
PM Peak

	٦	→	74	•	4	•	←	4	/	Į,	 	4
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	SBL2	SBL	SBT	SBR
Lane Configurations	¥	^	Ž.		7	Ĭ	∱ ∱				4	7
Traffic Volume (vph)	152	629	110	19	108	49	630	3	19	131	33	174
Future Volume (vph)	152	629	110	19	108	49	630	3	19	131	33	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0				4.0	4.0
Lane Util. Factor	1.00	0.95	1.00		1.00	1.00	0.95				1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	1.00				1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	0.95	1.00				0.96	1.00
Satd. Flow (prot)	1787	3574	1590		1787	1770	3572				1744	1599
Flt Permitted	0.95	1.00	1.00		0.95	0.95	1.00				0.96	1.00
Satd. Flow (perm)	1787	3574	1590		1787	1770	3572				1744	1599
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	163	676	118	20	116	53	677	3	20	141	35	187
RTOR Reduction (vph)	0	0	33	0	0	0	1	0	0	0	0	111
Lane Group Flow (vph)	163	676	105	0	116	53	679	0	0	0	196	76
Heavy Vehicles (%)	1%	1%	1%	5%	1%	2%	1%	0%	5%	5%	3%	1%
Turn Type	Prot	NA	Perm		Prot	Prot	NA		Perm	Perm	NA	Perm
Protected Phases	5	2			1	1	6				8	
Permitted Phases			2						8	8		8
Actuated Green, G (s)	12.6	37.4	37.4		9.2	9.2	34.0				24.0	24.0
Effective Green, g (s)	12.6	37.4	37.4		9.2	9.2	34.0				24.0	24.0
Actuated g/C Ratio	0.15	0.45	0.45		0.11	0.11	0.41				0.29	0.29
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0	4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0				3.0	3.0
Lane Grp Cap (vph)	272	1618	719		199	197	1470				506	464
v/s Ratio Prot	c0.09	c0.19			0.06	0.03	c0.19					
v/s Ratio Perm			0.07								0.11	0.05
v/c Ratio	0.60	0.42	0.15		0.58	0.27	0.46				0.39	0.16
Uniform Delay, d1	32.6	15.3	13.2		34.9	33.6	17.7				23.4	21.8
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00
Incremental Delay, d2	3.5	0.2	0.1		4.3	0.7	1.0				2.2	0.8
Delay (s)	36.2	15.4	13.3		39.2	34.4	18.7				25.7	22.6
Level of Service	D	В	В		D	С	В				С	С
Approach Delay (s)		18.6					22.5				24.2	
Approach LOS		В					С				С	
Intersection Summary												
HCM 2000 Control Delay			21.1	H	ICM 2000	Level of	Service		С			
HCM 2000 Volume to Capa	city ratio		0.45									
Actuated Cycle Length (s)			82.6		ium of lost				12.0			
Intersection Capacity Utiliza	tion		46.0%	[(CU Level of	of Service	!		А			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

Synchro 9 Report Page 1

	ၨ	-	•	•	—	•	•	†	~	/	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		414		ሻ	4	7		414		ሻ	ĵ.	
Traffic Volume (veh/h)	50	111	42	427	94	36	10	318	221	79	406	36
Future Volume (veh/h)	50	111	42	427	94	36	10	318	221	79	406	36
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1859	1900	1900	1880	1900	1900	1832	1900	1881	1817	1900
Adj Flow Rate, veh/h	53	117	44	520	0	0	11	335	233	83	427	38
Adj No. of Lanes	0	2	0	2	0	1	0	2	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	0	3	0	5	5	5	1	5	5
Cap, veh/h	80	182	71	1467	0	655	54	674	451	266	573	51
Arrive On Green	0.09	0.09	0.09	0.41	0.00	0.00	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	851	1939	753	3619	0	1615	21	1934	1295	848	1644	146
Grp Volume(v), veh/h	113	0	101	520	0	0	320	0	259	83	0	465
Grp Sat Flow(s), veh/h/lr		0	1726	1810	0	1615	1811	0	1439	848	0	1791
Q Serve(q_s), s	4.8	0.0	4.4	7.9	0.0	0.0	0.0	0.0	11.3	6.8	0.0	18.0
Cycle Q Clear(g_c), s	4.8	0.0	4.4	7.9	0.0	0.0	18.0	0.0	11.3	18.1	0.0	18.0
Prop In Lane	0.47		0.44	1.00		1.00	0.03		0.90	1.00		0.08
Lane Grp Cap(c), veh/h		0	162	1467	0	655	679	0	502	266	0	625
V/C Ratio(X)	0.66	0.00	0.62	0.35	0.00	0.00	0.47	0.00	0.52	0.31	0.00	0.74
Avail Cap(c_a), veh/h	368	0	350	1467	0	655	958	0	729	400	0	907
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/vel		0.0	34.4	16.3	0.0	0.0	20.3	0.0	20.4	27.6	0.0	22.6
Incr Delay (d2), s/veh	4.3	0.0	3.8	0.7	0.0	0.0	0.5	0.0	0.8	0.7	0.0	1.9
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),vel		0.0	2.3	4.0	0.0	0.0	5.6	0.0	4.6	1.6	0.0	9.3
LnGrp Delay(d),s/veh	38.9	0.0	38.3	17.0	0.0	0.0	20.8	0.0	21.2	28.3	0.0	24.6
LnGrp LOS	D		D	В			С		С	С		С
Approach Vol, veh/h		214			520			579			548	
Approach Delay, s/veh		38.6			17.0			21.0			25.1	
Approach LOS		D			В			С			С	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	<u> </u>	4	<u> </u>	6	-	8				
Phs Duration (G+Y+Rc)	۱ ۵	11.4		31.5		36.0		31.5				
Change Period (Y+Rc),		4.0		4.0		4.0		4.0				
Max Green Setting (Gm		16.0		40.0		32.0		40.0				
Max Q Clear Time (q_c		6.8		20.1		9.9		20.0				
Green Ext Time (p_c), s	•	0.8		7.4		1.9		7.5				
η — 7	,	0.7		7.4		1.7		1.5				
Intersection Summary			99 1									
HCM 2010 Ctrl Delay			23.1 C									
HCM 2010 LOS			C									
Notes												
User approved volume I	balanci	ng amo	ng the	lanes fo	or turnir	ng move	ment.					

Intersection

Intersection Delay, s/veh 8.9
Intersection LOS A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			4				4				4					
Traffic Vol, veh/h	0	12	79	38	0	59	74	33	0	21	91	57	0	0	0	0
Future Vol, veh/h	0	12	79	38	0	59	74	33	0	21	91	57	0	0	0	0
Peak Hour Factor	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91	0.92	0.91	0.91	0.91
Heavy Vehicles, %	2	0	0	2	2	22	2	14	2	0	1	9	2	0	0	0
Mvmt Flow	0	13	87	42	0	65	81	36	0	23	100	63	0	0	0	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0

Approach	EB	WB	NB	
Opposing Approach	WB	EB		
Opposing Lanes	1	1	0	
Conflicting Approach Left		NB	EB	
Conflicting Lanes Left	0	1	1	
Conflicting Approach Right	NB		WB	
Conflicting Lanes Right	1	0	1	
HCM Control Delay	8.3	9.4	8.9	
HCM LOS	Α	А	А	

Lane	NBLn1	EBLn1\	VBLn1
Vol Left, %	12%	9%	36%
Vol Thru, %	54%	61%	45%
Vol Right, %	34%	29%	20%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	169	129	166
LT Vol	21	12	59
Through Vol	91	79	74
RT Vol	57	38	33
Lane Flow Rate	186	142	182
Geometry Grp	1	1	1
Degree of Util (X)	0.231	0.173	0.244
Departure Headway (Hd)	4.48	4.393	4.815
Convergence, Y/N	Yes	Yes	Yes
Cap	802	817	746
Service Time	2.507	2.424	2.844
HCM Lane V/C Ratio	0.232	0.174	0.244
HCM Control Delay	8.9	8.3	9.4
HCM Lane LOS	Α	Α	Α
HCM 95th-tile Q	0.9	0.6	1

Intersection
Int Delay, s/veh 3.6
Movement WBL WBR NBT NBR SBL SBT
Lane Configurations 7 1
Traffic Vol, veh/h 1 142 128 140 0 0
Future Vol., veh/h 1 142 128 140 0 0
Conflicting Peds, #/hr 0 0 0 0 0
Sign Control Stop Stop Free Free Free Free
RT Channelized - None - None - None
Storage Length - 0
Veh in Median Storage, # 0 - 0
Grade, % 0 - 0
Peak Hour Factor 92 92 92 92 92 92
Heavy Vehicles, % 0 0 2 1 0 0
Mvmt Flow 1 154 139 152 0 0
Major/Minor Minor1 Major1
Conflicting Flow All 215 215 0 0
Stage 1 215
Stage 2 0
Critical Hdwy 6.4 6.2
Critical Hdwy Stg 1 5.4
Critical Hdwy Stg 2
Follow-up Hdwy 3.5 3.3
Pot Cap-1 Maneuver 778 830
Stage 1 826
Stage 2
Platoon blocked, %
Mov Cap-1 Maneuver 778 830
Mov Cap-2 Maneuver 778
Stage 1 826
Stage 2
Approach WB NB
HCM Control Delay, s 10.3 0
HCM LOS B
TIOW LOO
Mineral on a // Marian Marian Marian MDT - NDDW/DL or 1
Minor Lane/Major Mvmt NBT NBRWBLn1
Capacity (veh/h) 830
HCM Lane V/C Ratio 0.186
HCM Control Delay (s) 10.3
HCM Lane LOS B
HCM 95th %tile Q(veh) 0.7

	<u> </u>				—	_	•	<u></u>		<u> </u>	<u> </u>	
Marramana		— 	TDD	▼	WDT	WDD -)	I NDT			▼	
Movement	EBL ሻሻ	EBT ↑ î>	EBR	WBL	WBT	WBR **	NBL	NBT ↑ ↑	NBR *	SBL	SBT **	SBR *
Lane Configurations	346	734	111	112	586	227	120	553	98	290	856	387
Traffic Volume (veh/h)	346	734	111	112	586	227	120	553	96 98	290	856	387
Future Volume (veh/h) Number		734	12	112	586	16	3		98 18	290 7	4	38 <i>1</i> 14
Initial Q (Qb), veh	5 0	0	0	0	0	0	0	8	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1881	1900	1900	1881	1900	1900	1881	1881	1881	1900	1863
Adj Flow Rate, veh/h	360	765	116	117	610	0	125	576	1001	302	892	0
Adj No. of Lanes	2	2	0	117	2	1	123	2	102	1	2	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	1	0.70	1	0.70	0.70	1	1	1	0.70	2
Cap, veh/h	447	1022	155	148	1002	453	157	829	371	343	1216	533
Arrive On Green	0.13	0.33	0.33	0.08	0.28	0.00	0.09	0.23	0.23	0.19	0.34	0.00
Sat Flow, veh/h	3442	3113	472	1810	3574	1615	1810	3574	1599	1792	3610	1583
Grp Volume(v), veh/h	360	439	442	117	610	0	125	576	102	302	892	0
Grp Sat Flow(s), veh/h/ln	1721	1787	1798	1810	1787	1615	1810	1787	1599	1792	1805	1583
Q Serve(q_s), s	9.8	21.0	21.0	6.1	14.2	0.0	6.5	14.2	5.0	15.7	20.9	0.0
Cycle Q Clear(g_c), s	9.8	21.0	21.0	6.1	14.2	0.0	6.5	14.2	5.0	15.7	20.9	0.0
Prop In Lane	1.00	21.0	0.26	1.00	14.2	1.00	1.00	14.2	1.00	1.00	20.9	1.00
Lane Grp Cap(c), veh/h	447	587	590	1.00	1002	453	157	829	371	343	1216	533
V/C Ratio(X)	0.81	0.75	0.75	0.79	0.61	0.00	0.80	0.69	0.28	0.88	0.73	0.00
Avail Cap(c_a), veh/h	645	707	711	245	1228	555	264	930	416	522	1465	643
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	40.6	28.7	28.7	43.3	30.0	0.0	43.0	33.8	30.3	37.8	28.1	0.0
Incr Delay (d2), s/veh	4.9	3.6	3.6	9.1	0.6	0.0	8.9	2.0	0.4	10.9	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	11.0	11.0	3.4	7.1	0.0	3.6	7.2	2.2	8.8	10.7	0.0
LnGrp Delay(d),s/veh	45.5	32.3	32.3	52.5	30.6	0.0	51.9	35.8	30.7	48.6	29.6	0.0
LnGrp LOS	D	C	C	D	С	0.0	D	D	C	D	C	0.0
Approach Vol, veh/h		1241			727			803			1194	
Approach Delay, s/veh		36.1			34.1			37.6			34.4	
Approach LOS		D			C			D			C	
•												
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	35.5	12.3	36.4	16.5	30.9	22.4	26.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	38.0	14.0	39.0	18.0	33.0	28.0	25.0				
Max Q Clear Time (g_c+l1), s	8.1	23.0	8.5	22.9	11.8	16.2	17.7	16.2				
Green Ext Time (p_c), s	0.1	8.5	0.1	9.4	0.7	9.2	0.7	6.1				
Intersection Summary			05 /									
HCM 2010 Ctrl Delay			35.6									
HCM 2010 LOS			D									

	<u> </u>		_		←	•	•	<u></u>	<u></u>	_	1	7
Movement	EBL	EBT	€BR	₩BL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
	T T	††	LDK	WBL TT	↑ ↑↑	WDK 7	NDL	NDT ↑	NDK	SBL 背背	<u>361</u>	JUK ř
Lane Configurations			77									
Traffic Volume (veh/h)	228	1327	77 77	328 328	1277 1277	472 472	102 102	253 253	447	648 648	316	249
Future Volume (veh/h)	228	1327	77						447		316	249
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1 00	1.00	1.00	1 00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1847	1900	1845	1863	1810	1881	1845	1881	1863	1845	1863
Adj Flow Rate, veh/h	243	1412	0	349	1359	0	109	269	476	689	336	265
Adj No. of Lanes	1	3	0	2	3	1	1	1	2	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	3	3	3	2	5	1	3	1	2	3	2
Cap, veh/h	262	1874	0	388	1726	522	347	357	545	824	442	379
Arrive On Green	0.15	0.37	0.00	0.11	0.34	0.00	0.19	0.19	0.19	0.24	0.24	0.24
Sat Flow, veh/h	1792	5207	0	3408	5085	1538	1792	1845	2814	3442	1845	1583
Grp Volume(v), veh/h	243	1412	0	349	1359	0	109	269	476	689	336	265
Grp Sat Flow(s), veh/h/lr		1680	0	1704	1695	1538	1792	1845	1407	1721	1845	1583
Q Serve(g_s), s	26.3	48.0	0.0	19.9	47.3	0.0	10.3	27.0	32.2	37.4	33.3	30.0
Cycle Q Clear(g_c), s	26.3	48.0	0.0	19.9	47.3	0.0	10.3	27.0	32.2	37.4	33.3	30.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	262	1874	0	388	1726	522	347	357	545	824	442	379
V/C Ratio(X)	0.93	0.75	0.00	0.90	0.79	0.00	0.31	0.75	0.87	0.84	0.76	0.70
Avail Cap(c_a), veh/h	328	1874	0	451	1726	522	347	357	545	824	442	379
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/vel		53.8	0.0	85.9	58.5	0.0	68.0	74.8	76.9	71.0	69.5	68.2
Incr Delay (d2), s/veh	27.9	2.9	0.0	18.9	3.7	0.0	2.4	13.7	17.5	9.8	11.7	10.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh		22.9	0.0	10.4	22.7	0.0	5.3	15.2	13.9	18.9	18.4	14.2
LnGrp Delay(d),s/veh		56.7	0.0	104.8	62.2	0.0	70.4	88.5	94.4	80.9	81.2	78.5
LnGrp LOS	F	E	3.0	F	E		E	F	F	F	F	E
Approach Vol, veh/h	•	1655		•	1708		_	854	•	•	1290	
Approach Delay, s/veh		64.6			70.9			89.4			80.5	
Approach LOS		04.0 E			70.9 E			07.4 F			60.5 F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc)	, 26.4	77.0		42.0	32.7	70.6		51.0				
Change Period (Y+Rc),	s 4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gm	a x \$,.0	73.0		38.0	36.0	63.0		47.0				
Max Q Clear Time (g_c-	+21),9s	50.0		34.2	28.3	49.3		39.4				
Green Ext Time (p_c), s	•	19.7		1.5	0.4	12.3		3.6				
Intersection Summary												
HCM 2010 Ctrl Delay			74.1									
HCM 2010 Clir Delay			74.1 E									
1101VI 2010 LOS			L									

Configurations T		۶	→	•	•	←	•	1	†	<i>></i>	/	+	4
ic Volume (veh/h) 1312	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ic Volume (veh/h) 1312	Lane Configurations	*	र्सीक			414		ሻ	ħβ		ሻ	^	77
re Volume (veh/h) 1312	Traffic Volume (veh/h)			66	11		30			19			
ber 1 6 16 5 2 12 3 8 18 7 4 14 14 10 10 10 10 10	` ,												
O (O D) , veh	Number												
Bike Adj(A_pbT)	Initial Q (Qb), veh												
ing Bus, Adj	Ped-Bike Adj(A_pbT)							1.00					
Sar Flow, veh/h/ln	Parking Bus, Adj		1.00			1.00			1.00			1.00	
Flow Rate, veh/h 1353 501 68 11 425 0 76 293 20 43 284 1423	Adj Sat Flow, veh/h/ln												
No. of Lanes 2 1 0 0 0 2 0 1 2 0 1 0 0 1 2 0 0 1 2 0 0 1 2 0 0 1 2 0 0 1 2 0 0 1 2 0 0 1 0 2 0 0 1 0 1	Adj Flow Rate, veh/h												
Kehour Factor 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.90 0.98 Sector 0 100 101 111 3 3 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Adj No. of Lanes												
ent Heavy Veh, % 1 1 1 1 3 3 3 3 1 0 0 0 0 0 2 veh/h 1238 561 76 13 539 0 100 1114 76 56 1083 1263 e On Green 0.35 0.35 0.35 0.35 0.15 0.00 0.06 0.32 0.32 0.03 0.30 0.30 150 0.00 0.06 0.32 0.32 0.03 0.30 0.30 150 0.00 0.06 0.32 0.32 0.03 0.30 0.30 150 0.00 0.06 0.32 0.32 0.03 0.30 0.30 0.30 150 0.00 0.06 0.32 0.32 0.03 0.30 0.30 0.30 150 0.00 0.06 0.32 0.32 0.03 0.30 0.30 0.30 0.30 0.30	Peak Hour Factor										•		
veh/h 1238 561 76 13 539 0 100 1114 76 56 1083 1263 e On Green 0.35 0.35 0.35 0.35 0.15 0.15 0.00 0.06 0.32 0.32 0.03 0.30 0.30 Flow, weh/h 3583 1623 220 87 3608 0 1792 3431 233 1810 3610 2787 Volume(y), veh/h 1353 0 569 234 202 0 76 153 160 43 284 1423 Sat Flow(s), veh/h/h1792 0 1843 1845 1757 0 1792 1805 1859 1810 1805 133 Sat Flow(s), veh/h 1238 0 0.0 32.2 13.5 12.1 0.0 4.6 6.9 7.0 2.6 6.6 33.0 Grap Cap(c), veh/h 1238 0 637 283 269 0.0 1.00 566													
e On Green	Cap, veh/h												
Flow, veh/h 3583 1623 220 87 3608 0 1792 3431 233 1810 3610 2787 Volume(v), veh/h 1353 0 569 234 202 0 76 153 160 43 284 1423 Sat Flow(s), veh/h/ln1792 0 1843 1845 1757 0 1792 1805 1859 1810 1805 1393 arve(g_s), s 38.0 0.0 32.2 13.5 12.1 0.0 4.6 6.9 7.0 2.6 6.6 33.0 corrected of Clear(g_c), s 38.0 0.0 32.2 13.5 12.1 0.0 4.6 6.9 7.0 2.6 6.6 33.0 corrected of Clear(g_c), veh/h 1238 0 6.37 283 269 0 100 586 604 56 1083 1263 Ratio(X) 1.09 0.00 0.89 0.83 0.75 0.00 1.00 586 604 56 1083 1263 Ratio(X) 1.09 0.00 0.89 0.83 0.75 0.00 0.76 0.26 0.26 0.76 0.26 1.13 (Cap(c_a), veh/h 1238 0 637 369 351 0 668 586 604 757 1083 1263 (Patron Belay (d), s/veh 36.0 0.0 34.1 45.2 44.6 0.0 51.2 27.4 27.4 52.9 29.3 25.5 Delay (d2), s/veh 55.0 0.0 15.1 11.2 6.4 0.0 11.0 0.0 1.00 1.00 1.00 1.00 1.00	Arrive On Green												
Volume(v), veh/h 1353	Sat Flow, veh/h												
Sat Flow(s),veh/h/ln1792													
erve(g_s), s 38.0 0.0 32.2 13.5 12.1 0.0 4.6 6.9 7.0 2.6 6.6 33.0 e Q Clear(g_c), s 38.0 0.0 32.2 13.5 12.1 0.0 4.6 6.9 7.0 2.6 6.6 33.0 e Q Clear(g_c), s 38.0 0.0 32.2 13.5 12.1 0.0 4.6 6.9 7.0 2.6 6.6 33.0 e Q Clear(g_c), s 38.0 0.0 32.2 13.5 12.1 0.0 4.6 6.9 7.0 2.6 6.6 33.0 e Q Clear(g_c), s 38.0 0.0 32.2 13.5 12.1 0.0 4.6 6.9 7.0 2.6 6.6 33.0 e Q Clear(g_c), veh/h 1238 0 637 283 269 0 100 586 604 56 1083 1263 Ratio(X) 1.09 0.00 0.89 0.83 0.75 0.00 0.76 0.26 0.26 0.76 0.26 1.13 120p(c_a), veh/h 1238 0 637 369 351 0 668 586 604 757 1083 1263 el Platoon Ratio 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0													
e Q Clear(g_c), s 38.0													
In Lane													
e Grp Cap(c), veh/h 1238			0.0			12.1			0.7			0.0	
Ratio(X)			٥			260			586			1083	
Cap(c_a), veh/h 1238	V/C Ratio(X)												
If Platoon Ratio 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	, ,												
ream Filter(I) 1.00 0.00 1.00 1.00 1.00 0.00 1.00 1.0													
orm Delay (d), s/veh 36.0 0.0 34.1 45.2 44.6 0.0 51.2 27.4 27.4 52.9 29.3 25.5 Delay (d2), s/veh 55.0 0.0 15.1 11.2 6.4 0.0 11.0 0.2 0.2 18.7 0.1 67.7 I Q Delay(d3),s/veh 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.													
Delay (d2), s/veh 55.0 0.0 15.1 11.2 6.4 0.0 11.0 0.2 0.2 18.7 0.1 67.7 I Q Delay(d3), s/veh 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.													
Il Q Delay(d3),s/veh 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.													
BackOfQ(50%),veh/28.2													
rp Delay(d),s/veh 91.0 0.0 49.2 56.4 51.0 0.0 62.2 27.7 27.7 71.6 29.4 93.1 rp LOS F D E D E C C E C F coach Vol, veh/h 1922 436 389 1750 coach Delay, s/veh 78.6 53.9 34.4 82.2 coach LOS E D C F coach LOS E D C C C F C C C C C C C C C C C C C C C													
To LOS F D E D E C C E C F To ach Vol, veh/h 1922 436 389 1750 To ach Delay, s/veh 78.6 53.9 34.4 82.2 To ach LOS E D C F To ach LOS E C F To ach LOS E D C C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C F To ach LOS E C C E C E C F To ach LOS E C C E C E C F To ach LOS E C C E C E C F To ach LOS E C C E C E C F To ach LOS E C C E C E C E C F To ach LOS E C C E C E C E C F To ach LOS E C C E C E C E C E C F To ach LOS E C E C E C E C E C E C E C E C E C E	· · ·												
Toach Vol, veh/h Toach Delay, s/veh Toach Delay, s/veh Toach Delay, s/veh Toach Delay, s/veh Toach LOS The second LOS The seco	LnGrp LOS		0.0				0.0						
coach Delay, s/veh 78.6 53.9 34.4 82.2 coach LOS E D C F er 1 2 3 4 5 6 7 8 gned Phs 2 3 4 6 7 8 Duration (G+Y+Rc), s 20.9 10.2 37.0 42.0 7.4 39.7 nge Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 4.0 Green Setting (Gmax), s 22.0 41.0 33.0 38.0 46.0 28.0 Q Clear Time (g_c+I1), s 15.5 6.6 35.0 40.0 4.6 9.0 en Ext Time (p_c), s 1.4 0.4 0.0 0.0 0.1 1.9 section Summary 73.8 1.2010 LOS E		'	1022	D									'
Proach LOS E D C F Ser 1 2 3 4 5 6 7 8 Igned Phs 2 3 4 6 7 8 Duration (G+Y+Rc), s 20.9 10.2 37.0 42.0 7.4 39.7 Inge Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 Green Setting (Gmax), s 22.0 41.0 33.0 38.0 46.0 28.0 Q Clear Time (g_c+I1), s 15.5 6.6 35.0 40.0 4.6 9.0 Ext Time (p_c), s 1.4 0.4 0.0 0.0 0.1 1.9 Section Summary 1 2010 Ctrl Delay 73.8 1 2010 LOS E													
gned Phs 2 3 4 5 6 7 8 Duration (G+Y+Rc), s 20.9 10.2 37.0 42.0 7.4 39.7 nge Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 Green Setting (Gmax), s 22.0 41.0 33.0 38.0 46.0 28.0 Q Clear Time (g_c+I1), s 15.5 6.6 35.0 40.0 4.6 9.0 en Ext Time (p_c), s 1.4 0.4 0.0 0.0 0.1 1.9 section Summary 1 2010 Ctrl Delay 73.8 1 2010 LOS E	Approach LOS		_									_	
gned Phs 2 3 4 6 7 8 Duration (G+Y+Rc), s 20.9 10.2 37.0 42.0 7.4 39.7 nge Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 4.0 Green Setting (Gmax), s 22.0 41.0 33.0 38.0 46.0 28.0 Q Clear Time (g_c+l1), s 15.5 6.6 35.0 40.0 4.6 9.0 en Ext Time (p_c), s 1.4 0.4 0.0 0.0 0.1 1.9 section Summary 1 2010 Ctrl Delay 73.8 1 2010 LOS E	''	1		2	4		,	7				'	
Duration (G+Y+Rc), s 20.9 10.2 37.0 42.0 7.4 39.7 nge Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 4.0 Green Setting (Gmax), s 22.0 41.0 33.0 38.0 46.0 28.0 Q Clear Time (g_c+I1), s 15.5 6.6 35.0 40.0 4.6 9.0 en Ext Time (p_c), s 1.4 0.4 0.0 0.0 0.1 1.9 section Summary 73.8 12010 Ctrl Delay 73.8 12010 LOS E	Timer					5		7					
nge Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 4.0 4.0 Green Setting (Gmax), s 22.0 41.0 33.0 38.0 46.0 28.0 Q Clear Time (g_c+l1), s 15.5 6.6 35.0 40.0 4.6 9.0 en Ext Time (p_c), s 1.4 0.4 0.0 0.0 0.1 1.9 section Summary 73.8 12010 Ctrl Delay 73.8 12010 LOS E	O .	١ ۵											
Green Setting (Gmax), s 22.0 41.0 33.0 38.0 46.0 28.0 Q Clear Time (g_c+l1), s 15.5 6.6 35.0 40.0 4.6 9.0 en Ext Time (p_c), s 1.4 0.4 0.0 0.0 0.1 1.9 section Summary 1 2010 Ctrl Delay 73.8 1 2010 LOS E													
Q Clear Time (g_c+l1), s 15.5 6.6 35.0 40.0 4.6 9.0 en Ext Time (p_c), s 1.4 0.4 0.0 0.0 0.1 1.9 section Summary 1 2010 Ctrl Delay 73.8 1 2010 LOS E													
en Ext Time (p_c), s 1.4 0.4 0.0 0.0 0.1 1.9 section Summary 1 2010 Ctrl Delay 73.8 1 2010 LOS E													
section Summary 1 2010 Ctrl Delay 73.8 1 2010 LOS E													
1 2010 Ctrl Delay 73.8 1 2010 LOS E	ų — /·	S	1.4	0.4	0.0		0.0	0.1	1.9				
1 2010 LOS E s	Intersection Summary												
S	HCM 2010 Ctrl Delay												
	HCM 2010 LOS			E									
	Notes												
		balanci	ing amo	ng the	lanes fo	or turnir	na move	ement.					

	•	→	•	•	—	•	•	†	~	<u> </u>	+	- ✓
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ħ	ተ ኈ		ሻ	†	7	ሻ	†	7	ሻ	†	7
Traffic Volume (veh/h)	165	996	29	227	830	195	4	228	254	202	366	262
Future Volume (veh/h)	165	996	29	227	830	195	4	228	254	202	366	262
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1898	1900	1900	1881	1900	1900	1881	1900	1827	1900	1900
Adj Flow Rate, veh/h	179	1083	32	247	902	212	4	248	276	220	398	285
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	0	0	1	0	0	1	0	4	0	0
Cap, veh/h	357	1327	39	286	616	529	8	365	313	131	504	429
Arrive On Green	0.20	0.37	0.37	0.16	0.33	0.33	0.00	0.19	0.19	0.08	0.27	0.27
Sat Flow, veh/h	1774	3577	106	1810	1881	1615	1810	1881	1615	1740	1900	1615
Grp Volume(v), veh/h	179	546	569	247	902	212	4	248	276	220	398	285
Grp Sat Flow(s),veh/h/ln	1774	1803	1880	1810	1881	1615	1810	1881	1615	1740	1900	1615
Q Serve(g_s), s	7.1	21.7	21.7	10.6	26.0	8.1	0.2	9.7	13.2	6.0	15.5	12.5
Cycle Q Clear(g_c), s	7.1	21.7	21.7	10.6	26.0	8.1	0.2	9.7	13.2	6.0	15.5	12.5
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	357	669	697	286	616	529	8	365	313	131	504	429
V/C Ratio(X)	0.50	0.82	0.82	0.86	1.46	0.40	0.52	0.68	0.88	1.67	0.79	0.66
Avail Cap(c_a), veh/h	357	669	697	296	616	529	91	379	325	131	504	429
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	22.5	22.5	32.6	26.7	20.7	39.5	29.7	31.1	36.7	27.1	26.0
Incr Delay (d2), s/veh	4.9	10.6	10.2	21.8	217.9	2.3	45.2	4.6	22.7	334.0	8.2	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	12.7	13.2	7.0	50.6	3.9	0.2	5.5	7.8	15.0	9.2	6.0
LnGrp Delay(d),s/veh	33.1	33.1	32.8	54.4	244.6	22.9	84.7	34.3	53.8	370.7	35.3	29.9
LnGrp LOS	С	С	С	D	F	С	F	С	D	F	D	С
Approach Vol, veh/h		1294			1361			528			903	
Approach Delay, s/veh		33.0			175.5			44.9			115.3	
Approach LOS		С			F			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	33.4	4.3	25.1	20.0	30.0	10.0	19.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	13.0	29.0	4.0	18.0	16.0	26.0	6.0	16.0				
Max Q Clear Time (g_c+I1), s	12.6	23.7	2.2	17.5	9.1	28.0	8.0	15.2				
Green Ext Time (p_c), s	0.0	4.7	0.0	0.4	0.3	0.0	0.0	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			100.2									
HCM 2010 LOS			F									

Movement												
Lane Configurations	•	-	•	•	•	•	1	†	1	-	ţ	4
Traffic Volume (veh/h) 162 1075 44 64 982 91 59 96 44 97 59 63 Future Volume (veh/h) 162 1075 44 64 882 91 59 96 44 97 59 63 Future Volume (veh/h) 162 1075 44 64 882 91 59 96 44 97 59 63 Mumber 5 5 2 12 1 6 6 16 33 8 18 7 4 14 Initial Q(Db), veh 7 5 2 12 1 6 16 6 16 33 8 18 7 4 14 Initial Q(Db), veh 7 5 2 12 1 10 10 10 100 100 100 100 100 100	Movement EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (veh/h) 162 1075 44 64 982 91 59 96 44 97 59 63 Future Volume (veh/h) 162 1075 44 64 982 91 59 96 44 97 59 63 Future Volume (veh/h) 162 1075 44 64 982 91 59 96 44 97 59 63 Future Volume (veh/h) 162 1075 44 64 982 91 59 96 44 97 59 63 Future Volume (veh/h) 162 1075 44 64 982 91 59 96 44 97 59 63 Future Volume (veh/h) 100 100 100 100 100 100 100 100 100 10	Lane Configurations 1	î,		Ť	î»		ሻ	4î			4	
Number 5		1075	44	64	982	91	59	96	44	97	59	63
Initial Q (Qb), veh	Future Volume (veh/h) 162	1075	44	64	982	91	59	96	44	97	59	63
Ped-Bike Adj(A_pbT)	Number 5	2	12	1	6	16	3	8	18	7	4	14
Parking Bus, Adj	Initial Q (Qb), veh 0	0	0	0	0	0	0	0	0	0	0	0
Adj Sat Flow, veh/h/ln 1727 1900 1900 1900 1907 1900 1900 1808 1900 Adj Flow Rale, veh/h 176 1168 48 70 1067 99 64 104 48 105 64 68 Adj No. of Lanes 1 1 0 0 1 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 </td <td>Ped-Bike Adj(A_pbT) 1.00</td> <td></td> <td>1.00</td> <td>1.00</td> <td></td> <td>1.00</td> <td>1.00</td> <td></td> <td>1.00</td> <td>1.00</td> <td></td> <td>1.00</td>	Ped-Bike Adj(A_pbT) 1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Adj Flow Rate, veh/h	Parking Bus, Adj 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj No. of Lanes 1 1 0 0 1 1 1 0 0 1 1 1 0 0 0 1 1 0 0 0 2 0.92 0.92 0.92 0.92 0.92 0.92 0	Adj Sat Flow, veh/h/ln 1727	1900	1900	1900	1897	1900	1900	1837	1900	1900	1808	1900
Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.	Adj Flow Rate, veh/h 176	1168	48	70	1067	99	64	104	48	105	64	68
Percent Heavy Veh,	Adj No. of Lanes 1	1	0	1	1	0	1	1	0	0	1	0
Cap, veh/h 221 1006		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92
Arrive On Green 0.13 0.56 0.56 0.07 0.49 0.49 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.22 0.23 0.24 0.0 36.0 1.06 4 0.0 1740 1136 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <th< td=""><td>J</td><td></td><td>0</td><td></td><td>0</td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	J		0		0	0						
Sat Flow, veh/h 1645 1812 74 1810 1710 159 1278 1191 550 410 401 326 Grp Volume(v), veh/h 176 0 1216 70 0 1166 64 0 152 237 0 0 Grp Sat Flow(s), veh/h/In1645 0 1887 1810 0 1869 1278 0 1740 1136 0 0 Q Serve(g_s), s 7.7 0.0 41.0 2.8 0.0 36.0 4.3 0.0 5.5 99 0.0 0.0 Cycle Q Clear(g_c), s 7.7 0.0 41.0 2.8 0.0 36.0 4.3 0.0 5.5 15.4 0.0 0.0 Prop In Lane 1.00 0.0 1.04 1.00 0.08 1.00 0.0 377 316 0 0 V/C Ratio(X) 0.80 0.00 1.16 0.59 0.0 0.128 0.21 0.0 377 <				119	833							
Grp Volume(v), veh/h 176 0 1216 70 0 1166 64 0 152 237 0 0 Grp Sat Flow(s),veh/h/ln1645 0 1887 1810 0 1869 1278 0 1740 1136 0 0 Q Serve(g_s), s 7.7 0.0 41.0 2.8 0.0 36.0 0.0 0.55 9.9 0.0 0.0 Cycle Q Clear(g_c), s 7.7 0.0 41.0 2.8 0.0 36.0 0.0 5.5 9.9 0.0 0.0 Cycle Q Clear(g_c), s 7.7 0.0 41.0 2.8 0.0 36.0 0.0 5.5 9.9 0.0 0.0 Lane Grp Cap(c), veh/h 221 0 1048 119 0 910 299 0 377 316 0 0.0 V/C Ratio(X) 0.80 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Arrive On Green 0.13	0.56	0.56	0.07	0.49	0.49	0.22	0.22	0.22	0.22	0.22	0.22
Grp Sat Flow(s), veh/h/ln1645	Sat Flow, veh/h 1645	1812	74	1810	1710	159	1278	1191	550	410	401	326
Grp Sat Flow(s), veh/h/ln1645	Grp Volume(v), veh/h 176	0	1216	70	0	1166	64	0	152	237	0	0
Cycle Q Clear(g_c), s 7.7 0.0 41.0 2.8 0.0 36.0 4.3 0.0 5.5 15.4 0.0 0.0 Prop In Lane 1.00 0.04 1.00 0.08 1.00 0.32 0.44 0.29 Lane Grp Cap(c), veh/h 221 0 1048 119 0 910 299 0 377 316 0 0 V/C Ratio(X) 0.80 0.00 1.16 0.59 0.00 1.28 0.21 0.00 0.40 0.75 0.00 0.00 Avail Cap(c_a), veh/h 356 0 1048 392 0 910 299 0 377 316 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <td< td=""><td>Grp Sat Flow(s), veh/h/ln1645</td><td>0</td><td>1887</td><td>1810</td><td>0</td><td>1869</td><td>1278</td><td>0</td><td>1740</td><td>1136</td><td>0</td><td>0</td></td<>	Grp Sat Flow(s), veh/h/ln1645	0	1887	1810	0	1869	1278	0	1740	1136	0	0
Prop In Lane 1.00 0.04 1.00 0.08 1.00 0.32 0.44 0.29 Lane Grp Cap(c), veh/h 221 0 1048 119 0 910 299 0 377 316 0 0 V/C Ratio(X) 0.80 0.00 1.16 0.59 0.00 1.28 0.21 0.00 0.40 0.75 0.00 0.00 Avail Cap(c_a), veh/h 356 0 1048 392 0 910 299 0 377 316 0 0 HCM Platoon Ratio 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Q Serve(g_s), s 7.7	0.0	41.0	2.8	0.0	36.0	0.0	0.0	5.5	9.9	0.0	0.0
Lane Grp Cap(c), veh/h 221 0 1048 119 0 910 299 0 377 316 0 0 0 0 0 0 0 0 0	Cycle Q Clear(g_c), s 7.7	0.0	41.0	2.8	0.0	36.0	4.3	0.0	5.5	15.4	0.0	0.0
W/C Ratio(X) 0.80 0.00 1.16 0.59 0.00 1.28 0.21 0.00 0.40 0.75 0.00 0.00 Avail Cap(c_a), veh/h 356 0 1048 392 0 910 299 0 377 316 0 0 HCM Platoon Ratio 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	Prop In Lane 1.00		0.04	1.00		0.08	1.00		0.32	0.44		0.29
Avail Cap(c_a), veh/h 356 0 1048 392 0 910 299 0 377 316 0 0 HCM Platoon Ratio 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0		0	1048	119	0	910	299	0	377	316	0	0
HCM Platoon Ratio 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	V/C Ratio(X) 0.80	0.00	1.16	0.59	0.00	1.28	0.21	0.00	0.40	0.75	0.00	0.00
Upstream Filter(I) 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 0.00 0.00 Uniform Delay (d), s/veh 31.0 0.0 16.4 33.5 0.0 19.0 24.4 0.0 24.9 29.6 0.0 0.0 Incr Delay (d2), s/veh 6.5 0.0 83.1 4.5 0.0 134.9 1.6 0.0 3.2 15.0 0.0 0.0 Initial Q Delay(d3),s/veh 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Avail Cap(c_a), veh/h 356	0	1048	392	0	910	299	0	377	316	0	0
Uniform Delay (d), s/veh 31.0	HCM Platoon Ratio 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incr Delay (d2), s/veh	Upstream Filter(I) 1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Initial Q Delay(d3),s/veh 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Uniform Delay (d), s/veh 31.0	0.0		33.5	0.0		24.4	0.0			0.0	
%ile BackOfQ(50%),veh/lr8.9 0.0 45.1 1.5 0.0 52.6 1.2 0.0 3.0 6.1 0.0 0.0 LnGrp Delay(d),s/veh 37.5 0.0 99.5 38.1 0.0 153.8 26.0 0.0 28.1 44.7 0.0 0.0 LnGrp LOS D F D F C C D C D Approach Vol, veh/h 1392 1236 216 237 237 27.5 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7 44.7		0.0	83.1	4.5	0.0	134.9	1.6	0.0				
LnGrp Delay(d),s/veh 37.5 0.0 99.5 38.1 0.0 153.8 26.0 0.0 28.1 44.7 0.0 0.0 LnGrp LOS D F D F C C D Approach Vol, veh/h 1392 1236 216 237 Approach Delay, s/veh 91.7 147.3 27.5 44.7 Approach LOS F F C D D Timer 1 2 3 4 5 6 7 8 Assigned Phs 1 2 4 5 6 8 Phs Duration (G+Y+Rc), s8.9 45.0 20.0 13.9 40.0 20.0 Change Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 4.0 Max Green Setting (Gmatk), 8 36.0 16.0 16.0 36.0 16.0 Max Q Clear Time (g_c+I1), 8 43.0 17.4 9.7 38.0 7.5 Green Ext Time (p_c), s 0.1 0.0 0.0 0.2 0.0 1.7 Intersection Summary HCM 2010 Ctrl Delay 105.9	J . /-	0.0			0.0			0.0		0.0	0.0	
LnGrp LOS D F D F C C D Approach Vol, veh/h 1392 1236 216 237 Approach Delay, s/veh 91.7 147.3 27.5 44.7 Approach LOS F F C D Timer 1 2 3 4 5 6 7 8 Assigned Phs 1 2 4 5 6 8 Phs Duration (G+Y+Rc), s8.9 45.0 20.0 13.9 40.0 20.0 20.0 Change Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 4.0 4.0 Max Green Setting (Gmatk), 8 36.0 16.0 16.0 36.0 16.0 16.0 Max Q Clear Time (g_c+I1), 8 43.0 17.4 9.7 38.0 7.5 Green Ext Time (p_c), s 0.1 0.0 0.0 0.2 0.0 1.7 Intersection Summary HCM 2010 Ctrl Delay 105.9 105.9 105.9 105.9 105.9 105.9 105.9 105.9 10												
Approach Vol, veh/h Approach Delay, s/veh Approach Delay, s/veh Approach LOS F F F C D Timer 1 2 3 4 5 6 7 8 Assigned Phs 1 2 4 5 6 8 Phs Duration (G+Y+Rc), s8.9 45.0 20.0 13.9 40.0 20.0 Change Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 Max Green Setting (Gmak), 8 36.0 16.0 16.0 36.0 16.0 Max Q Clear Time (g_c+I1), 8 43.0 17.4 9.7 38.0 7.5 Green Ext Time (p_c), s 0.1 0.0 0.0 0.2 0.0 1.7 Intersection Summary HCM 2010 Ctrl Delay 105.9	3 . ,	0.0			0.0		26.0	0.0		44.7	0.0	0.0
Approach Delay, s/veh 91.7 147.3 27.5 44.7 Approach LOS F F F C D Timer 1 2 3 4 5 6 7 8 Assigned Phs 1 2 4 5 6 8 Phs Duration (G+Y+Rc), s8.9 45.0 20.0 13.9 40.0 20.0 Change Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 Max Green Setting (Gmak), 8 36.0 16.0 16.0 36.0 16.0 Max Q Clear Time (g_c+I1), 8 43.0 17.4 9.7 38.0 7.5 Green Ext Time (p_c), s 0.1 0.0 0.0 0.2 0.0 1.7 Intersection Summary HCM 2010 Ctrl Delay 105.9			F	D		F	С		С	D		
Approach LOS F F F C D Timer 1 2 3 4 5 6 7 8 Assigned Phs 1 2 4 5 6 8 Phs Duration (G+Y+Rc), s8.9 45.0 20.0 13.9 40.0 20.0 Change Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 Max Green Setting (Gmat), 8 36.0 16.0 16.0 36.0 16.0 Max Q Clear Time (g_c+11), 8 43.0 17.4 9.7 38.0 7.5 Green Ext Time (p_c), s 0.1 0.0 0.0 0.2 0.0 1.7 Intersection Summary HCM 2010 Ctrl Delay 105.9	• •											
Timer 1 2 3 4 5 6 7 8 Assigned Phs 1 2 4 5 6 8 Phs Duration (G+Y+Rc), s8.9 45.0 20.0 13.9 40.0 20.0 Change Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 Max Green Setting (Gmath, 8 36.0 16.0 16.0 36.0 16.0 Max Q Clear Time (g_c+I1), 8 43.0 17.4 9.7 38.0 7.5 Green Ext Time (p_c), s 0.1 0.0 0.0 0.2 0.0 1.7 Intersection Summary HCM 2010 Ctrl Delay 105.9 105.9					147.3						44.7	
Assigned Phs 1 2 4 5 6 8 Phs Duration (G+Y+Rc), s8.9 45.0 20.0 13.9 40.0 20.0 Change Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 Max Green Setting (Gmatk), 8 36.0 16.0 16.0 36.0 16.0 Max Q Clear Time (g_c+11), 8 43.0 17.4 9.7 38.0 7.5 Green Ext Time (p_c), s 0.1 0.0 0.0 0.2 0.0 1.7 Intersection Summary HCM 2010 Ctrl Delay 105.9	Approach LOS	F			F			С			D	
Assigned Phs 1 2 4 5 6 8 Phs Duration (G+Y+Rc), s8.9 45.0 20.0 13.9 40.0 20.0 Change Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 Max Green Setting (Gmatk), 8 36.0 16.0 16.0 36.0 16.0 Max Q Clear Time (g_c+11), 8 43.0 17.4 9.7 38.0 7.5 Green Ext Time (p_c), s 0.1 0.0 0.0 0.2 0.0 1.7 Intersection Summary HCM 2010 Ctrl Delay 105.9	Timer 1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s8.9 45.0 20.0 13.9 40.0 20.0 Change Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 4.0 Max Green Setting (Gmat), 8 36.0 16.0 16.0 36.0 16.0 Max Q Clear Time (g_c+I1), 8 43.0 17.4 9.7 38.0 7.5 Green Ext Time (p_c), s 0.1 0.0 0.0 0.2 0.0 1.7 Intersection Summary HCM 2010 Ctrl Delay 105.9				4								
Change Period (Y+Rc), s 4.0 4.0 4.0 4.0 4.0 4.0 4.0 Max Green Setting (Gmak), 8 36.0 16.0 16.0 36.0 16.0 Max Q Clear Time (g_c+l1), 8 43.0 17.4 9.7 38.0 7.5 Green Ext Time (p_c), s 0.1 0.0 0.0 0.2 0.0 1.7 Intersection Summary HCM 2010 Ctrl Delay 105.9												
Max Green Setting (Gmax), 8 36.0 16.0 36.0 16.0 Max Q Clear Time (g_c+l1), 8 43.0 17.4 9.7 38.0 7.5 Green Ext Time (p_c), s 0.1 0.0 0.2 0.0 1.7 Intersection Summary HCM 2010 Ctrl Delay 105.9												
Max Q Clear Time (g_c+l14),8s 43.0 17.4 9.7 38.0 7.5 Green Ext Time (p_c), s 0.1 0.0 0.0 0.2 0.0 1.7 Intersection Summary HCM 2010 Ctrl Delay 105.9												
Green Ext Time (p_c), s 0.1 0.0 0.0 0.2 0.0 1.7 Intersection Summary HCM 2010 Ctrl Delay 105.9												
HCM 2010 Ctrl Delay 105.9												
HCM 2010 Ctrl Delay 105.9	Intersection Summary											
J			105 9									
TICIVI 2010 LOS	HCM 2010 LOS		F									

	<u> </u>	`	•	†	1	4	
Mayamant	EDI	EDD	NDI	NDT	CDT	CDD	
	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	ሻ	7	ሻ	†	† 1>		
	193	111	116	569	805	317	
. ,	193	111	116	569	805	317	
Number	5	12	3	8	4	14	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT) 1	1.00	1.00	1.00			1.00	
, , _, ,	1.00	1.00	1.00	1.00	1.00	1.00	
	881	1845	1810	1827	1850	1900	
•	210	121	126	618	875	345	
Adj No. of Lanes	1	1	1	1	2	0	
	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	1	3	5	4	1	1	
	400	350	324	1247	1103	433	
	0.22	0.22	0.19	0.68	0.45	0.45	
	792	1568	1723	1827	2560	969	
Grp Volume(v), veh/h	210	121	126	618	622	598	
Grp Sat Flow(s), veh/h/ln1		1568	1723	1827	1758	1679	
	8.8	5.5	5.4	13.8	25.8	26.0	
Cycle Q Clear(g_c), s	8.8	5.5	5.4	13.8	25.8	26.0	
	1.00	1.00	1.00			0.58	
Lane Grp Cap(c), veh/h		350	324	1247	786	751	
	0.52	0.35	0.39	0.50	0.79	0.80	
, ,	400	350	324	1247	786	751	
	1.00	1.00	1.00	1.00	1.00	1.00	
			1.00	1.00	1.00		
1 ''	1.00	1.00				1.00	
Uniform Delay (d), s/veh 2		27.8	30.2	6.5	20.1	20.2	
J \ /'	4.8	2.7	3.5	0.3	8.0	8.6	
J . , ,		0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/li	ln4.9	2.6	2.9	7.0	14.2	13.7	
LnGrp Delay(d),s/veh 3	33.9	30.4	33.7	6.8	28.1	28.8	
LnGrp LOS	С	С	С	Α	С	С	
	331			744	1220		
	32.6			11.3	28.4		
Approach LOS	JZ.U			н.э	20.4 C		
Approacti LOS	C			D	C		
Timer	1	2	3	4	5	6	7
Assigned Phs		2	3	4			
Phs Duration (G+Y+Rc), s	S	23.0	20.0	42.0			
Change Period (Y+Rc), s		4.0	4.0	4.0			
Max Green Setting (Gmax		19.0	16.0	38.0			
Max Q Clear Time (g_c+l		10.8	7.4	28.0			
Green Ext Time (p_c), s	1), 3	0.7	0.2	7.6			
, ,		0.7	0.2	7.0			
Intersection Summary							
HCM 2010 Ctrl Delay			23.5				
HCM 2010 LOS			С				

	۶	•	•	†	↓	4						
Movement	EBL	EBR	NBL	NBT	SBT	SBR						
Lane Configurations	Y		ሻ	†	†							
Traffic Volume (veh/h)	14	19	14	661	783	17						
Future Volume (veh/h)	14	19	14	661	783	17						
Number	5	12	3	8	4	14						
Initial Q (Qb), veh	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Adj Sat Flow, veh/h/ln	1112	1900	1056	1900	1850	1900						
Adj Flow Rate, veh/h	15	21	15	718	851	18						
Adj No. of Lanes	0	0	1	1	1	0						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92						
Percent Heavy Veh, %	0	0	80	0	1	1						
Cap, veh/h	13	19	376	1503	1428	30						
Arrive On Green	0.03	0.03	0.79	0.79	0.79	0.79						
Sat Flow, veh/h	402	563	360	1900	1805	38						
Grp Volume(v), veh/h	37	0	15	718	0	869						
Grp Sat Flow(s), veh/h/li		0	360	1900	0	1843						
2 Serve(g_s), s	1.5	0.0	0.8	5.8	0.0	8.5						
Cycle Q Clear(g_c), s	1.5	0.0	9.3	5.8	0.0	8.5						
	0.41	0.57	1.00	0.0	0.0	0.02						
Prop In Lane				1502	٥							
_ane Grp Cap(c), veh/h		0	376	1503	0	1458						
V/C Ratio(X)	1.14	0.00	0.04	0.48	0.00	0.60						
Avail Cap(c_a), veh/h	349	0	376	1503	0	1458						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00						
Uniform Delay (d), s/vel		0.0	3.7	1.6	0.0	1.9						
ncr Delay (d2), s/veh		0.0	0.2	1.1	0.0	1.8						
nitial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),vel		0.0	0.1	3.2	0.0	4.8						
_nGrp Delay(d),s/veh		0.0	3.9	2.7	0.0	3.7						
_nGrp LOS	F		A	A		Α						
Approach Vol, veh/h	37			733	869							
Approach Delay, s/veh	142.6			2.7	3.7							
Approach LOS	F			Α	Α							
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc)), s	5.5		40.0			1	0.0				
Change Period (Y+Rc),		4.0		4.0				4.0				
Max Green Setting (Gm		16.0		36.0				6.0				
Max Q Clear Time (g_c		3.5		10.5				1.3				
Green Ext Time (p_c), s		0.0		14.1				3.9				
ntersection Summary												
HCM 2010 Ctrl Delay			6.4									
HCM 2010 LOS			Α									
Notes												
User approved volume	balanci	ng amo	ng the	lanes fo	or turnir	ng move	ement.					

Intersection							
	1.7						
Movement	WBL	WBR		NBT	NBR	SBL	SBT
Lane Configurations	¥			f)			4
Traffic Vol, veh/h	9	11		93	4	13	61
Future Vol, veh/h	9	11		93	4	13	61
Conflicting Peds, #/hr	0	0		0	0	0	0
Sign Control	Stop	Stop		Free	Free	Free	Free
RT Channelized	-	None		-	None	-	None
Storage Length	0	-		-	-	-	-
Veh in Median Storage, #	0	-		0	-	-	0
Grade, %	0	-		0	-	-	0
Peak Hour Factor	92	92		92	92	92	92
Heavy Vehicles, %	100	90		4	100	90	1
Mvmt Flow	10	12		101	4	14	66
Major/Minor	Minor1			Major1		Major2	
Conflicting Flow All	198	103		0	0	105	0
Stage 1	103	-		-	-	-	-
Stage 2	95	-		-	-	-	-
Critical Hdwy	7.4	7.1		-	-	5	-
Critical Hdwy Stg 1	6.4	-		-	-	-	-
Critical Hdwy Stg 2	6.4	-		-	-	-	-
Follow-up Hdwy	4.4	4.11		-	-	3.01	-
Pot Cap-1 Maneuver	613	758		-	-	1080	-
Stage 1	725	-		-	-	-	-
Stage 2	732	-		-	-	-	-
Platoon blocked, %				-	-		-
Mov Cap-1 Maneuver	605	758		-	-	1080	-
Mov Cap-2 Maneuver	605	-		-	-	-	-
Stage 1	725	-		-	-	-	-
Stage 2	722	-		-	-	-	-
Approach	WB			NB		SB	
HCM Control Delay, s	10.5			0		1.5	
HCM LOS	В						
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT			
Capacity (veh/h)	-	- 681	1080	-			
HCM Lane V/C Ratio	-	- 0.032		-			
HCM Control Delay (s)	-	- 10.5	8.4	0			
HCM Lane LOS	-	- B	А	A			
HCM 95th %tile Q(veh)	-	- 0.1	0	-			

Intersection			
Intersection Delay, s/veh	7.7		
Intersection LOS	Α		

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			4				4				4	
Traffic Vol, veh/h	0	10	0	0	0	0	0	0	0	0	100	0
Future Vol, veh/h	0	10	0	0	0	0	0	0	0	0	100	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	0	0	0	2	0	0	0	2	0	7	0
Mvmt Flow	0	11	0	0	0	0	0	0	0	0	109	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0
Approach		EB					WB				NB	
Opposing Approach		WB					EB				SB	
Opposing Lanes		1					1				1	
Conflicting Approach Left		SB					NB				EB	
Conflicting Lanes Left		1					1				1	
Conflicting Approach Right		NB					SB				WB	
Conflicting Lanes Right		1					1				1	
HCM Control Delay		7.6					0				7.7	
HCM LOS		Α					-				Α	

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	0%	100%	0%	0%	
Vol Thru, %	100%	0%	100%	75%	
Vol Right, %	0%	0%	0%	25%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	100	10	0	73	
LT Vol	0	10	0	0	
Through Vol	100	0	0	55	
RT Vol	0	0	0	18	
Lane Flow Rate	109	11	0	79	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.124	0.013	0	0.091	
Departure Headway (Hd)	4.098	4.424	4.234	4.142	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Cap	875	798	0	864	
Service Time	2.121	2.513	2.326	2.171	
HCM Lane V/C Ratio	0.125	0.014	0	0.091	
HCM Control Delay	7.7	7.6	7.3	7.6	
HCM Lane LOS	А	Α	N	Α	
HCM 95th-tile Q	0.4	0	0	0.3	

Kimley-Horn Synchro 9 Report HCM 2010 AWSC Page 6

Cumulative + Project PM
PM Peak

ı					- 1	٠.	
ı	n	ΙΔ	rs	Δ	СΤ	ın	n
ı	ш	ιυ	ıs	C	Uι	IU	ш

Intersection Delay, s/veh Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			4	
Traffic Vol, veh/h	0	0	55	18
Future Vol, veh/h	0	0	55	18
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	0	17	0
Mvmt Flow	0	0	60	20
Number of Lanes	0	0	1	0
Approach			SB	
Approach				
Opposing Approach			NB	
Opposing Lanes			1	
Conflicting Approach Left			WB	
Conflicting Lanes Left			1	
Conflicting Approach Right			EB	
Conflicting Lanes Right			1	
HCM Control Delay			7.6	
HCM LOS			Α	

Kimley-Horn Synchro 9 Report HCM 2010 AWSC Page 7

Santa Cruz DRP Study 7: Pacific Street & Front Street & Mission Street/Water Street

_		
Ρ	M	Peak

	٠	-	74	~	•	←	•	Į,	ţ	4	
Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	SBL	SBT	SBR	
Lane Configurations	ሻ	^	Ž.	ሻ	*	∱ Љ			4	7	
Traffic Volume (vph)	263	1133	165	0	166	893	39	64	371	221	
Future Volume (vph)	263	1133	165	0	166	893	39	64	371	221	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0			4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95			1.00	1.00	
Frt	1.00	1.00	0.85		1.00	0.99			1.00	0.85	
Flt Protected	0.95	1.00	1.00		0.95	1.00			0.99	1.00	
Satd. Flow (prot)	1787	3574	1599		1770	3553			1826	1599	
Flt Permitted	0.95	1.00	1.00		0.95	1.00			0.99	1.00	
Satd. Flow (perm)	1787	3574	1599		1770	3553			1826	1599	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	286	1232	179	0	180	971	42	70	403	240	
RTOR Reduction (vph)	0	0	0	0	0	3	0	0	0	75	
Lane Group Flow (vph)	286	1232	179	0	180	1010	0	0	473	165	
Heavy Vehicles (%)	1%	1%	1%	1%	2%	1%	0%	5%	3%	1%	
Turn Type	Prot	NA	Perm	Prot	Prot	NA		Perm	NA	Perm	
Protected Phases	5	2		1	1	6			8		
Permitted Phases			2					8		8	
Actuated Green, G (s)	16.9	37.5	37.5		11.5	32.1			28.0	28.0	
Effective Green, g (s)	16.9	37.5	37.5		11.5	32.1			28.0	28.0	
Actuated g/C Ratio	0.19	0.42	0.42		0.13	0.36			0.31	0.31	
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0			4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	339	1505	673		228	1281			574	503	
v/s Ratio Prot	c0.16	c0.34			0.10	0.28					
v/s Ratio Perm			0.11						0.26	0.10	
v/c Ratio	0.84	0.82	0.27		0.79	0.79			0.82	0.33	
Uniform Delay, d1	34.8	22.7	16.8		37.6	25.4			28.2	23.3	
Progression Factor	1.00	1.00	1.00		1.00	1.00			1.00	1.00	
Incremental Delay, d2	17.1	3.6	0.2		16.4	5.0			12.7	1.7	
Delay (s)	51.9	26.3	17.0		54.0	30.4			40.9	25.1	
Level of Service	D	С	В		D	С			D	С	
Approach Delay (s)		29.7				34.0			35.6		
Approach LOS		С				С			D		
Intersection Summary											
HCM 2000 Control Delay	,				CM 2000	Level of S	Service		С		
	ICM 2000 Volume to Capacity ratio 0.8										
Actuated Cycle Length (s)					um of lost				12.0		
	ntersection Capacity Utilization 73.6%				U Level of	of Service			D		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

	•	→	•	-	←	•	•	1	~	<u> </u>	+	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		414		ሻ	4	7		414		*	1	
Traffic Volume (veh/h)	70	262	44	498	314	79	46	523	243	193	649	75
Future Volume (veh/h)	70	262	44	498	314	79	46	523	243	193	649	75
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1848	1900	1900	1858	1900	1900	1830	1900	1881	1819	1900
Adj Flow Rate, veh/h	76	285	48	441	481	0	50	568	264	210	705	82
Adj No. of Lanes	0	203	0	1	1	1	0	2	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
	4	0.92	0.92	0.92	0.92	0.92	5	5	5	0.92	5	5
Percent Heavy Veh, %	91	357	63	462	474	412	52	622	449	256	768	89
Cap, veh/h		0.14	0.14	0.26			0.48	0.48			0.48	0.48
Arrive On Green	0.14				0.26	0.00			0.48	0.48		
Sat Flow, veh/h	640	2508	440	1810	1858	1615	24	1296	936	663	1600	186
Grp Volume(v), veh/h	216	0	193	441	481	0	459	0	423	210	0	787
Grp Sat Flow(s), veh/h/li		0	1771	1810	1858	1615	756	0	1500	663	0	1786
Q Serve(g_s), s	11.3	0.0	10.3	23.5	25.0	0.0	6.8	0.0	20.0	27.0	0.0	40.2
Cycle Q Clear(g_c), s	11.3	0.0	10.3	23.5	25.0	0.0	47.0	0.0	20.0	47.0	0.0	40.2
Prop In Lane	0.35		0.25	1.00		1.00	0.11		0.62	1.00		0.10
Lane Grp Cap(c), veh/h		0	252	462	474	412	403	0	720	256	0	857
V/C Ratio(X)	0.83	0.00	0.77	0.95	1.01	0.00	1.14	0.00	0.59	0.82	0.00	0.92
Avail Cap(c_a), veh/h	297	0	289	462	474	412	403	0	720	256	0	857
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/vel		0.0	40.4	35.9	36.5	0.0	22.7	0.0	18.5	37.2	0.0	23.7
Incr Delay (d2), s/veh	16.4	0.0	10.2	32.0	45.0	0.0	87.9	0.0	1.3	18.6	0.0	14.7
Initial Q Delay(d3),s/veh	n 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),vel	h/ln6.9	0.0	5.8	15.9	18.7	0.0	20.7	0.0	8.5	7.0	0.0	23.2
LnGrp Delay(d),s/veh	57.3	0.0	50.6	67.9	81.5	0.0	110.5	0.0	19.7	55.8	0.0	38.4
LnGrp LOS	Ε		D	E	F		F		В	E		D
Approach Vol, veh/h		409			922			882			997	
Approach Delay, s/veh		54.1			75.0			67.0			42.1	
Approach LOS		D			Ε			Е			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc)). S	18.0		51.0		29.0		51.0				
Change Period (Y+Rc),		4.0		4.0		4.0		4.0				
Max Green Setting (Gm		16.0		47.0		25.0		47.0				
Max Q Clear Time (q_c		13.3		49.0		27.0		49.0				
Green Ext Time (p_c), s	, .	0.6		0.0		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			59.9									
HCM 2010 Clif Delay			57.7 E									
Notes												
User approved volume	halanci	ing amo	na tha	lance fo	or turnir	na move	mont					
osei approved volume	naidiiCl	ing and	my me	ialic2 I	JI LUITIII	ig move	enielii.					

Intersection		
Intersection Delay, s/veh	8.3	
Intersection LOS	Α	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations			4				4				4					
Traffic Vol, veh/h	0	0	152	33	0	35	60	27	0	2	44	26	0	0	0	0
Future Vol, veh/h	0	0	152	33	0	35	60	27	0	2	44	26	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	0	0	2	2	22	2	14	2	0	1	9	2	0	0	0
Mvmt Flow	0	0	165	36	0	38	65	29	0	2	48	28	0	0	0	0
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0
Approach			EB			WB				NB						
Opposing Approach			WB			EB										
Opposing Lanes			1			1				0						
Conflicting Approach L	eft					NB				EB						
Conflicting Lanes Left			0			1				1						
Conflicting Approach R	Right		NB							WB						
Conflicting Lanes Right	t		1			0				1						
HCM Control Delay			8.3			8.5				7.9						
HCM LOS			Α			Α				Α						

Lane	NBLn1	EBLn1\	WBLn1
Vol Left, %	3%	0%	29%
Vol Thru, %	61%	82%	49%
Vol Right, %	36%	18%	22%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	72	185	122
LT Vol	2	0	35
Through Vol	44	152	60
RT Vol	26	33	27
Lane Flow Rate	78	201	133
Geometry Grp	1	1	1
Degree of Util (X)	0.096	0.225	0.165
Departure Headway (Hd)	4.424	4.033	4.492
Convergence, Y/N	Yes	Yes	Yes
Cap	815	875	786
Service Time	2.424	2.126	
HCM Lane V/C Ratio	0.096	0.23	0.169
HCM Control Delay	7.9	8.3	8.5
HCM Lane LOS	А	А	Α
HCM 95th-tile Q	0.3	0.9	0.6

Kimley-Horn Synchro 9 Report HCM 2010 AWSC Page 10

Intersection						
Int Delay, s/veh	4.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		7"	f ·			
Traffic Vol, veh/h	0	128	56	96	0	0
Future Vol, veh/h	0	128	56	96	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	-
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	1	0	0
Mvmt Flow	0	139	61	104	0	0
Major/Minor	Minor1		Major1			
Conflicting Flow All	-	113	0	0		
Stage 1	-	-	-	-		
Stage 2	-	-	-	-		
Critical Hdwy	-	6.2	-	-		
Critical Hdwy Stg 1	-	-	-	-		
Critical Hdwy Stg 2	-	-	-	-		
Follow-up Hdwy	-	3.3	-	-		
Pot Cap-1 Maneuver	0	945	-	-		
Stage 1	0	-	-	-		
Stage 2	0	-	-	-		
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	-	945	-	-		
Mov Cap-2 Maneuver	-	-	-	-		
Stage 1	-	-	-	-		
Stage 2	-	-	-	-		
Approach	WB		NB			
HCM Control Delay, s	9.5		0			
HCM LOS	А					
Minor Lane/Major Mvmt	NBT	NBRWBLn1				
Capacity (veh/h)	_	- 945				
HCM Lane V/C Ratio	_	- 0.147				
HCM Control Delay (s)	_	- 9.5				
HCM Lane LOS	_	- A				
HCM 95th %tile Q(veh)	_	- 0.5				
		0.0				

Cumulative + Project PM PM Peak

	<u> </u>			<u> </u>	-	•	•	<u></u>	<i>/</i> ~			
		-	*		MOT	_		•		-	*	000
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	† }	4.0	110	† †	7	*	† †	7	\	^	**
Traffic Volume (veh/h)	495	1578	162	168	1008	339	203	1359	96	522	1448	399
Future Volume (veh/h)	495	1578	162	168	1008	339	203	1359	96	522	1448	399
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	4.00	1.00	1.00	4.00	1.00	1.00	4.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1881	1900	1900	1881	1900	1900	1881	1881	1881	1900	1863
Adj Flow Rate, veh/h	538	1715	176	183	1096	0	221	1477	104	567	1574	0
Adj No. of Lanes	2	2	0	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	1	1	0	1	0	0	1	1	1	0	2
Cap, veh/h	344	1175	119	121	1162	525	136	953	426	314	1324	581
Arrive On Green	0.10	0.36	0.36	0.07	0.32	0.00	0.08	0.27	0.27	0.17	0.37	0.00
Sat Flow, veh/h	3442	3278	331	1810	3574	1615	1810	3574	1599	1792	3610	1583
Grp Volume(v), veh/h	538	923	968	183	1096	0	221	1477	104	567	1574	0
Grp Sat Flow(s),veh/h/ln	1721	1787	1823	1810	1787	1615	1810	1787	1599	1792	1805	1583
Q Serve(g_s), s	12.0	43.0	43.0	8.0	35.8	0.0	9.0	32.0	6.1	21.0	44.0	0.0
Cycle Q Clear(g_c), s	12.0	43.0	43.0	8.0	35.8	0.0	9.0	32.0	6.1	21.0	44.0	0.0
Prop In Lane	1.00		0.18	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	344	640	653	121	1162	525	136	953	426	314	1324	581
V/C Ratio(X)	1.56	1.44	1.48	1.52	0.94	0.00	1.63	1.55	0.24	1.81	1.19	0.00
Avail Cap(c_a), veh/h	344	640	653	121	1162	525	136	953	426	314	1324	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.0	38.5	38.5	56.0	39.4	0.0	55.5	44.0	34.5	49.5	38.0	0.0
Incr Delay (d2), s/veh	267.2	207.3	225.2	270.3	14.9	0.0	313.8	252.5	0.3	376.2	92.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.5	58.0	62.4	13.0	20.1	0.0	16.3	49.2	2.8	43.1	39.0	0.0
LnGrp Delay(d),s/veh	321.2	245.8	263.7	326.3	54.3	0.0	369.3	296.5	34.8	425.7	130.9	0.0
LnGrp LOS	F	F	F	F	D		F	F	С	F	F	
Approach Vol, veh/h		2429			1279			1802			2141	
Approach Delay, s/veh		269.6			93.2			290.4			209.0	
Approach LOS		F			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	47.0	13.0	48.0	16.0	43.0	25.0	36.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	8.0	43.0	9.0	44.0	12.0	39.0	21.0	32.0				
Max Q Clear Time (g_c+l1), s	10.0	45.0	11.0	46.0	14.0	37.8	23.0	34.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			228.1									
HCM 2010 LOS			F									

	•	→	•	•	←	•	•	<u>†</u>	_	<u> </u>	Ţ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	^	LDIX	ሻሻ	^	7	ሻ	↑	77	ሻሻ	<u> </u>	7
Traffic Volume (veh/h)	490	2350	86	561	1862	693	99	454	726	1109	545	571
Future Volume (veh/h)	490	2350	86	561	1862	693	99	454	726	1109	545	571
Number	5	2	12	1	6	16	7	4	14	3	8	18
nitial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00	· ·	1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1881	1846	1900	1845	1863	1810	1881	1845	1881	1863	1845	1863
Adj Flow Rate, veh/h	533	2554	0	610	2024	0	108	493	789	1205	592	621
Adj No. of Lanes	1	3	0	2	3	1	1	1	2	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	3	3	3	2	5	1	3	1	2	3	2
Cap, veh/h	340	1839	0	392	1475	446	349	360	549	843	452	388
Arrive On Green	0.19	0.37	0.00	0.12	0.29	0.00	0.19	0.19	0.19	0.25	0.25	0.25
Sat Flow, veh/h	1792	5205	0	3408	5085	1538	1792	1845	2814	3442	1845	1583
Grp Volume(v), veh/h	533	2554	0	610	2024	0	108	493	789	1205	592	621
Grp Sat Flow(s), veh/h/l		1680	0	1704	1695	1538	1792	1845	1407	1721	1845	1583
Q Serve(g_s), s	38.0	73.0	0.0	23.0	58.0	0.0	10.3	39.0	39.0	49.0	49.0	49.0
Cycle Q Clear(g_c), s	38.0	73.0	0.0	23.0	58.0	0.0	10.3	39.0	39.0	49.0	49.0	49.0
Prop In Lane	1.00	73.0	0.00	1.00	30.0	1.00	1.00	37.0	1.00	1.00	47.0	1.00
Lane Grp Cap(c), veh/h		1839	0.00	392	1475	446	349	360	549	843	452	388
V/C Ratio(X)	1.57	1.39	0.00	1.56	1.37	0.00	0.31	1.37	1.44	1.43	1.31	1.60
Avail Cap(c_a), veh/h	340	1839	0.00	392	1475	446	349	360	549	843	452	388
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/ve		63.5	0.00	88.5	71.0	0.00	69.0	80.5	80.5	75.5	75.5	75.5
Incr Delay (d2), s/veh			0.0	262.6	172.0	0.0	2.3	183.6	207.2	199.9	154.6	282.2
Initial Q Delay(d3),s/vei		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),ve		64.3	0.0	25.1	50.7	0.0	5.4	38.2	31.0	46.7	44.4	51.9
LnGrp Delay(d),s/veh		241.8	0.0	351.1	243.0	0.0	71.2	264.1	287.7	275.4	230.1	357.7
LnGrp LOS	547.5	Z41.0	0.0	551.1	Z43.0	0.0	71.Z	F	207.7 F	275.4 F	F	557.7 F
Approach Vol, veh/h	'	3087		ı	2634			1390	<u>'</u>	'	2418	'
Approach Vol, verim Approach Delay, s/veh		260.4			268.0			262.5			285.5	
Approach LOS		200.4 F			200.0			202.5			200.5 F	
Approach LOS		'			'			'			'	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	. 1	2		4	5	6		8				
Phs Duration (G+Y+Rc		77.0		43.0	42.0	62.0		53.0				
Change Period (Y+Rc)		4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gn		73.0		39.0	38.0	58.0		49.0				
Max Q Clear Time (g_c		75.0		41.0	40.0	60.0		51.0				
Green Ext Time (p_c),	s 0.0	0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			269.2									
HCM 2010 LOS			F									

	•	_	_	_	—	•	•	†	<u> </u>	$\overline{}$	1	1	
Movement	EBL	EBT	EBR	₩BL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	T T	414	LDIN	WDL	41 6	WDIX	NDL	↑ \$	NDIX	JDL Š	<u> </u>	אמכ	
	2436	1060	42	33	849	93	138	332	46	71	497	1822	
uture Volume (veh/h)		1060	42	33	849	93	138	332	46	71	497	1822	
umber	1	6	16	5	2	12	3	8	18	71	477	14	
itial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
ed-Bike Adj(A_pbT)	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00	1.00	U	1.00	
arking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
dj Sat Flow, veh/h/ln	1881	1882	1900	1900	1852	1900	1881	1900	1900	1900	1900	1863	
dj Flow Rate, veh/h	2648	1152	46	36	923	0	150	361	50	77	540	1980	
dj No. of Lanes	2040	1132	0	0	2	0	130	2	0	1	2	2	
eak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
ercent Heavy Veh, %	1	1	1	3	3	3	1	0.72	0.72	0.72	0.72	2	
ap, veh/h	1430	717	29	23	623	0	186	752	103	100	676	1022	
rrive On Green	0.40	0.40	0.40	0.18	0.18	0.00	0.10	0.24	0.24	0.06	0.19	0.19	
at Flow, veh/h	3583	1797	72	129	3567	0.00	1792	3189	438	1810	3610	2787	
	2648	0	1198	514	445	0	150	203	208	77	540	1980	
rp Sat Flow(s), veh/h/lr			1869	1845	1759		1792	1805	1823	1810	1805	1393	
Serve(g_s), s	49.0	0.0	49.0	22.0	22.0	0.0	10.1	11.9	12.1	5.2	17.5	23.0	
/cle Q Clear(g_c), s	49.0	0.0	49.0	22.0	22.0	0.0	10.1	11.9	12.1	5.2	17.5	23.0	
op In Lane	1.00	0.0	0.04	0.07	22.0	0.00	1.00	11.7	0.24	1.00	17.5	1.00	
ne Grp Cap(c), veh/h		0	746	331	315	0.00	186	426	430	100	676	1022	
C Ratio(X)	1.85	0.00	1.61	1.55	1.41	0.00	0.81	0.48	0.48	0.77	0.80	1.94	
	1430	0.00	746	331	315	0.00	584	426	430	516	676	1022	
rail Cap(c_a), veh/h CM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
ostream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	
niform Delay (d), s/vel		0.00	36.9	50.4	50.4	0.00	53.8	40.4	40.5	57.2	47.7	31.9	
cr Delay (d2), s/veh		0.0	278.9	263.2	203.7	0.0	7.9	0.8	0.8	11.6	6.7	425.8	
itial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
ile BackOfQ(50%),vel		0.0	82.9	35.3	28.4	0.0	5.4	6.0	6.2	2.9	9.4	77.6	
nGrp Delay(d),s/veh			315.8	313.6	254.1	0.0	61.7	41.2	41.3	68.8	54.4	457.7	
Grp LOS	422.7 F	0.0	515.0 F	513.0 F	254.1 F	0.0	61.7 E	41.2 D	41.3 D	00.0 E	D D	437.7 F	
proach Vol, veh/h	<u> </u>	3846	ı	ı	959			561	D		2597	ı	
oproach Delay, s/veh		389.4			286.0			46.7			362.3		
proach LOS		507.4 F			F			40.7 D			502.5 F		
	1		2	1			7						
mer	1	2	3	4	5	6	7	8					
ssigned Phs		26.0		27.0		6	7	8					
ns Duration (G+Y+Rc)		26.0	16.8	27.0		53.0	10.8	33.0					
nange Period (Y+Rc), ax Green Setting (Gm		4.0	4.0	4.0		4.0	4.0	4.0					
0 1		22.0	40.0	23.0		49.0	35.0 7.2	28.0					
ax Q Clear Time (g_c		24.0	12.1	25.0		51.0	0.2	14.1 2.5					
een Ext Time (p_c), s)	U.U	0.8	0.0		0.0	U.Z	2.5					
ersection Summary													
CM 2010 Ctrl Delay			344.0										
CM 2010 LOS			F										
otes													
ser approved volume I	balanci	ing amo	ong the	lanes f	or turnir	ng move	ment.						
11		5	J5			55.0							

APPENDIX F



Page 17

Appendix B

Synchro Timing Reports

	٠	-	•	•	•	•	†	<i>></i>	>	↓	1	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻ	∱ 1>	ሻ	†	7	ሻ	†	7	ሻ	†	7	
Traffic Volume (vph)	39	337	246	448	86	5	142	168	32	149	61	
Future Volume (vph)	39	337	246	448	86	5	142	168	32	149	61	
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Detector Phase	5	2	1	6	6	3	8	8	7	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	27.0	25.0	32.0	32.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (%)	25.0%	33.8%	31.3%	40.0%	40.0%	10.0%	25.0%	25.0%	10.0%	25.0%	25.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	Max	Max	None	Max	Max	None	None	None	None	None	None	
Act Effct Green (s)	16.2	28.8	15.6	28.3	28.3	4.0	11.4	11.4	4.0	14.4	14.4	
Actuated g/C Ratio	0.22	0.40	0.22	0.39	0.39	0.06	0.16	0.16	0.06	0.20	0.20	
v/c Ratio	0.11	0.27	0.71	0.67	0.14	0.06	0.54	0.45	0.38	0.45	0.15	
Control Delay	26.0	18.1	37.3	25.6	2.6	37.2	35.9	8.7	48.3	29.7	0.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	26.0	18.1	37.3	25.6	2.6	37.2	35.9	8.7	48.3	29.7	0.7	
LOS	С	В	D	С	А	D	D	Α	D	С	Α	
Approach Delay		18.9		26.7			21.4			24.9		
Approach LOS		В		С			С			С		
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 72.4												
Natural Cycle: 70												
Control Type: Actuated-Unco	ordinated											
Maximum v/c Ratio: 0.71												
Internation Clausel Delay, 22	7			I.		- 1 00 0						

Splits and Phases: 1: Front Street & Laurel Street

Intersection Signal Delay: 23.7

Analysis Period (min) 15

Intersection Capacity Utilization 51.4%



Intersection LOS: C

ICU Level of Service A

Kimley-Horn Synchro 9 Report Timings Page 1

	۶	→	•	←	•	4	†	<i>></i>	>	↓	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	27.0	25.0	32.0	32.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (%)	25.0%	33.8%	31.3%	40.0%	40.0%	10.0%	25.0%	25.0%	10.0%	25.0%	25.0%	
Maximum Green (s)	16.0	23.0	21.0	28.0	28.0	4.0	16.0	16.0	4.0	16.0	16.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	Max	Max	None	Max	Max	None	None	None	None	None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
90th %ile Green (s)	16.0	23.0	21.0	28.0	28.0	4.0	16.0	16.0	4.0	16.0	16.0	
90th %ile Term Code	MaxR	MaxR	Max	MaxR	MaxR	Max	Max	Max	Max	Max	Max	
70th %ile Green (s)	16.0	24.8	19.2	28.0	28.0	0.0	13.5	13.5	4.0	21.5	21.5	
70th %ile Term Code	MaxR	Hold	Gap	MaxR	MaxR	Skip	Gap	Gap	Max	Hold	Hold	
50th %ile Green (s)	16.0	27.5	16.5	28.0	28.0	0.0	11.6	11.6	4.0	19.6	19.6	
50th %ile Term Code	MaxR	Hold	Gap	MaxR	MaxR	Skip	Gap	Gap	Max	Hold	Hold	
30th %ile Green (s)	16.0	31.1	12.9	28.0	28.0	0.0	9.5	9.5	0.0	9.5	9.5	
30th %ile Term Code	MaxR	Hold	Gap	MaxR	MaxR	Skip	Hold	Hold	Skip	Gap	Gap	
10th %ile Green (s)	16.0	34.2	9.8	28.0	28.0	0.0	7.2	7.2	0.0	7.2	7.2	
10th %ile Term Code	MaxR	Hold	Gap	MaxR	MaxR	Skip	Hold	Hold	Skip	Gap	Gap	

Cycle Length: 80

Actuated Cycle Length: 72.4
Control Type: Actuated-Uncoordinated
90th %ile Actuated Cycle: 80 70th %ile Actuated Cycle: 77.5 50th %ile Actuated Cycle: 75.6 30th %ile Actuated Cycle: 65.5 10th %ile Actuated Cycle: 63.2

	۶	→	•	←	4	†	/	ļ	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations	۲	4	ሻ	4	۲	4		4	
Traffic Volume (vph)	20	338	28	453	33	30	19	15	
Future Volume (vph)	20	338	28	453	33	30	19	15	
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	
Protected Phases	5	2	1	6		8		4	
Permitted Phases					8		4		
Detector Phase	5	2	1	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	40.0	20.0	40.0	20.0	20.0	20.0	20.0	
Total Split (%)	25.0%	50.0%	25.0%	50.0%	25.0%	25.0%	25.0%	25.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	
Act Effct Green (s)	6.7	36.3	6.8	36.3	16.1	16.1		16.1	
Actuated g/C Ratio	0.10	0.56	0.10	0.56	0.25	0.25		0.25	
v/c Ratio	0.16	0.39	0.18	0.54	0.10	0.17		0.17	
Control Delay	30.8	10.6	30.5	12.6	21.9	15.1		16.6	
Queue Delay	0.0	0.0	0.0	4.5	0.0	0.0		0.0	
Total Delay	30.8	10.6	30.5	17.1	21.9	15.1		16.6	
LOS	С	В	С	В	С	В		В	
Approach Delay		11.7		17.9		17.6		16.6	
Approach LOS		В		В		В		В	
Intersection Summary									
Cycle Length: 80									
Actuated Cycle Length: 64.8									
Natural Cycle: 65									
Control Type: Actuated-Unco	ordinated								
Maximum v/c Datio: 0 E4									

Splits and Phases: 2: Pacific Avenue & Laurel Street

Maximum v/c Ratio: 0.54 Intersection Signal Delay: 15.5

Analysis Period (min) 15

Intersection Capacity Utilization 41.9%

√ Ø1	→ Ø2	₽ Ø4
20 s	40 s	20 s
≯ _{Ø5}	← Ø6	₫₽øs
20 s	40 s	20 s

Intersection LOS: B

ICU Level of Service A

Kimley-Horn Synchro 9 Report Timings Page 3

Existing AM Peak

	۶	→	•	+	•	†	\	↓	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Protected Phases	5	2	1	6		8		4	
Permitted Phases					8		4		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	40.0	20.0	40.0	20.0	20.0	20.0	20.0	
Total Split (%)	25.0%	50.0%	25.0%	50.0%	25.0%	25.0%	25.0%	25.0%	
Maximum Green (s)	16.0	36.0	16.0	36.0	16.0	16.0	16.0	16.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	
90th %ile Green (s)	8.5	36.0	8.7	36.2	16.0	16.0	16.0	16.0	
90th %ile Term Code	Gap	MaxR	Gap	Hold	MaxR	MaxR	MaxR	MaxR	
70th %ile Green (s)	7.4	36.0	7.5	36.1	16.0	16.0	16.0	16.0	
70th %ile Term Code	Gap	MaxR	Gap	Hold	MaxR	MaxR	MaxR	MaxR	
50th %ile Green (s)	0.0	36.0	0.0	36.0	16.0	16.0	16.0	16.0	
50th %ile Term Code	Skip	MaxR	Skip	MaxR	MaxR	MaxR	MaxR	MaxR	
30th %ile Green (s)	0.0	36.0	0.0	36.0	16.0	16.0	16.0	16.0	
30th %ile Term Code	Skip	MaxR	Skip	MaxR	MaxR	MaxR	MaxR	MaxR	
10th %ile Green (s)	0.0	36.0	0.0	36.0	16.0	16.0	16.0	16.0	
10th %ile Term Code	Skip	MaxR	Skip	MaxR	MaxR	MaxR	MaxR	MaxR	
Intersection Summary									

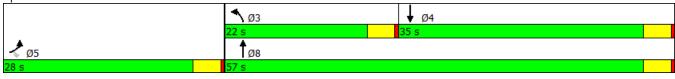
Cycle Length: 80

Actuated Cycle Length: 64.8
Control Type: Actuated-Uncoordinated
90th %ile Actuated Cycle: 72.7 70th %ile Actuated Cycle: 71.5 50th %ile Actuated Cycle: 60 30th %ile Actuated Cycle: 60 10th %ile Actuated Cycle: 60

Santa Cruz DRP Study 3: Front Street & Cathcart Street

	۶	•	4	†	ļ		
Lane Group	EBL	EBR	NBL	NBT	SBT		
Lane Configurations	ሻ	7	ሻ	†	∱ ⊅	•	
Traffic Volume (vph)	36	19	18	250	273		
Future Volume (vph)	36	19	18	250	273		
Turn Type	Prot	Perm	Prot	NA	NA		
Protected Phases	5		3	8	4		
Permitted Phases		5					
Detector Phase	5	5	3	8	4		
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		
Total Split (s)	28.0	28.0	22.0	57.0	35.0		
Total Split (%)	32.9%	32.9%	25.9%	67.1%	41.2%		
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		
Lead/Lag			Lead		Lag		
Lead-Lag Optimize?			Yes		Yes		
Recall Mode	Max	Max	Max	None	Max		
Act Effct Green (s)	24.0	24.0	18.0	53.0	31.0		
Actuated g/C Ratio	0.28	0.28	0.21	0.62	0.36		
v/c Ratio	0.09	0.05	0.06	0.26	0.33		
Control Delay	23.3	9.9	27.4	8.0	18.5		
Queue Delay	0.0	0.0	0.0	1.5	0.0		
Total Delay	23.3	9.9	27.4	9.5	18.5		
LOS	С	А	С	А	В		
Approach Delay	18.6			10.7	18.5		
Approach LOS	В			В	В		
Intersection Summary							
Cycle Length: 85							
Actuated Cycle Length: 85							
Natural Cycle: 60							
Control Type: Actuated-Unco	ordinated						
Maximum v/c Ratio: 0.33							
Intersection Signal Delay: 15	.3			Ir	ntersection	n LOS: B	
Intersection Capacity Utilizati				[(CU Level	of Service A	
Analysis Period (min) 15							

Splits and Phases: 3: Front Street & Cathcart Street



Kimley-Horn Synchro 9 Report Timings Page 5

Santa Cruz DRP Study 3: Front Street & Cathcart Street

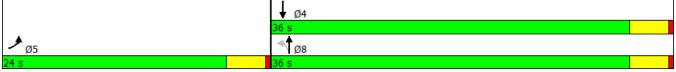
	۶	•	4	†	↓
Lane Group	EBL	EBR	NBL	NBT	SBT
Protected Phases	5		3	8	4
Permitted Phases		5			
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	28.0	28.0	22.0	57.0	35.0
Total Split (%)	32.9%	32.9%	25.9%	67.1%	41.2%
Maximum Green (s)	24.0	24.0	18.0	53.0	31.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	Max	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0
90th %ile Green (s)	24.0	24.0	18.0	53.0	31.0
90th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
70th %ile Green (s)	24.0	24.0	18.0	53.0	31.0
70th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
50th %ile Green (s)	24.0	24.0	18.0	53.0	31.0
50th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
30th %ile Green (s)	24.0	24.0	18.0	53.0	31.0
30th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
10th %ile Green (s)	24.0	24.0	18.0	53.0	31.0
10th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
Intersection Summary					
Cycle Length: 85					
Actuated Cycle Length: 85					
Control Type: Actuated-Unc	oordinated				
90th %ile Actuated Cycle: 8					
70th %ile Actuated Cycle: 8					
50th %ile Actuated Cycle: 8					
30th %ile Actuated Cycle: 8					
10th %ile Actuated Cycle: 8					
. out 70110 Motadiou Oyolo. Of					

Kimley-Horn Synchro 9 Report Phasings Page 6

Santa Cruz DRP Study 4: Front Street & Metro Station Access North

	۶	1	†	+	
Lane Group	EBL	NBL	NBT	SBT	
Lane Configurations	W	ሻ	†	†	
Traffic Volume (vph)	10	2	259	255	
Future Volume (vph)	10	2	259	255	
Turn Type	Prot	Perm	NA	NA	
Protected Phases	5		8	4	
Permitted Phases		8			
Detector Phase	5	8	8	4	
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	
Total Split (s)	24.0	36.0	36.0	36.0	
Total Split (%)	40.0%	60.0%	60.0%	60.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	
Lead/Lag					
Lead-Lag Optimize?	N.				
Recall Mode	None	Max	Max	Max	
Act Effct Green (s)	6.5	50.8	50.8	50.8	
Actuated g/C Ratio	0.12	0.95	0.95	0.95	
v/c Ratio	0.13	0.00	0.18	0.22	
Control Delay	23.6	1.5	1.2	1.3	
Queue Delay	0.0	0.0	0.0	0.0	
Total Delay	23.6	1.5	1.2	1.3	
LOS	C	А	A	A	
Approach LOS	23.6		1.2	1.3	
Approach LOS	С		А	Α	
Intersection Summary					
Cycle Length: 60					
Actuated Cycle Length: 53.6					
Natural Cycle: 40					
Control Type: Actuated-Unco	oordinated				
Maximum v/c Ratio: 0.22					
Intersection Signal Delay: 1.					ntersection LOS: A
Intersection Capacity Utilizat	ion 25.5%)		10	CU Level of Service A
Analysis Period (min) 15					
0.111					

Splits and Phases: 4: Front Street & Metro Station Access North



Santa Cruz DRP Study 4: Front Street & Metro Station Access North

	۶	4	†	ļ
Lane Group	EBL	NBL	NBT	SBT
Protected Phases	5		8	4
Permitted Phases		8		
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	24.0	36.0	36.0	36.0
Total Split (%)	40.0%	60.0%	60.0%	60.0%
Maximum Green (s)	20.0	32.0	32.0	32.0
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0
Recall Mode	None	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0
90th %ile Green (s)	8.8	47.0	47.0	47.0
90th %ile Term Code	Gap	Dwell	Dwell	Dwell
70th %ile Green (s)	0.0	47.0	47.0	47.0
70th %ile Term Code	Skip	Dwell	Dwell	Dwell
50th %ile Green (s)	0.0	47.0	47.0	47.0
50th %ile Term Code	Skip	Dwell	Dwell	Dwell
30th %ile Green (s)	0.0	47.0	47.0	47.0
30th %ile Term Code	Skip	Dwell	Dwell	Dwell
10th %ile Green (s)	0.0	47.0	47.0	47.0
10th %ile Term Code	Skip	Dwell	Dwell	Dwell
Intercaction Cumment	'			
Intersection Summary				
Cycle Length: 60	,			
Actuated Cycle Length: 53.				
Control Type: Actuated-Und				
90th %ile Actuated Cycle: 6				
70th %ile Actuated Cycle: 5				
50th %ile Actuated Cycle: 5				
30th %ile Actuated Cycle: 5				
10th %ile Actuated Cycle: 5) l			

Kimley-Horn Phasings Synchro 9 Report Page 8

Santa Cruz DRP Study 7: Pacific Street & Front Street & Mission Street/Water Street

	٠	-	74	~	•	←	ļ	4	
Lane Group	EBL	EBT	EBR	WBL2	WBL	WBT	SBT	SBR	
Lane Configurations	ሻ	† †	Ž.	ሻ	ň	∱ 1>	€Î	7	
Traffic Volume (vph)	81	380	75	61	48	637	18	107	
Future Volume (vph)	81	380	75	61	48	637	18	107	
Turn Type	Prot	NA	Perm	Prot	Prot	NA	NA	Perm	
Protected Phases	5	2		1	1	6	8		
Permitted Phases			2					8	
Detector Phase	5	2	2	1	1	6	8	8	
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	20.0	8.0	8.0	20.0	20.0	20.0	
Total Split (s)	20.0	44.0	44.0	20.0	20.0	44.0	26.0	26.0	
Total Split (%)	22.2%	48.9%	48.9%	22.2%	22.2%	48.9%	28.9%	28.9%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			
Recall Mode	None	None	None	None	None	Max	Max	Max	
Act Effct Green (s)	9.6	40.8	40.8	8.9	8.9	40.2	22.1	22.1	
Actuated g/C Ratio	0.12	0.50	0.50	0.11	0.11	0.49	0.27	0.27	
v/c Ratio	0.45	0.25	0.13	0.40	0.28	0.41	0.19	0.23	
Control Delay	41.5	13.0	6.8	41.6	37.9	15.0	26.4	6.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.5	13.0	6.8	41.6	37.9	15.0	26.4	6.6	
LOS	D	В	Α	D	D	В	С	Α	
Approach Delay		16.1				18.7	14.7		
Approach LOS		В				В	В		
Intersection Summary									
Cycle Length: 90									
Actuated Cycle Length: 81.7									
Natural Cycle: 50									
Control Type: Actuated-Unco	ordinated								
Maximum v/c Ratio: 0.45									
Intersection Signal Delay: 17.	.2			lr	ntersectio	n LOS: B			
Intersection Capacity Utilizati)		[(CU Level	of Service	e A		
Amplicate David of (main) 15									

Splits and Phases: 7: Pacific Street & Front Street & Mission Street/Water Street

Analysis Period (min) 15



Kimley-Horn Synchro 9 Report Timings Page 9

Santa Cruz DRP Study 7: Pacific Street & Front Street & Mission Street/Water Street

	۶	-	¬ҳ	4	•	•	ļ	4	
Lane Group	EBL	EBT	EBR	WBL2	WBL	WBT	SBT	SBR	
Protected Phases	5	2		1	1	6	8		
Permitted Phases			2					8	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	20.0	8.0	8.0	20.0	20.0	20.0	
Total Split (s)	20.0	44.0	44.0	20.0	20.0	44.0	26.0	26.0	
Total Split (%)	22.2%	48.9%	48.9%	22.2%	22.2%	48.9%	28.9%	28.9%	
Maximum Green (s)	16.0	40.0	40.0	16.0	16.0	40.0	22.0	22.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	None	None	None	None	Max	Max	Max	
Walk Time (s)		5.0	5.0			5.0	5.0	5.0	
Flash Dont Walk (s)		11.0	11.0			11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0			0	0	0	
90th %ile Green (s)	13.6	40.9	40.9	12.7	12.7	40.0	22.0	22.0	
90th %ile Term Code	Gap	Hold	Hold	Gap	Gap	MaxR	MaxR	MaxR	
70th %ile Green (s)	11.3	40.8	40.8	10.5	10.5	40.0	22.0	22.0	
70th %ile Term Code	Gap	Hold	Hold	Gap	Gap	MaxR	MaxR	MaxR	
50th %ile Green (s)	9.7	40.8	40.8	8.9	8.9	40.0	22.0	22.0	
50th %ile Term Code	Gap	Hold	Hold	Gap	Gap	MaxR	MaxR	MaxR	
30th %ile Green (s)	8.1	40.6	40.6	7.5	7.5	40.0	22.0	22.0	
30th %ile Term Code	Gap	Hold	Hold	Gap	Gap	MaxR	MaxR	MaxR	
10th %ile Green (s)	0.0	40.0	40.0	0.0	0.0	40.0	22.0	22.0	
10th %ile Term Code	Skip	Hold	Hold	Skip	Skip	MaxR	MaxR	MaxR	
Interesetion Comment									

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 81.7

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 87.6 70th %ile Actuated Cycle: 85.3

50th %ile Actuated Cycle: 83.7

30th %ile Actuated Cycle: 82.1

10th %ile Actuated Cycle: 70

Kimley-Horn Synchro 9 Report Phasings Page 10

	-	•	←	•	•	†	\		
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Lane Configurations	4Th	ሻ	4	7		414	ħ	f)	
Traffic Volume (vph)	47	202	104	42	10	194	24	151	
Future Volume (vph)	47	202	104	42	10	194	24	151	
Turn Type	NA	Split	NA	Perm	Perm	NA	Perm	NA	
Protected Phases	2	6	6			8		4	
Permitted Phases				6	8		4		
Detector Phase	2	6	6	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	23.0	38.0	38.0	38.0	39.0	39.0	39.0	39.0	
Total Split (%)	23.0%	38.0%	38.0%	38.0%	39.0%	39.0%	39.0%	39.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	
Lead/Lag	Lag	Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	Max	None	None	None	None	
Act Effct Green (s)	7.2	34.6	34.6	34.6		13.3	13.3	13.3	
Actuated g/C Ratio	0.11	0.53	0.53	0.53		0.20	0.20	0.20	
v/c Ratio	0.25	0.20	0.20	0.06		0.50	0.17	0.61	
Control Delay	28.0	11.0	10.9	3.3		21.6	24.5	31.8	
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	28.0	11.0	10.9	3.3		21.6	24.5	31.8	
LOS	С	В	В	Α		С	С	С	
Approach Delay	28.0		10.0			21.6		30.9	
Approach LOS	С		В			С		С	
Intersection Summary									

Cycle Length: 100

Actuated Cycle Length: 64.9 Natural Cycle: 60

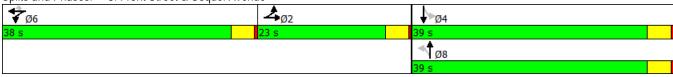
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 19.8 Intersection LOS: B Intersection Capacity Utilization 41.6% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 8: Front Street & Soquel Avenue



	-	•	←	•	•	†	\	ļ	
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Protected Phases	2	6	6			8		4	
Permitted Phases				6	8		4		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	23.0	38.0	38.0	38.0	39.0	39.0	39.0	39.0	
Total Split (%)	23.0%	38.0%	38.0%	38.0%	39.0%	39.0%	39.0%	39.0%	
Maximum Green (s)	19.0	34.0	34.0	34.0	35.0	35.0	35.0	35.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lag	Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Max	Max	Max	None	None	None	None	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	
90th %ile Green (s)	9.0	34.0	34.0	34.0	19.4	19.4	19.4	19.4	
90th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
70th %ile Green (s)	7.9	34.0	34.0	34.0	15.7	15.7	15.7	15.7	
70th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
50th %ile Green (s)	7.2	34.0	34.0	34.0	13.4	13.4	13.4	13.4	
50th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
30th %ile Green (s)	6.5	34.0	34.0	34.0	11.3	11.3	11.3	11.3	
30th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
10th %ile Green (s)	0.0	34.0	34.0	34.0	8.0	8.0	8.0	8.0	
10th %ile Term Code	Skip	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
Intersection Summary									

Cycle Length: 100
Actuated Cycle Length: 64.9
Control Type: Actuated-Uncoordinated
90th %ile Actuated Cycle: 74.4 70th %ile Actuated Cycle: 69.6 50th %ile Actuated Cycle: 66.6 30th %ile Actuated Cycle: 63.8 10th %ile Actuated Cycle: 50

Synchro 9 Report Kimley-Horn Page 12 Phasings

	۶	→	•	←	•	4	†	<i>></i>	>	ļ	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻሻ	∱ ⊅	ሻ	† †	7	Ĭ	† †	7	ሻ	† †	7	
Traffic Volume (vph)	161	297	136	450	255	78	466	40	175	620	379	
Future Volume (vph)	161	297	136	450	255	78	466	40	175	620	379	
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Detector Phase	5	2	1	6	6	3	8	8	7	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	17.0	31.0	26.0	40.0	40.0	18.0	34.0	34.0	29.0	45.0	45.0	
Total Split (%)	14.2%	25.8%	21.7%	33.3%	33.3%	15.0%	28.3%	28.3%	24.2%	37.5%	37.5%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	None	Min	Min	None	Min	Min	None	Min	Min	
Act Effct Green (s)	10.0	17.0	12.7	19.7	19.7	9.8	20.3	20.3	14.8	28.4	28.4	
Actuated g/C Ratio	0.12	0.21	0.16	0.24	0.24	0.12	0.25	0.25	0.18	0.35	0.35	
v/c Ratio	0.42	0.52	0.53	0.58	0.47	0.40	0.58	0.08	0.59	0.55	0.50	
Control Delay	40.9	33.1	42.9	32.0	6.8	44.8	31.2	0.3	41.9	25.6	5.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	40.9	33.1	42.9	32.0	6.8	44.8	31.2	0.3	41.9	25.6	5.0	
LOS	D	С	D	С	Α	D	С	Α	D	С	А	
Approach Delay		35.5		26.2			30.9			21.4		
Approach LOS		D		С			С			С		
Intersection Summary Cycle Length: 120												

Cycle Length: 120

Actuated Cycle Length: 81.8

Natural Cycle: 60

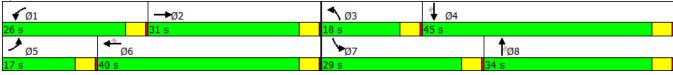
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 26.8 Intersection LOS: C
Intersection Capacity Utilization 53.2% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 11: Ocean Street & Water Street



Kimley-Horn Synchro 9 Report Timings Page 13

	٠	→	•	←	•	•	†	<i>></i>	>	ţ	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	17.0	31.0	26.0	40.0	40.0	18.0	34.0	34.0	29.0	45.0	45.0	
Total Split (%)	14.2%	25.8%	21.7%	33.3%	33.3%	15.0%	28.3%	28.3%	24.2%	37.5%	37.5%	
Maximum Green (s)	13.0	27.0	22.0	36.0	36.0	14.0	30.0	30.0	25.0	41.0	41.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Min	None	Min	Min	None	Min	Min	None	Min	Min	
Walk Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
90th %ile Green (s)	13.0	23.2	19.7	29.9	29.9	14.0	30.5	30.5	23.1	39.6	39.6	
90th %ile Term Code	Max	Hold	Gap	Gap	Gap	Max	Hold	Hold	Gap	Gap	Gap	
70th %ile Green (s)	11.5	19.4	15.2	23.1	23.1	11.5	24.6	24.6	17.7	30.8	30.8	
70th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Gap	Hold	Hold	Gap	Gap	Gap	
50th %ile Green (s)	9.8	16.4	12.3	18.9	18.9	9.5	20.2	20.2	14.4	25.1	25.1	
50th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Gap	Hold	Hold	Gap	Gap	Gap	
30th %ile Green (s)	8.5	14.5	10.2	16.2	16.2	8.0	17.3	17.3	11.8	21.1	21.1	
30th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Gap	Hold	Hold	Gap	Gap	Gap	
10th %ile Green (s)	6.9	11.4	7.5	12.0	12.0	0.0	11.2	11.2	8.6	23.8	23.8	
10th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Skip	Gap	Gap	Gap	Hold	Hold	

Cycle Length: 120

Actuated Cycle Length: 81.8

10th %ile Actuated Cycle: 54.7

Control Type: Actuated-Uncoordinated 90th %ile Actuated Cycle: 112.5 70th %ile Actuated Cycle: 92.9 50th %ile Actuated Cycle: 79.3 30th %ile Actuated Cycle: 69.8

Kimley-Horn Synchro 9 Report Phasings Page 14

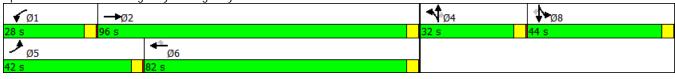
	٠	→	•	←	•	4	†	<i>></i>	>	↓	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	Ť	ተተው	ሻሻ	ተተተ	7	ሻ	†	77	ሻሻ	†	7	
Traffic Volume (vph)	211	1518	266	1389	515	27	156	160	412	158	184	
Future Volume (vph)	211	1518	266	1389	515	27	156	160	412	158	184	
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm	
Protected Phases	5	2	1	6		4	4		8	8		
Permitted Phases					6			4			8	
Detector Phase	5	2	1	6	6	4	4	4	8	8	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	42.0	96.0	28.0	82.0	82.0	32.0	32.0	32.0	44.0	44.0	44.0	
Total Split (%)	21.0%	48.0%	14.0%	41.0%	41.0%	16.0%	16.0%	16.0%	22.0%	22.0%	22.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	Max	Max	Max	
Act Effct Green (s)	29.4	92.0	20.7	83.2	83.2	28.0	28.0	28.0	40.0	40.0	40.0	
Actuated g/C Ratio	0.15	0.47	0.11	0.42	0.42	0.14	0.14	0.14	0.20	0.20	0.20	
v/c Ratio	0.83	0.69	0.77	0.68	0.66	0.12	0.63	0.35	0.70	0.46	0.42	
Control Delay	106.5	43.2	101.0	48.6	26.3	76.4	91.7	29.9	80.5	74.5	10.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	106.5	43.2	101.0	48.6	26.3	76.4	91.7	29.9	80.5	74.5	10.4	
LOS	F	D	F	D	С	Е	F	С	F	Е	В	
Approach Delay		50.7		49.7			61.7			62.1		
Approach LOS		D		D			E			E		
Intersection Summary												
Cycle Length: 200												
Actuated Cycle Length: 196.	.7											
Natural Cycle: 90												
Control Type: Actuated-Unco	oordinated	d										
Marrian was vila Datia 0.00												

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 52.7 Intersection LOS: D
Intersection Capacity Utilization 71.8% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 12: Highway 9 & Highway 1



Kimley-Horn Synchro 9 Report Timings Page 15

	۶	→	•	←	•	•	†	/	>	ţ	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Protected Phases	5	2	1	6		4	4		8	8		
Permitted Phases					6			4			8	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	42.0	96.0	28.0	82.0	82.0	32.0	32.0	32.0	44.0	44.0	44.0	
Total Split (%)	21.0%	48.0%	14.0%	41.0%	41.0%	16.0%	16.0%	16.0%	22.0%	22.0%	22.0%	
Maximum Green (s)	38.0	92.0	24.0	78.0	78.0	28.0	28.0	28.0	40.0	40.0	40.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	Max	Max	Max	
Walk Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0	0	0	0	0	0	0	
90th %ile Green (s)	38.0	92.0	24.0	78.0	78.0	28.0	28.0	28.0	40.0	40.0	40.0	
90th %ile Term Code	Max	MaxR	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
70th %ile Green (s)	33.7	92.0	23.6	81.9	81.9	28.0	28.0	28.0	40.0	40.0	40.0	
70th %ile Term Code	Gap	MaxR	Gap	Hold	Hold	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
50th %ile Green (s)	29.8	92.0	21.3	83.5	83.5	28.0	28.0	28.0	40.0	40.0	40.0	
50th %ile Term Code	Gap	MaxR	Gap	Hold	Hold	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
30th %ile Green (s)	25.8	92.0	19.0	85.2	85.2	28.0	28.0	28.0	40.0	40.0	40.0	
30th %ile Term Code	Gap	MaxR	Gap	Hold	Hold	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
10th %ile Green (s)	20.4	92.0	15.8	87.4	87.4	28.0	28.0	28.0	40.0	40.0	40.0	
10th %ile Term Code	Gap	MaxR	Gap	Hold	Hold	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	

Cycle Length: 200

Actuated Cycle Length: 196.7 Control Type: Actuated-Uncoordinated 90th %ile Actuated Cycle: 200

90th %ile Actuated Cycle: 200 70th %ile Actuated Cycle: 199.6 50th %ile Actuated Cycle: 197.3 30th %ile Actuated Cycle: 195 10th %ile Actuated Cycle: 191.8

Kimley-Horn Synchro 9 Report Phasings Page 16

Santa Cruz DRP Study 13: Chestnut Street & Mission Street

	۶	→	•	4	†	>	ļ	4	
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR	
Lane Configurations	ň	414	4T)	ň	∱ 1≽	J.	^	77	
Traffic Volume (vph)	1428	392	367	95	280	58	204	1471	
Future Volume (vph)	1428	392	367	95	280	58	204	1471	
Turn Type	Split	NA	NA	Prot	NA	Prot	NA	pm+ov	
Protected Phases	6	6	2	3	8	7	4	6	
Permitted Phases								4	
Detector Phase	6	6	2	3	8	7	4	4 6	
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	43.0	43.0	26.0	45.0	37.0	44.0	36.0	43.0	
Total Split (%)	28.7%	28.7%	17.3%	30.0%	24.7%	29.3%	24.0%	28.7%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag				Lag	Lag	Lead	Lead		
Lead-Lag Optimize?				Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	None	None	
Act Effct Green (s)	39.2	39.2	19.7	12.3	35.3	9.6	30.3	73.5	
Actuated g/C Ratio	0.33	0.33	0.17	0.10	0.30	0.08	0.26	0.62	
v/c Ratio	1.49	1.43dl	0.76	0.57	0.32	0.44	0.25	0.82	
Control Delay	262.4	132.8	56.2	63.1	33.6	62.5	36.3	13.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	262.4	132.8	56.2	63.1	33.6	62.5	36.3	13.3	
LOS	F	F	Е	Е	С	Е	D	В	
Approach Delay		182.2	56.2		40.6		17.7		
Approach LOS		F	Е		D		В		
Intersection Summary									

Cycle Length: 150

Actuated Cycle Length: 117.6

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

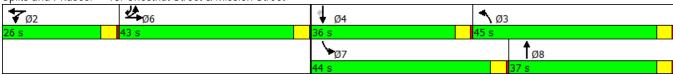
Maximum v/c Ratio: 1.49

Intersection Signal Delay: 93.2 Intersection LOS: F Intersection Capacity Utilization 77.9% ICU Level of Service D

Analysis Period (min) 15

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 13: Chestnut Street & Mission Street



	٠	→	←	1	†	-		4
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Protected Phases	6	6	2	3	8	7	4	6
Permitted Phases								4
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	43.0	43.0	26.0	45.0	37.0	44.0	36.0	43.0
Total Split (%)	28.7%	28.7%	17.3%	30.0%	24.7%	29.3%	24.0%	28.7%
Maximum Green (s)	39.0	39.0	22.0	41.0	33.0	40.0	32.0	39.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag				Lag	Lag	Lead	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	None	None	None	None
Walk Time (s)	5.0	5.0			5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0
90th %ile Green (s)	39.0	39.0	22.0	17.2	35.9	13.3	32.0	39.0
90th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Max	Max
70th %ile Green (s)	39.0	39.0	22.0	14.3	35.1	11.2	32.0	39.0
70th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Max	Max
50th %ile Green (s)	39.0	39.0	21.2	12.5	34.8	9.7	32.0	39.0
50th %ile Term Code	Max	Max	Gap	Gap	Hold	Gap	Max	Max
30th %ile Green (s)	39.0	39.0	18.9	10.7	33.4	8.3	31.0	39.0
30th %ile Term Code	Max	Max	Gap	Gap	Hold	Gap	Gap	Max
10th %ile Green (s)	39.0	39.0	15.0	7.8	36.4	0.0	24.6	39.0
10th %ile Term Code	Max	Max	Gap	Gap	Hold	Skip	Gap	Max

Cycle Length: 150

Actuated Cycle Length: 117.6 Control Type: Actuated-Uncoordinated 90th %ile Actuated Cycle: 126.2 70th %ile Actuated Cycle: 123.3 50th %ile Actuated Cycle: 120.7 30th %ile Actuated Cycle: 115.6

10th %ile Actuated Cycle: 102.4

	٠	→	•	←	•	4	†	<i>></i>	\	↓	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	۲	∱ }	ሻ	†	7	ሻ	†	7	ň	†	7	
Traffic Volume (vph)	84	638	228	378	110	8	165	229	118	322	156	
Future Volume (vph)	84	638	228	378	110	8	165	229	118	322	156	
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Detector Phase	5	2	1	6	6	3	8	8	7	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	29.0	18.0	27.0	27.0	8.0	20.0	20.0	13.0	25.0	25.0	
Total Split (%)	25.0%	36.3%	22.5%	33.8%	33.8%	10.0%	25.0%	25.0%	16.3%	31.3%	31.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	Max	Max	None	Max	Max	None	None	None	None	None	None	
Act Effct Green (s)	16.1	26.2	13.1	23.2	23.2	4.0	13.0	13.0	8.6	21.5	21.5	
Actuated g/C Ratio	0.22	0.35	0.18	0.31	0.31	0.05	0.17	0.17	0.12	0.29	0.29	
v/c Ratio	0.23	0.56	0.77	0.69	0.19	0.09	0.54	0.51	0.63	0.62	0.28	
Control Delay	28.1	23.0	48.1	31.4	1.9	38.1	35.4	8.1	48.8	28.9	5.4	
Queue Delay	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	28.1	24.1	48.1	31.4	1.9	38.1	35.4	8.1	48.8	28.9	5.4	
LOS	С	С	D	С	Α	D	D	Α	D	С	Α	
Approach Delay		24.6		32.2			20.0			26.7		
Approach LOS		С		С			В			С		
Intersection Summary												

Cycle Length: 80

Actuated Cycle Length: 74.4

Natural Cycle: 70

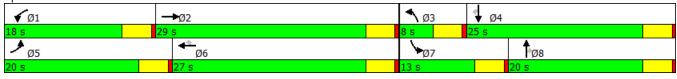
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 26.5 Intersection LOS: C Intersection Capacity Utilization 64.8% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Front Street & Laurel Street



	۶	→	•	←	•	4	†	<i>></i>	>	ļ	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	29.0	18.0	27.0	27.0	8.0	20.0	20.0	13.0	25.0	25.0	
Total Split (%)	25.0%	36.3%	22.5%	33.8%	33.8%	10.0%	25.0%	25.0%	16.3%	31.3%	31.3%	
Maximum Green (s)	16.0	25.0	14.0	23.0	23.0	4.0	16.0	16.0	9.0	21.0	21.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	Max	Max	None	Max	Max	None	None	None	None	None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
90th %ile Green (s)	16.0	25.0	14.0	23.0	23.0	4.0	16.0	16.0	9.0	21.0	21.0	
90th %ile Term Code	MaxR	MaxR	Max	MaxR	MaxR	Max	Max	Max	Max	Max	Max	
70th %ile Green (s)	16.0	25.0	14.0	23.0	23.0	0.0	15.4	15.4	9.0	28.4	28.4	
70th %ile Term Code	MaxR	MaxR	Max	MaxR	MaxR	Skip	Gap	Gap	Max	Hold	Hold	
50th %ile Green (s)	16.0	25.0	14.0	23.0	23.0	0.0	12.3	12.3	9.0	25.3	25.3	
50th %ile Term Code	MaxR	MaxR	Max	MaxR	MaxR	Skip	Gap	Gap	Max	Hold	Hold	
30th %ile Green (s)	16.0	25.5	13.5	23.0	23.0	0.0	10.3	10.3	9.0	23.3	23.3	
30th %ile Term Code	MaxR	Hold	Gap	MaxR	MaxR	Skip	Gap	Gap	Max	Hold	Hold	
10th %ile Green (s)	16.0	28.9	10.1	23.0	23.0	0.0	11.2	11.2	0.0	11.2	11.2	
10th %ile Term Code	MaxR	Hold	Gap	MaxR	MaxR	Skip	Hold	Hold	Skip	Gap	Gap	

Cycle Length: 80

Actuated Cycle Length: 74.4
Control Type: Actuated-Uncoordinated
90th %ile Actuated Cycle: 80 70th %ile Actuated Cycle: 79.4 50th %ile Actuated Cycle: 76.3 30th %ile Actuated Cycle: 74.3 10th %ile Actuated Cycle: 62.2

Santa Cruz DRP Study 2: Pacific Avenue & Laurel Street

	٠	-	•	•	•	†	>	↓	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations	ħ	4	ሻ	1>	Ť	f)		4	
Traffic Volume (vph)	48	640	37	456	41	77	56	58	
Future Volume (vph)	48	640	37	456	41	77	56	58	
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	
Protected Phases	5	2	1	6		8		4	
Permitted Phases					8		4		
Detector Phase	5	2	1	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	40.0	20.0	40.0	20.0	20.0	20.0	20.0	
Total Split (%)	25.0%	50.0%	25.0%	50.0%	25.0%	25.0%	25.0%	25.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	
Act Effct Green (s)	7.6	36.8	7.0	36.3	16.1	16.1		16.1	
Actuated g/C Ratio	0.11	0.54	0.10	0.54	0.24	0.24		0.24	
v/c Ratio	0.28	0.69	0.21	0.58	0.16	0.30		0.44	
Control Delay	32.8	17.0	32.2	14.6	24.6	19.8		25.6	
Queue Delay	0.0	0.0	0.0	4.5	0.0	0.0		0.0	
Total Delay	32.8	17.0	32.2	19.2	24.6	19.8		25.6	
LOS	С	В	С	В	С	В		С	
Approach Delay		18.0		20.0		21.0		25.6	
Approach LOS		В		В		С		С	
Intersection Summary									
Cycle Length: 80									

Cycle Length: 80

Actuated Cycle Length: 67.7

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 19.8 Intersection LOS: B
Intersection Capacity Utilization 65.3% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Pacific Avenue & Laurel Street



Kimley-Horn Synchro 9 Report Timings Page 3

	۶	→	•	+	•	†	/	↓	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Protected Phases	5	2	1	6		8		4	
Permitted Phases					8		4		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	40.0	20.0	40.0	20.0	20.0	20.0	20.0	
Total Split (%)	25.0%	50.0%	25.0%	50.0%	25.0%	25.0%	25.0%	25.0%	
Maximum Green (s)	16.0	36.0	16.0	36.0	16.0	16.0	16.0	16.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	
90th %ile Green (s)	10.3	37.2	9.1	36.0	16.0	16.0	16.0	16.0	
90th %ile Term Code	Gap	Hold	Gap	MaxR	MaxR	MaxR	MaxR	MaxR	
70th %ile Green (s)	8.7	36.9	7.8	36.0	16.0	16.0	16.0	16.0	
70th %ile Term Code	Gap	Hold	Gap	MaxR	MaxR	MaxR	MaxR	MaxR	
50th %ile Green (s)	7.6	36.7	6.9	36.0	16.0	16.0	16.0	16.0	
50th %ile Term Code	Gap	Hold	Gap	MaxR	MaxR	MaxR	MaxR	MaxR	
30th %ile Green (s)	0.0	36.0	0.0	36.0	16.0	16.0	16.0	16.0	
30th %ile Term Code	Skip	MaxR	Skip	MaxR	MaxR	MaxR	MaxR	MaxR	
10th %ile Green (s)	0.0	36.0	0.0	36.0	16.0	16.0	16.0	16.0	
10th %ile Term Code	Skip	MaxR	Skip	MaxR	MaxR	MaxR	MaxR	MaxR	
Intersection Summary									

Cycle Length: 80

Actuated Cycle Length: 67.7 Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 74.3 70th %ile Actuated Cycle: 72.7 50th %ile Actuated Cycle: 71.6 30th %ile Actuated Cycle: 60 10th %ile Actuated Cycle: 60

	٠	•	4	†	↓	
Lane Group	EBL	EBR	NBL	NBT	SBT	
Lane Configurations	٦	7	ሻ	†	∱ Ъ	
Traffic Volume (vph)	109	60	52	380	570	
Future Volume (vph)	109	60	52	380	570	
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	5		3	8	4	
Permitted Phases		5				
Detector Phase	5	5	3	8	4	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	26.0	26.0	22.0	59.0	37.0	
Total Split (%)	30.6%	30.6%	25.9%	69.4%	43.5%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	Max	Max	Max	None	Max	
Act Effct Green (s)	22.0	22.0	18.0	55.0	33.0	
Actuated g/C Ratio	0.26	0.26	0.21	0.65	0.39	
v/c Ratio	0.25	0.14	0.15	0.34	0.54	
Control Delay	26.7	7.7	28.6	7.7	20.8	
Queue Delay	0.0	0.0	0.0	2.3	0.0	
Total Delay	26.7	7.7	28.6	10.0	20.8	
LOS	С	Α	С	В	С	
Approach Delay	19.9			12.2	20.8	
Approach LOS	В			В	С	
Intersection Summary						
Cycle Length: 85						
Actuated Cycle Length: 85						
Natural Cycle: 60						
Control Type: Actuated-Unco	ordinated					
Maximum v/c Ratio: 0.54						
Intersection Signal Delay: 17.	.8			lr	ntersection	LOS: B
Intersection Capacity Utilizati	on 39.4%](CU Level o	f Service A
Analysis Period (min) 15						
Splits and Phases: 3: Fron	t Street &	Cathcart	Street			
•		1				↓ Ø4

Synchro 9 Report Page 5 Kimley-Horn Timings

∱ø8

Santa Cruz DRP Study 3: Front Street & Cathcart Street

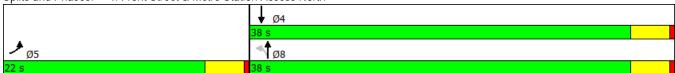
	۶	•	•	†	Ţ
Lane Group	EBL	EBR	NBL	NBT	SBT
Protected Phases	5		3	8	4
Permitted Phases		5			·
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	26.0	26.0	22.0	59.0	37.0
Total Split (%)	30.6%	30.6%	25.9%	69.4%	43.5%
Maximum Green (s)	22.0	22.0	18.0	55.0	33.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lead/Lag	2.0	2.0	Lead	2.0	Lag
Lead-Lag Optimize?			Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	Max	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0
90th %ile Green (s)	22.0	22.0	18.0	55.0	33.0
90th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
70th %ile Green (s)	22.0	22.0	18.0	55.0	33.0
70th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
50th %ile Green (s)	22.0	22.0	18.0	55.0	33.0
50th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
30th %ile Green (s)	22.0	22.0	18.0	55.0	33.0
30th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
10th %ile Green (s)	22.0	22.0	18.0	55.0	33.0
10th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
Intersection Summary					
Cycle Length: 85					
Actuated Cycle Length: 85					
Control Type: Actuated-Unc	oordinated				
90th %ile Actuated Cycle: 8					
70th %ile Actuated Cycle: 8					
50th %ile Actuated Cycle: 8					
30th %ile Actuated Cycle: 8					
10th %ile Actuated Cycle: 8					
Total folio fictuated Cycle. O					

Kimley-Horn Synchro 9 Report Phasings Page 6

Santa Cruz DRP Study 4: Front Street & Metro Station Access North

	٠	1	†	↓	
Lane Group	EBL	NBL	NBT	SBT	
Lane Configurations	A	ሻ	†	†	
Traffic Volume (vph)	16	5	403	605	
Future Volume (vph)	16	5	403	605	
Turn Type	Prot	Perm	NA	NA	
Protected Phases	5		8	4	
Permitted Phases		8			
Detector Phase	5	8	8	4	
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	
Total Split (s)	22.0	38.0	38.0	38.0	
Total Split (%)	36.7%	63.3%	63.3%	63.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	Max	Max	Max	
Act Effct Green (s)	6.8	52.8	52.8	52.8	
Actuated g/C Ratio	0.12	0.95	0.95	0.95	
v/c Ratio	0.17	0.01	0.23	0.37	
Control Delay	25.3	1.4	1.3	1.9	
Queue Delay	0.0	0.0	0.0	0.1	
Total Delay	25.3	1.4	1.3	1.9	
LOS	С	А	А	Α	
Approach Delay	25.3		1.3	1.9	
Approach LOS	С		Α	Α	
Intersection Summary					
Cycle Length: 60					
Actuated Cycle Length: 55.7	7				
Natural Cycle: 50					
Control Type: Actuated-Unc	oordinated				
Maximum v/c Ratio: 0.37					
Intersection Signal Delay: 2.	.1			In	tersection LOS: A
Intersection Capacity Utilizat				IC	CU Level of Service A
Analysis Period (min) 15					

Splits and Phases: 4: Front Street & Metro Station Access North



Santa Cruz DRP Study 4: Front Street & Metro Station Access North

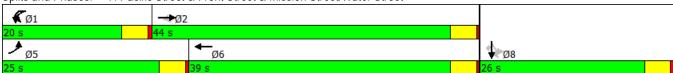
	•	•	†	ļ
Lane Group	EBL	NBL	NBT	SBT
Protected Phases	5		8	4
Permitted Phases	J	8	U	7
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	20.0	38.0	38.0	38.0
	36.7%	63.3%	63.3%	63.3%
Total Split (%)				
Maximum Green (s)	18.0	34.0	34.0	34.0
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0
Recall Mode	None	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0
90th %ile Green (s)	9.6	49.0	49.0	49.0
90th %ile Term Code	Gap	Dwell	Dwell	Dwell
70th %ile Green (s)	0.0	49.0	49.0	49.0
70th %ile Term Code	Skip	Dwell	Dwell	Dwell
50th %ile Green (s)	0.0	49.0	49.0	49.0
50th %ile Term Code	Skip	Dwell	Dwell	Dwell
30th %ile Green (s)	0.0	49.0	49.0	49.0
30th %ile Term Code	Skip	Dwell	Dwell	Dwell
10th %ile Green (s)	0.0	49.0	49.0	49.0
10th %ile Term Code	Skip	Dwell	Dwell	Dwell
Intersection Summary				
Cycle Length: 60				
Actuated Cycle Length: 55.	.7			
Control Type: Actuated-Un				
90th %ile Actuated Cycle: 6				
70th %ile Actuated Cycle: 5				
50th %ile Actuated Cycle: 5				
30th %ile Actuated Cycle: 5				
10th %ile Actuated Cycle: 5	JS			

Kimley-Horn Synchro 9 Report Phasings Page 8

Santa Cruz DRP Study 7: Pacific Street & Front Street & Mission Street/Water Street

	۶	→	74	~	•	←	ļ	4	
Lane Group	EBL	EBT	EBR	WBL2	WBL	WBT	SBT	SBR	
Lane Configurations	ň	† †	Ž.	ሻ	7	∱ ∱	4	7	
Traffic Volume (vph)	152	629	110	108	49	630	33	174	
Future Volume (vph)	152	629	110	108	49	630	33	174	
Turn Type	Prot	NA	Perm	Prot	Prot	NA	NA	Perm	
Protected Phases	5	2		1	1	6	8		
Permitted Phases			2					8	
Detector Phase	5	2	2	1	1	6	8	8	
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	20.0	8.0	8.0	20.0	20.0	20.0	
Total Split (s)	25.0	44.0	44.0	20.0	20.0	39.0	26.0	26.0	
Total Split (%)	27.8%	48.9%	48.9%	22.2%	22.2%	43.3%	28.9%	28.9%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			
Recall Mode	None	None	None	None	None	Max	Max	Max	
Act Effct Green (s)	12.6	39.4	39.4	10.6	10.6	35.1	22.0	22.0	
Actuated g/C Ratio	0.15	0.48	0.48	0.13	0.13	0.43	0.27	0.27	
v/c Ratio	0.59	0.39	0.17	0.50	0.23	0.44	0.36	0.33	
Control Delay	41.1	15.5	8.9	41.0	34.2	18.1	27.7	6.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.1	15.5	8.9	41.0	34.2	18.1	27.7	6.9	
LOS	D	В	Α	D	С	В	С	Α	
Approach Delay		18.9				22.2	16.8		
Approach LOS		В				С	В		
Intersection Summary									
Cycle Length: 90									
Actuated Cycle Length: 81.8									
Natural Cycle: 50									
Control Type: Actuated-Unco	ordinated								
Maximum v/c Ratio: 0.59									
Intersection Signal Delay: 19.	8			lr	ntersection	n LOS: B			
Intersection Capacity Utilization)](CU Level	of Service	e A		
Analysis Period (min) 15									

Splits and Phases: 7: Pacific Street & Front Street & Mission Street/Water Street



Santa Cruz DRP Study 7: Pacific Street & Front Street & Mission Street/Water Street

	۶	-	¬ҳ	4	•	←	↓	4	
Lane Group	EBL	EBT	EBR	WBL2	WBL	WBT	SBT	SBR	
Protected Phases	5	2		1	1	6	8		
Permitted Phases			2					8	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	20.0	8.0	8.0	20.0	20.0	20.0	
Total Split (s)	25.0	44.0	44.0	20.0	20.0	39.0	26.0	26.0	
Total Split (%)	27.8%	48.9%	48.9%	22.2%	22.2%	43.3%	28.9%	28.9%	
Maximum Green (s)	21.0	40.0	40.0	16.0	16.0	35.0	22.0	22.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	None	None	None	None	Max	Max	Max	
Walk Time (s)		5.0	5.0			5.0	5.0	5.0	
Flash Dont Walk (s)		11.0	11.0			11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0			0	0	0	
90th %ile Green (s)	18.0	38.0	38.0	15.0	15.0	35.0	22.0	22.0	
90th %ile Term Code	Gap	Hold	Hold	Gap	Gap	MaxR	MaxR	MaxR	
70th %ile Green (s)	14.7	37.4	37.4	12.3	12.3	35.0	22.0	22.0	
70th %ile Term Code	Gap	Hold	Hold	Gap	Gap	MaxR	MaxR	MaxR	
50th %ile Green (s)	12.6	37.1	37.1	10.5	10.5	35.0	22.0	22.0	
50th %ile Term Code	Gap	Hold	Hold	Gap	Gap	MaxR	MaxR	MaxR	
30th %ile Green (s)	10.6	36.7	36.7	8.9	8.9	35.0	22.0	22.0	
30th %ile Term Code	Gap	Hold	Hold	Gap	Gap	MaxR	MaxR	MaxR	
10th %ile Green (s)	7.9	46.9	46.9	0.0	0.0	35.0	22.0	22.0	
10th %ile Term Code	Gap	Hold	Hold	Skip	Skip	MaxR	MaxR	MaxR	
Interception Comment									

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 81.8

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 87 70th %ile Actuated Cycle: 83.7 50th %ile Actuated Cycle: 81.6 30th %ile Actuated Cycle: 79.6 10th %ile Actuated Cycle: 76.9

Kimley-Horn Synchro 9 Report Phasings Page 10

Santa Cruz DRP Study 8: Front Street & Soquel Avenue

	→	•	←	•	•	†	\	ļ	
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Lane Configurations	4T }	ሻ	4	7		414	Ŋ	4	
Traffic Volume (vph)	109	360	93	36	10	298	79	339	
-uture Volume (vph)	109	360	93	36	10	298	79	339	
Turn Type	NA	Split	NA	Perm	Perm	NA	Perm	NA	
Protected Phases	2	6	6			8		4	
Permitted Phases				6	8		4		
Detector Phase	2	6	6	6	8	8	4	4	
Switch Phase									
/linimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	22.0	35.0	35.0	35.0	43.0	43.0	43.0	43.0	
Total Split (%)	22.0%	35.0%	35.0%	35.0%	43.0%	43.0%	43.0%	43.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
ost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
otal Lost Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	
.ead/Lag	Lag	Lead	Lead	Lead					
ead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	Max	None	None	None	None	
Act Effct Green (s)	9.6	31.4	31.4	31.4		21.9	21.9	21.9	
Actuated g/C Ratio	0.13	0.42	0.42	0.42		0.29	0.29	0.29	
/c Ratio	0.46	0.33	0.33	0.05		0.51	0.43	0.75	
Control Delay	31.4	18.7	18.8	3.7		17.5	29.1	33.2	
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
otal Delay	31.4	18.7	18.8	3.7		17.5	29.1	33.2	
.OS	С	В	В	А		В	С	С	
Approach Delay	31.4		17.6			17.5		32.5	
Approach LOS	С		В			В		С	
ntersection Summary									
Cycle Length: 100									
Actuated Cycle Length: 75.1									
Natural Cycle: 60									
Control Type: Actuated-Unco	ordinated								
Maximum v/c Ratio: 0.75									
ntersection Signal Delay: 23.				Ir	ntersectio	n LOS: C			
Intersection Capacity Utilization	on 65.7%)		IC	CU Level	of Service	e C		
Analysis Period (min) 15									

Splits and Phases: 8: Front Street & Soquel Avenue



Santa Cruz DRP Study 8: Front Street & Soquel Avenue

	-	•	←	•	4	†	>	↓	
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Protected Phases	2	6	6			8		4	
Permitted Phases				6	8		4		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	22.0	35.0	35.0	35.0	43.0	43.0	43.0	43.0	
Total Split (%)	22.0%	35.0%	35.0%	35.0%	43.0%	43.0%	43.0%	43.0%	
Maximum Green (s)	18.0	31.0	31.0	31.0	39.0	39.0	39.0	39.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lag	Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Max	Max	Max	None	None	None	None	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	
90th %ile Green (s)	13.2	31.0	31.0	31.0	33.2	33.2	33.2	33.2	
90th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
70th %ile Green (s)	10.8	31.0	31.0	31.0	25.8	25.8	25.8	25.8	
70th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
50th %ile Green (s)	9.5	31.0	31.0	31.0	22.0	22.0	22.0	22.0	
50th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
30th %ile Green (s)	8.2	31.0	31.0	31.0	17.6	17.6	17.6	17.6	
30th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
10th %ile Green (s)	6.8	31.0	31.0	31.0	13.5	13.5	13.5	13.5	
10th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 75.1
Control Type: Actuated-Uncoordinated
90th %ile Actuated Cycle: 89.4 70th %ile Actuated Cycle: 79.6 50th %ile Actuated Cycle: 74.5 30th %ile Actuated Cycle: 68.8 10th %ile Actuated Cycle: 63.3

	۶	→	•	←	•	4	†	<i>></i>	>	↓	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	44	∱ 1≽	ሻ	^	7	ሻ	^	7	ሻ	† †	7	
Traffic Volume (vph)	343	731	112	553	227	120	553	98	290	856	344	
Future Volume (vph)	343	731	112	553	227	120	553	98	290	856	344	
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Detector Phase	5	2	1	6	6	3	8	8	7	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	23.0	42.0	17.0	36.0	36.0	18.0	29.0	29.0	32.0	43.0	43.0	
Total Split (%)	19.2%	35.0%	14.2%	30.0%	30.0%	15.0%	24.2%	24.2%	26.7%	35.8%	35.8%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	None	Min	Min	None	Min	Min	None	Min	Min	
Act Effct Green (s)	16.1	32.7	11.3	27.9	27.9	11.9	23.7	23.7	22.7	34.6	34.6	
Actuated g/C Ratio	0.15	0.31	0.11	0.26	0.26	0.11	0.22	0.22	0.21	0.32	0.32	
v/c Ratio	0.69	0.81	0.62	0.62	0.40	0.62	0.73	0.21	0.80	0.76	0.50	
Control Delay	52.5	41.3	63.9	39.1	6.5	63.1	46.4	2.4	57.8	38.5	8.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	52.5	41.3	63.9	39.1	6.5	63.1	46.4	2.4	57.8	38.5	8.5	
LOS	D	D	Е	D	Α	Е	D	Α	Е	D	Α	
Approach Delay		44.5		33.9			43.4			35.3		
Approach LOS		D		С			D			D		
Interception Cummery												

Cycle Length: 120

Actuated Cycle Length: 106.9 Natural Cycle: 70

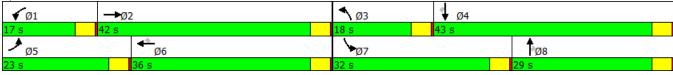
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 39.0 Intersection LOS: D Intersection Capacity Utilization 74.6% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 11: Ocean Street & Water Street



	۶	→	•	←	•	•	†	<i>></i>	>	ţ	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	23.0	42.0	17.0	36.0	36.0	18.0	29.0	29.0	32.0	43.0	43.0	
Total Split (%)	19.2%	35.0%	14.2%	30.0%	30.0%	15.0%	24.2%	24.2%	26.7%	35.8%	35.8%	
Maximum Green (s)	19.0	38.0	13.0	32.0	32.0	14.0	25.0	25.0	28.0	39.0	39.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Min	None	Min	Min	None	Min	Min	None	Min	Min	
Walk Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
90th %ile Green (s)	19.0	38.0	13.0	32.0	32.0	14.0	25.0	25.0	28.0	39.0	39.0	
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	
70th %ile Green (s)	19.0	38.0	13.0	32.0	32.0	14.0	25.0	25.0	28.0	39.0	39.0	
70th %ile Term Code	Max	Max	Max	Hold	Hold	Max	Max	Max	Max	Max	Max	
50th %ile Green (s)	17.4	36.0	12.9	31.5	31.5	13.4	27.4	27.4	25.0	39.0	39.0	
50th %ile Term Code	Gap	Gap	Gap	Hold	Hold	Gap	Hold	Hold	Gap	Max	Max	
30th %ile Green (s)	14.5	30.3	10.4	26.2	26.2	10.8	23.3	23.3	20.0	32.5	32.5	
30th %ile Term Code	Gap	Gap	Gap	Hold	Hold	Gap	Hold	Hold	Gap	Gap	Gap	
10th %ile Green (s)	10.9	22.2	7.4	18.7	18.7	7.6	17.5	17.5	13.9	23.8	23.8	
10th %ile Term Code	Gap	Gap	Gap	Hold	Hold	Gap	Hold	Hold	Gap	Gap	Gap	

Cycle Length: 120

Actuated Cycle Length: 106.9 Control Type: Actuated-Uncoordinated 90th %ile Actuated Cycle: 120 70th %ile Actuated Cycle: 120 50th %ile Actuated Cycle: 117.3

30th %ile Actuated Cycle: 100 10th %ile Actuated Cycle: 77

Kimley-Horn Synchro 9 Report Phasings Page 14

	٠	→	•	←	•	•	†	<i>></i>	>	↓	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	7	ተተቡ	ሻሻ	ተተተ	7	ሻ	†	77	ሻሻ	†	7	
Traffic Volume (vph)	227	1320	293	1262	472	102	246	423	648	309	247	
Future Volume (vph)	227	1320	293	1262	472	102	246	423	648	309	247	
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm	
Protected Phases	5	2	1	6		4	4		8	8		
Permitted Phases					6			4			8	
Detector Phase	5	2	1	6	6	4	4	4	8	8	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	39.0	78.0	30.0	69.0	69.0	41.0	41.0	41.0	51.0	51.0	51.0	
Total Split (%)	19.5%	39.0%	15.0%	34.5%	34.5%	20.5%	20.5%	20.5%	25.5%	25.5%	25.5%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	Max	Max	Max	
Act Effct Green (s)	30.4	74.1	22.6	66.3	66.3	37.0	37.0	37.0	47.0	47.0	47.0	
Actuated g/C Ratio	0.15	0.38	0.11	0.34	0.34	0.19	0.19	0.19	0.24	0.24	0.24	
v/c Ratio	0.87	0.79	0.80	0.78	0.74	0.32	0.76	0.66	0.84	0.75	0.50	
Control Delay	110.7	58.2	100.4	63.2	36.2	72.8	90.7	47.2	81.9	81.5	19.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	110.7	58.2	100.4	63.2	36.2	72.8	90.7	47.2	81.9	81.5	19.8	
LOS	F	E	F	E	D	Е	F	D	F	F	В	
Approach Delay		65.5		62.3			64.5			69.0		
Approach LOS		Е		Е			Е			Е		
Intersection Summary												
Cycle Length: 200												
Actuated Cycle Length: 19	6.7											
Natural Cycle: 90												
Control Type: Actuated In	coordinator	I										

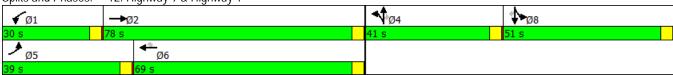
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 65.0 Intersection LOS: E
Intersection Capacity Utilization 81.7% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 12: Highway 9 & Highway 1



Kimley-Horn Synchro 9 Report Timings Page 15

	۶	→	•	←	•	4	†	<i>></i>	>	ļ	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Protected Phases	5	2	1	6		4	4		8	8		
Permitted Phases					6			4			8	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	39.0	78.0	30.0	69.0	69.0	41.0	41.0	41.0	51.0	51.0	51.0	
Total Split (%)	19.5%	39.0%	15.0%	34.5%	34.5%	20.5%	20.5%	20.5%	25.5%	25.5%	25.5%	
Maximum Green (s)	35.0	74.0	26.0	65.0	65.0	37.0	37.0	37.0	47.0	47.0	47.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	Max	Max	Max	
Walk Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0	0	0	0	0	0	0	
90th %ile Green (s)	35.0	74.0	26.0	65.0	65.0	37.0	37.0	37.0	47.0	47.0	47.0	
90th %ile Term Code	Max	MaxR	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
70th %ile Green (s)	35.0	74.2	25.8	65.0	65.0	37.0	37.0	37.0	47.0	47.0	47.0	
70th %ile Term Code	Max	Hold	Gap	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
50th %ile Green (s)	32.0	74.0	23.3	65.3	65.3	37.0	37.0	37.0	47.0	47.0	47.0	
50th %ile Term Code	Gap	MaxR	Gap	Hold	Hold	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
30th %ile Green (s)	28.0	74.0	20.9	66.9	66.9	37.0	37.0	37.0	47.0	47.0	47.0	
30th %ile Term Code	Gap	MaxR	Gap	Hold	Hold	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
10th %ile Green (s)	22.4	74.0	17.4	69.0	69.0	37.0	37.0	37.0	47.0	47.0	47.0	
10th %ile Term Code	Gap	MaxR	Gap	Hold	Hold	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	

Cycle Length: 200

Actuated Cycle Length: 196.7

Control Type: Actuated-Uncoordinated 90th %ile Actuated Cycle: 200

70th %ile Actuated Cycle: 200 50th %ile Actuated Cycle: 197.3 30th %ile Actuated Cycle: 194.9 10th %ile Actuated Cycle: 191.4

Kimley-Horn Synchro 9 Report Phasings Page 16

∱ø8

	٠	→	←	4	†	>	↓	4	
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR	
Lane Configurations	ሻ	414	4 1 }	ř	∱ 1≽	7	† †	77	
Traffic Volume (vph)	1312	486	412	74	276	42	258	1380	
Future Volume (vph)	1312	486	412	74	276	42	258	1380	
Turn Type	Split	NA	NA	Prot	NA	Prot	NA	pm+ov	
Protected Phases	6	6	2	3	8	7	4	6	
Permitted Phases								4	
Detector Phase	6	6	2	3	8	7	4	4 6	
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	42.0	42.0	26.0	45.0	32.0	50.0	37.0	42.0	
Total Split (%)	28.0%	28.0%	17.3%	30.0%	21.3%	33.3%	24.7%	28.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag				Lag	Lag	Lead	Lead		
Lead-Lag Optimize?				Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	None	None	
Act Effct Green (s)	38.8	38.8	20.0	10.2	29.0	8.1	27.2	70.2	
Actuated g/C Ratio	0.35	0.35	0.18	0.09	0.26	0.07	0.25	0.64	
v/c Ratio	1.18	1.12dl	0.74	0.46	0.32	0.32	0.30	0.68	
Control Delay	131.0	80.9	51.3	59.7	33.4	58.6	35.3	6.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	131.0	80.9	51.3	59.7	33.4	58.6	35.3	6.7	
LOS	F	F	D	E	С	Е	D	Α	
Approach Delay		98.5	51.3		38.7		12.4		
Approach LOS		F	D		D		В		
Intersection Summary									
Cycle Length: 150									
Actuated Cycle Length: 10	9.8								
Natural Cycle: 100									
Control Type: Actuated-Un	coordinated	i							
Maximum v/c Ratio: 1.18									
Intersection Signal Delay:					ntersectio				
Intersection Capacity Utiliz	ation 75.0%			[[CU Level	of Service	e D		
Analysis Period (min) 15									
dl Defacto Left Lane. Re	code with 1	though la	ane as a l	eft lane.					
Splits and Phases: 13: (Chestnut Str	eet & Mis	sion Stre	≏t					
47	Ø6	COL CA IVIIS	31011 3110	- 11				4	
7 ø2	r Ø6			37	Ø4			45 s	33

Kimley-Horn Synchro 9 Report Timings Page 17

ÿ7

	۶	→	←	•	†	/	↓	4
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Protected Phases	6	6	2	3	8	7	4	6
Permitted Phases								4
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	42.0	42.0	26.0	45.0	32.0	50.0	37.0	42.0
Total Split (%)	28.0%	28.0%	17.3%	30.0%	21.3%	33.3%	24.7%	28.0%
Maximum Green (s)	38.0	38.0	22.0	41.0	28.0	46.0	33.0	38.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag				Lag	Lag	Lead	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	None	None	None	None
Walk Time (s)	5.0	5.0			5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0
90th %ile Green (s)	38.0	38.0	22.0	14.3	36.2	11.1	33.0	38.0
90th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Max	Max
70th %ile Green (s)	38.0	38.0	22.0	11.9	35.5	9.4	33.0	38.0
70th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Max	Max
50th %ile Green (s)	38.0	38.0	22.0	10.4	31.7	8.2	29.5	38.0
50th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Gap	Max
30th %ile Green (s)	38.0	38.0	19.3	8.7	25.9	7.0	24.2	38.0
30th %ile Term Code	Max	Max	Gap	Gap	Hold	Gap	Gap	Max
10th %ile Green (s)	38.0	38.0	14.6	0.0	17.9	0.0	17.9	38.0
10th %ile Term Code	Max	Max	Gap	Skip	Hold	Skip	Gap	Max

Cycle Length: 150

Actuated Cycle Length: 109.8 Control Type: Actuated-Uncoordinated 90th %ile Actuated Cycle: 123.3 70th %ile Actuated Cycle: 120.9 50th %ile Actuated Cycle: 115.9 30th %ile Actuated Cycle: 106.2 10th %ile Actuated Cycle: 82.5

	۶	→	•	←	•	1	†	~	/	 	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻ	∱ ⊅	ሻ	†	7	ሻ	†	7	ሻ	†	7	
Traffic Volume (vph)	48	337	246	448	89	5	145	168	44	156	90	
Future Volume (vph)	48	337	246	448	89	5	145	168	44	156	90	
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Detector Phase	5	2	1	6	6	3	8	8	7	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	27.0	25.0	32.0	32.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (%)	25.0%	33.8%	31.3%	40.0%	40.0%	10.0%	25.0%	25.0%	10.0%	25.0%	25.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	Max	Max	None	Max	Max	None	None	None	None	None	None	
Act Effct Green (s)	16.1	28.7	15.7	28.2	28.2	4.0	11.5	11.5	4.0	14.6	14.6	
Actuated g/C Ratio	0.22	0.40	0.22	0.39	0.39	0.06	0.16	0.16	0.06	0.20	0.20	
v/c Ratio	0.14	0.27	0.71	0.67	0.14	0.06	0.54	0.45	0.52	0.46	0.22	
Control Delay	26.3	18.1	37.4	25.7	2.9	37.2	36.1	8.6	58.3	30.1	1.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	26.3	18.1	37.4	25.7	2.9	37.2	36.1	8.6	58.3	30.1	1.5	
LOS	С	В	D	С	Α	D	D	Α	Е	С	Α	
Approach Delay		19.1		26.8			21.6			25.5		
Approach LOS		В		С			С			С		
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 72.5												
Natural Cycle: 70												
Control Type: Actuated-Unco	ordinated											

Control Type: Actuated-Uncoordinated Maximum v/c Ratio: 0.71

Intersection Signal Delay: 23.9 Intersection LOS: C Intersection Capacity Utilization 51.8% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Front Street & Laurel Street



	٠	→	•	←	•	4	†	<i>></i>	/	ļ	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	27.0	25.0	32.0	32.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (%)	25.0%	33.8%	31.3%	40.0%	40.0%	10.0%	25.0%	25.0%	10.0%	25.0%	25.0%	
Maximum Green (s)	16.0	23.0	21.0	28.0	28.0	4.0	16.0	16.0	4.0	16.0	16.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	Max	Max	None	Max	Max	None	None	None	None	None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
90th %ile Green (s)	16.0	23.0	21.0	28.0	28.0	4.0	16.0	16.0	4.0	16.0	16.0	
90th %ile Term Code	MaxR	MaxR	Max	MaxR	MaxR	Max	Max	Max	Max	Max	Max	
70th %ile Green (s)	16.0	24.7	19.3	28.0	28.0	0.0	13.7	13.7	4.0	21.7	21.7	
70th %ile Term Code	MaxR	Hold	Gap	MaxR	MaxR	Skip	Gap	Gap	Max	Hold	Hold	
50th %ile Green (s)	16.0	27.5	16.5	28.0	28.0	0.0	11.7	11.7	4.0	19.7	19.7	
50th %ile Term Code	MaxR	Hold	Gap	MaxR	MaxR	Skip	Gap	Gap	Max	Hold	Hold	
30th %ile Green (s)	16.0	31.1	12.9	28.0	28.0	0.0	9.7	9.7	0.0	9.7	9.7	
30th %ile Term Code	MaxR	Hold	Gap	MaxR	MaxR	Skip	Hold	Hold	Skip	Gap	Gap	
10th %ile Green (s)	16.0	34.2	9.8	28.0	28.0	0.0	7.4	7.4	0.0	7.4	7.4	
10th %ile Term Code	MaxR	Hold	Gap	MaxR	MaxR	Skip	Hold	Hold	Skip	Gap	Gap	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 72.5 Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 80 70th %ile Actuated Cycle: 77.7 50th %ile Actuated Cycle: 75.7 30th %ile Actuated Cycle: 65.7 10th %ile Actuated Cycle: 63.4

	۶	→	•	←	4	†	/	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	Ť	f)	Ĭ,	f)	J.	f)		4
Traffic Volume (vph)	22	345	34	476	33	31	20	17
Future Volume (vph)	22	345	34	476	33	31	20	17
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	20.0	40.0	20.0	40.0	20.0	20.0	20.0	20.0
Total Split (%)	25.0%	50.0%	25.0%	50.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	Max	Max	Max	Max
Act Effct Green (s)	6.9	36.3	7.1	38.5	16.1	16.1		16.1
Actuated g/C Ratio	0.10	0.54	0.11	0.57	0.24	0.24		0.24
v/c Ratio	0.18	0.41	0.22	0.55	0.11	0.19		0.21
Control Delay	32.1	11.9	31.9	12.8	23.2	15.6		17.0
Queue Delay	0.0	0.0	0.0	18.5	0.0	0.0		0.0
Total Delay	32.1	11.9	31.9	31.3	23.2	15.6		17.0
LOS	С	В	С	С	С	В		В
Approach Delay		13.1		31.3		18.3		17.0
Approach LOS		В		С		В		В
Intersection Summary								
Cycle Length: 80								
Actuated Cycle Length: 67.2								
Natural Cycle: 65								
Control Type: Actuated-Unco	ordinated	l						
Maximum v/c Ratio: 0.55								
Intersection Signal Delay: 22	9			Ir	ntersectio	n LOS: C		
Intersection Capacity Utilizat)		[(CU Level	of Service	e A	
Analysis Period (min) 15								

Splits and Phases: 2: Pacific Avenue & Laurel Street

√ Ø1	→ Ø2	₽ Ø4
20 s	40 s	20 s
≯ _{Ø5}	← Ø6	₫₽øs
20 s	40 s	20 s

	۶	→	•	←	4	†	>	↓	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Protected Phases	5	2	1	6		8		4	
Permitted Phases					8		4		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	40.0	20.0	40.0	20.0	20.0	20.0	20.0	
Total Split (%)	25.0%	50.0%	25.0%	50.0%	25.0%	25.0%	25.0%	25.0%	
Maximum Green (s)	16.0	36.0	16.0	36.0	16.0	16.0	16.0	16.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	
90th %ile Green (s)	8.9	36.0	9.2	36.3	16.0	16.0	16.0	16.0	
90th %ile Term Code	Gap	MaxR	Gap	Hold	MaxR	MaxR	MaxR	MaxR	
70th %ile Green (s)	7.6	36.0	7.9	36.3	16.0	16.0	16.0	16.0	
70th %ile Term Code	Gap	MaxR	Gap	Hold	MaxR	MaxR	MaxR	MaxR	
50th %ile Green (s)	0.0	36.0	7.0	47.0	16.0	16.0	16.0	16.0	
50th %ile Term Code	Skip	MaxR	Gap	Hold	MaxR	MaxR	MaxR	MaxR	
30th %ile Green (s)	0.0	36.0	0.0	36.0	16.0	16.0	16.0	16.0	
30th %ile Term Code	Skip	MaxR	Skip	MaxR	MaxR	MaxR	MaxR	MaxR	
10th %ile Green (s)	0.0	36.0	0.0	36.0	16.0	16.0	16.0	16.0	
10th %ile Term Code	Skip	MaxR	Skip	MaxR	MaxR	MaxR	MaxR	MaxR	
Intersection Summary									

Cycle Length: 80

Actuated Cycle Length: 67.2 Control Type: Actuated-Uncoordinated 90th %ile Actuated Cycle: 73.2 70th %ile Actuated Cycle: 71.9 50th %ile Actuated Cycle: 71 30th %ile Actuated Cycle: 60 10th %ile Actuated Cycle: 60

	٠	•	4	†	ļ	
Lane Group	EBL	EBR	NBL	NBT	SBT	
Lane Configurations	ሻ	7	ሻ	†	∱ Ъ	
Traffic Volume (vph)	48	21	22	316	308	
Future Volume (vph)	48	21	22	316	308	
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	5		3	8	4	
Permitted Phases		5				
Detector Phase	5	5	3	8	4	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	27.0	27.0	23.0	58.0	35.0	
Total Split (%)	31.8%	31.8%	27.1%	68.2%	41.2%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	Max	Max	Max	None	Max	
Act Effct Green (s)	23.0	23.0	19.0	54.0	31.0	
Actuated g/C Ratio	0.27	0.27	0.22	0.64	0.36	
v/c Ratio	0.13	0.06	0.07	0.33	0.37	
Control Delay	24.6	10.0	26.8	8.1	19.1	
Queue Delay	0.0	0.0	0.0	2.1	0.0	
Total Delay	24.6	10.0	26.8	10.2	19.1	
LOS	С	В	С	В	В	
Approach Delay	20.2			11.3	19.1	
Approach LOS	С			В	В	
Intersection Summary						
Cycle Length: 85						
Actuated Cycle Length: 85						
Natural Cycle: 60						
Control Type: Actuated-Unco	ordinated					
Maximum v/c Ratio: 0.37						
Intersection Signal Delay: 15.	.9			Ir	ntersectio	n LOS: B
Intersection Capacity Utilizati	on 27.5%)		[(CU Level	of Service A
Analysis Period (min) 15						
Splits and Phases: 3: Fron	t Street &	Cathcart	Street			
			Ø3			↓ Ø4
		23	S			₹ 94 35 s

Kimley-Horn Timings Synchro 9 Report Page 5

∱ø8

	۶	•	4	†	↓
Lane Group	EBL	EBR	NBL	NBT	SBT
Protected Phases	5		3	8	4
Permitted Phases		5			
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	27.0	27.0	23.0	58.0	35.0
Total Split (%)	31.8%	31.8%	27.1%	68.2%	41.2%
Maximum Green (s)	23.0	23.0	19.0	54.0	31.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	Max	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0
90th %ile Green (s)	23.0	23.0	19.0	54.0	31.0
90th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
70th %ile Green (s)	23.0	23.0	19.0	54.0	31.0
70th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
50th %ile Green (s)	23.0	23.0	19.0	54.0	31.0
50th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
30th %ile Green (s)	23.0	23.0	19.0	54.0	31.0
30th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
10th %ile Green (s)	23.0	23.0	19.0	54.0	31.0
10th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
Intersection Summary					
Cycle Length: 85					
Actuated Cycle Length: 85					
Control Type: Actuated-Unc	oordinatod				
90th %ile Actuated Cycle: 8					
70th %ile Actuated Cycle: 8					
50th %ile Actuated Cycle: 8					
3					
30th %ile Actuated Cycle: 8					
10th %ile Actuated Cycle: 8	0				

EBL Y 12 12	NBL	NBT	SBT
12			
	_	†	†
12	2	300	291
	2	300	291
Prot	Perm	NA	NA
5		8	4
	8		
5	8	8	4
4.0	4.0	4.0	4.0
20.0	20.0	20.0	20.0
23.0	37.0	37.0	37.0
38.3%	61.7%	61.7%	61.7%
3.5	3.5	3.5	3.5
0.5	0.5	0.5	0.5
0.0	0.0	0.0	0.0
4.0	4.0	4.0	4.0
None	Max	Max	Max
6.7	51.8	51.8	51.8
0.12	0.95	0.95	0.95
0.16	0.00	0.21	0.25
23.7	1.5	1.3	1.4
0.0	0.0	0.0	0.0
23.7	1.5	1.3	1.4
С	Α	Α	А
23.7		1.3	1.4
С		А	А
4.7			
Incoordinated			
: 1.9			Ir
ization 27.4%			IC
lr :	20.0 23.0 38.3% 3.5 0.5 0.0 4.0 None 6.7 0.12 0.16 23.7 0.0 23.7 C 23.7 C	20.0 20.0 23.0 37.0 38.3% 61.7% 3.5 3.5 0.5 0.5 0.0 0.0 4.0 4.0 None Max 6.7 51.8 0.12 0.95 0.16 0.00 23.7 1.5 0.0 0.0 23.7 1.5 C A 23.7 C A.7 ncoordinated 1.9	20.0 20.0 20.0 20.0 23.0 37.0 37.0 37.0 37.0 37.0 37.0 37.0 3

Splits and Phases: 4: Front Street & Metro Station Access North



10th %ile Actuated Cycle: 52

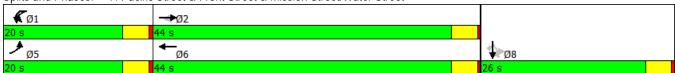
Existing + Project

AM Peak

	•	•	†	ţ
Lane Group	EBL	NBL	NBT	SBT
Protected Phases	5		8	4
Permitted Phases	<u> </u>	8	3	•
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	23.0	37.0	37.0	37.0
Total Split (%)	38.3%	61.7%	61.7%	61.7%
Maximum Green (s)	19.0	33.0	33.0	33.0
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lead/Lag	0.0	0.0	0.0	0.0
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0
Recall Mode	None	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0
90th %ile Green (s)	9.4	48.0	48.0	48.0
90th %ile Term Code	Gap	Dwell	Dwell	Dwell
70th %ile Green (s)	0.0	48.0	48.0	48.0
70th %ile Term Code	Skip	Dwell	Dwell	Dwell
50th %ile Green (s)	0.0	48.0	48.0	48.0
50th %ile Term Code			48.0 Dwell	48.0 Dwell
	Skip	Dwell		
30th %ile Green (s)	0.0	48.0	48.0	48.0
30th %ile Term Code	Skip	Dwell	Dwell	Dwell
10th %ile Green (s)	0.0	48.0	48.0	48.0
10th %ile Term Code	Skip	Dwell	Dwell	Dwell
Intersection Summary				
Cycle Length: 60				
Actuated Cycle Length: 54.7	7			
Control Type: Actuated-Unc	oordinated			
90th %ile Actuated Cycle: 69	5.4			
70th %ile Actuated Cycle: 52				
50th %ile Actuated Cycle: 52				
30th %ile Actuated Cycle: 52				
10th Wile Actuated Cycle: 5:				

	٠	-	74	4	•	←	↓	4
Lane Group	EBL	EBT	EBR	WBL2	WBL	WBT	SBT	SBR
Lane Configurations	ሻ	^	Ĩ.	ሻ	ሻ	∱ 1>	4	7
Traffic Volume (vph)	81	380	75	61	48	637	18	107
Future Volume (vph)	81	380	75	61	48	637	18	107
Turn Type	Prot	NA	Perm	Prot	Prot	NA	NA	Perm
Protected Phases	5	2		1	1	6	8	
Permitted Phases			2					8
Detector Phase	5	2	2	1	1	6	8	8
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	44.0	44.0	20.0	20.0	44.0	26.0	26.0
Total Split (%)	22.2%	48.9%	48.9%	22.2%	22.2%	48.9%	28.9%	28.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	Max	Max	Max
Act Effct Green (s)	9.6	40.8	40.8	8.9	8.9	40.2	22.1	22.1
Actuated g/C Ratio	0.12	0.50	0.50	0.11	0.11	0.49	0.27	0.27
v/c Ratio	0.45	0.25	0.13	0.40	0.28	0.41	0.21	0.23
Control Delay	41.5	13.0	6.8	41.6	37.9	15.0	26.7	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	13.0	6.8	41.6	37.9	15.0	26.7	6.6
LOS	D	В	Α	D	D	В	С	Α
Approach Delay		16.1				18.7	15.3	
Approach LOS		В				В	В	
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 81.7	•							
Natural Cycle: 50								
Control Type: Actuated-Unc	oordinated							
Maximum v/c Ratio: 0.45								
Intersection Signal Delay: 17	7.3			lr	ntersection	n LOS: B		
Intersection Capacity Utiliza)](CU Level	of Service	e A	
Analysis Period (min) 15								

Splits and Phases: 7: Pacific Street & Front Street & Mission Street/Water Street



Existing + Project

	٠	-	74	~	•	←	ļ	4	
Lane Group	EBL	EBT	EBR	WBL2	WBL	WBT	SBT	SBR	
Protected Phases	5	2		1	1	6	8		
Permitted Phases			2					8	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	20.0	8.0	8.0	20.0	20.0	20.0	
Total Split (s)	20.0	44.0	44.0	20.0	20.0	44.0	26.0	26.0	
Total Split (%)	22.2%	48.9%	48.9%	22.2%	22.2%	48.9%	28.9%	28.9%	
Maximum Green (s)	16.0	40.0	40.0	16.0	16.0	40.0	22.0	22.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	None	None	None	None	Max	Max	Max	
Walk Time (s)		5.0	5.0			5.0	5.0	5.0	
Flash Dont Walk (s)		11.0	11.0			11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0	0			0	0	0	
90th %ile Green (s)	13.6	40.9	40.9	12.7	12.7	40.0	22.0	22.0	
90th %ile Term Code	Gap	Hold	Hold	Gap	Gap	MaxR	MaxR	MaxR	
70th %ile Green (s)	11.3	40.8	40.8	10.5	10.5	40.0	22.0	22.0	
70th %ile Term Code	Gap	Hold	Hold	Gap	Gap	MaxR	MaxR	MaxR	
50th %ile Green (s)	9.7	40.8	40.8	8.9	8.9	40.0	22.0	22.0	
50th %ile Term Code	Gap	Hold	Hold	Gap	Gap	MaxR	MaxR	MaxR	
30th %ile Green (s)	8.1	40.6	40.6	7.5	7.5	40.0	22.0	22.0	
30th %ile Term Code	Gap	Hold	Hold	Gap	Gap	MaxR	MaxR	MaxR	
10th %ile Green (s)	0.0	40.0	40.0	0.0	0.0	40.0	22.0	22.0	
10th %ile Term Code	Skip	Hold	Hold	Skip	Skip	MaxR	MaxR	MaxR	
Intersection Summary									
Cycle Length: 00									

Cycle Length: 90

Actuated Cycle Length: 81.7

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 87.6 70th %ile Actuated Cycle: 85.3

50th %ile Actuated Cycle: 83.7

30th %ile Actuated Cycle: 82.1

10th %ile Actuated Cycle: 70

	→	•	•	•	•	†	>	ţ	
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Lane Configurations	4T }	7	4	7		4T }	ሻ	4	
Traffic Volume (vph)	52	223	104	42	10	229	24	172	
Future Volume (vph)	52	223	104	42	10	229	24	172	
Turn Type	NA	Split	NA	Perm	Perm	NA	Perm	NA	
Protected Phases	2	6	6			8		4	
Permitted Phases				6	8		4		
Detector Phase	2	6	6	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	23.0	37.0	37.0	37.0	40.0	40.0	40.0	40.0	
Total Split (%)	23.0%	37.0%	37.0%	37.0%	40.0%	40.0%	40.0%	40.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	
Lead/Lag	Lag	Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	Max	None	None	None	None	
Act Effct Green (s)	7.4	33.7	33.7	33.7		14.3	14.3	14.3	
Actuated g/C Ratio	0.11	0.52	0.52	0.52		0.22	0.22	0.22	
v/c Ratio	0.27	0.22	0.22	0.06		0.60	0.22	0.64	
Control Delay	27.8	11.9	11.8	3.6		18.9	25.8	32.0	
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	27.8	11.9	11.8	3.6		18.9	25.8	32.0	
LOS	С	В	В	Α		В	С	С	
Approach Delay	27.8		10.9			18.9		31.3	
Approach LOS	С		В			В		С	
Intersection Summary									
Cycle Length: 100									
Actuated Cycle Length: 65									
Natural Cycle: 60									
Control Type: Actuated-Unco	ordinated								
Maximum v/c Ratio: 0.64									
Intersection Signal Delay: 19.	4			Ir	ntersectio	n LOS: B			
Intersection Capacity Utilization	on 42.2%)		[(CU Level	of Service	e A		
Analysis Period (min) 15									

Splits and Phases: 8: Front Street & Soquel Avenue



Santa Cruz DRP Study 8: Front Street & Soquel Avenue

	-	•	←	•	•	†	-	ļ	
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Protected Phases	2	6	6			8		4	
Permitted Phases				6	8		4		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	23.0	37.0	37.0	37.0	40.0	40.0	40.0	40.0	
Total Split (%)	23.0%	37.0%	37.0%	37.0%	40.0%	40.0%	40.0%	40.0%	
Maximum Green (s)	19.0	33.0	33.0	33.0	36.0	36.0	36.0	36.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lag	Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Max	Max	Max	None	None	None	None	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	
90th %ile Green (s)	9.3	33.0	33.0	33.0	21.0	21.0	21.0	21.0	
90th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
70th %ile Green (s)	8.0	33.0	33.0	33.0	16.9	16.9	16.9	16.9	
70th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
50th %ile Green (s)	7.3	33.0	33.0	33.0	14.4	14.4	14.4	14.4	
50th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
30th %ile Green (s)	6.6	33.0	33.0	33.0	12.1	12.1	12.1	12.1	
30th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
10th %ile Green (s)	0.0	33.0	33.0	33.0	8.5	8.5	8.5	8.5	
10th %ile Term Code	Skip	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 65

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 75.3 70th %ile Actuated Cycle: 69.9 50th %ile Actuated Cycle: 66.7 30th %ile Actuated Cycle: 63.7 10th %ile Actuated Cycle: 49.5

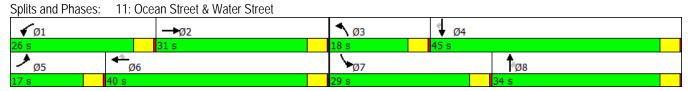
	٠	→	•	←	•	4	†	<i>></i>	/	↓	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ቪቪ	∱ }	۲	† †	7	ሻ	^	7	ሻ	† †	7	
Traffic Volume (vph)	167	303	136	459	255	78	466	40	175	620	391	
Future Volume (vph)	167	303	136	459	255	78	466	40	175	620	391	
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Detector Phase	5	2	1	6	6	3	8	8	7	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	17.0	31.0	26.0	40.0	40.0	18.0	34.0	34.0	29.0	45.0	45.0	
Total Split (%)	14.2%	25.8%	21.7%	33.3%	33.3%	15.0%	28.3%	28.3%	24.2%	37.5%	37.5%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	None	Min	Min	None	Min	Min	None	Min	Min	
Act Effct Green (s)	10.2	17.4	12.8	20.1	20.1	9.8	20.5	20.5	14.8	28.6	28.6	
Actuated g/C Ratio	0.12	0.21	0.16	0.24	0.24	0.12	0.25	0.25	0.18	0.35	0.35	
v/c Ratio	0.43	0.52	0.53	0.59	0.46	0.41	0.58	0.08	0.59	0.55	0.52	
Control Delay	41.2	33.0	43.2	32.2	6.8	45.1	31.5	0.3	42.3	25.9	5.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.2	33.0	43.2	32.2	6.8	45.1	31.5	0.3	42.3	25.9	5.5	
LOS	D	С	D	С	Α	D	С	Α	D	С	Α	
Approach Delay		35.7		26.3			31.2			21.6		
Approach LOS		D		С			С			С		
Intersection Summary												
Cycle Length: 120												
Actuated Cycle Length: 82.5												
Natural Cycle: 60												
Control Type: Actuated-Unco	ordinated	1										

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 27.0 Intersection Capacity Utilization 53.4%

Analysis Period (min) 15

Intersection LOS: C ICU Level of Service A



Synchro 9 Report Kimley-Horn Page 13 Timings

	٠	→	•	•	•	4	†	<i>></i>	>	ļ	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	17.0	31.0	26.0	40.0	40.0	18.0	34.0	34.0	29.0	45.0	45.0	
Total Split (%)	14.2%	25.8%	21.7%	33.3%	33.3%	15.0%	28.3%	28.3%	24.2%	37.5%	37.5%	
Maximum Green (s)	13.0	27.0	22.0	36.0	36.0	14.0	30.0	30.0	25.0	41.0	41.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Min	None	Min	Min	None	Min	Min	None	Min	Min	
Walk Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
90th %ile Green (s)	13.0	23.6	19.8	30.4	30.4	14.0	30.5	30.5	23.2	39.7	39.7	
90th %ile Term Code	Max	Hold	Gap	Gap	Gap	Max	Hold	Hold	Gap	Gap	Gap	
70th %ile Green (s)	11.7	20.0	15.2	23.5	23.5	11.5	24.7	24.7	17.8	31.0	31.0	
70th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Gap	Hold	Hold	Gap	Gap	Gap	
50th %ile Green (s)	10.0	16.8	12.4	19.2	19.2	9.6	20.4	20.4	14.4	25.2	25.2	
50th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Gap	Hold	Hold	Gap	Gap	Gap	
30th %ile Green (s)	8.7	15.0	10.2	16.5	16.5	8.0	17.4	17.4	11.8	21.2	21.2	
30th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Gap	Hold	Hold	Gap	Gap	Gap	
10th %ile Green (s)	7.0	11.6	7.6	12.2	12.2	0.0	11.3	11.3	8.6	23.9	23.9	
10th %ile Term Code	Gap	Hold	Gap	Gap	Gap	Skip	Gap	Gap	Gap	Hold	Hold	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 82.5

10th %ile Actuated Cycle: 55.1

Control Type: Actuated-Uncoordinated 90th %ile Actuated Cycle: 113.1 70th %ile Actuated Cycle: 93.7 50th %ile Actuated Cycle: 80 30th %ile Actuated Cycle: 70.4

	۶	→	•	•	•	4	†	<i>></i>	>	↓	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	Ť	ተተኈ	44	ተተተ	7	7	†	77	ሻሻ	†	7	
Traffic Volume (vph)	213	1529	278	1394	515	27	166	203	412	161	185	
Future Volume (vph)	213	1529	278	1394	515	27	166	203	412	161	185	
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm	
Protected Phases	5	2	1	6		4	4		8	8		
Permitted Phases					6			4			8	
Detector Phase	5	2	1	6	6	4	4	4	8	8	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	41.0	94.0	29.0	82.0	82.0	34.0	34.0	34.0	43.0	43.0	43.0	
Total Split (%)	20.5%	47.0%	14.5%	41.0%	41.0%	17.0%	17.0%	17.0%	21.5%	21.5%	21.5%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	Max	Max	Max	
Act Effct Green (s)	29.4	90.0	21.4	82.1	82.1	30.0	30.0	30.0	39.0	39.0	39.0	
Actuated g/C Ratio	0.15	0.46	0.11	0.42	0.42	0.15	0.15	0.15	0.20	0.20	0.20	
v/c Ratio	0.84	0.71	0.78	0.69	0.67	0.11	0.62	0.40	0.72	0.49	0.43	
Control Delay	107.6	45.0	100.5	49.6	26.9	74.4	89.2	30.9	82.0	75.9	10.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	107.6	45.0	100.5	49.6	26.9	74.4	89.2	30.9	82.0	75.9	10.5	
LOS	F	D	F	D	С	Ε	F	С	F	Е	В	
Approach Delay		52.4		50.7			58.3			63.2		
Approach LOS		D		D			Е			Е		
Intersection Summary												
Cycle Length: 200												
Actuated Cycle Length: 196.	5											
Natural Cycle: 80												
Control Type: Actuated-Unco	oordinated											
Maximum v/c Ratio: 0.84												
Intersection Signal Delay: 53	3.7			lr	ntersectio	n LOS: D						
Intersection Capacity Utilizat	ion 72.6%)		[(CU Level	of Service	e C					
Analysis Period (min) 15												

Splits and Phases: 12: Highway 9 & Highway 1



	۶	→	•	•	•	4	†	<i>></i>	>	ļ	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Protected Phases	5	2	1	6		4	4		8	8		
Permitted Phases					6			4			8	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	41.0	94.0	29.0	82.0	82.0	34.0	34.0	34.0	43.0	43.0	43.0	
Total Split (%)	20.5%	47.0%	14.5%	41.0%	41.0%	17.0%	17.0%	17.0%	21.5%	21.5%	21.5%	
Maximum Green (s)	37.0	90.0	25.0	78.0	78.0	30.0	30.0	30.0	39.0	39.0	39.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	Max	Max	Max	
Walk Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0	0	0	0	0	0	0	
90th %ile Green (s)	37.0	90.0	25.0	78.0	78.0	30.0	30.0	30.0	39.0	39.0	39.0	
90th %ile Term Code	Max	MaxR	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
70th %ile Green (s)	33.9	90.0	24.4	80.5	80.5	30.0	30.0	30.0	39.0	39.0	39.0	
70th %ile Term Code	Gap	MaxR	Gap	Hold	Hold	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
50th %ile Green (s)	29.9	90.0	22.0	82.1	82.1	30.0	30.0	30.0	39.0	39.0	39.0	
50th %ile Term Code	Gap	MaxR	Gap	Hold	Hold	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
30th %ile Green (s)	26.0	90.0	19.6	83.6	83.6	30.0	30.0	30.0	39.0	39.0	39.0	
30th %ile Term Code	Gap	MaxR	Gap	Hold	Hold	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
10th %ile Green (s)	20.5	90.0	16.4	85.9	85.9	30.0	30.0	30.0	39.0	39.0	39.0	
10th %ile Term Code	Gap	MaxR	Gap	Hold	Hold	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	

Intersection Summary

Cycle Length: 200

Actuated Cycle Length: 196.5 Control Type: Actuated-Uncoordinated 90th %ile Actuated Cycle: 200 70th %ile Actuated Cycle: 199.4 50th %ile Actuated Cycle: 197

30th %ile Actuated Cycle: 194.6 10th %ile Actuated Cycle: 191.4

	•	→	•	4	†	>	ļ	4	
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR	
Lane Configurations	Ĭ,	4T)	€ 1₽	ሻ	∱ 1>	Ĭ,	† †	77	
Traffic Volume (vph)	1428	392	367	95	294	58	209	1471	
Future Volume (vph)	1428	392	367	95	294	58	209	1471	
Turn Type	Split	NA	NA	Prot	NA	Prot	NA	pm+ov	
Protected Phases	6	6	2	3	8	7	4	6	
Permitted Phases								4	
Detector Phase	6	6	2	3	8	7	4	4 6	
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	43.0	43.0	26.0	44.0	32.0	49.0	37.0	43.0	
Total Split (%)	28.7%	28.7%	17.3%	29.3%	21.3%	32.7%	24.7%	28.7%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag				Lag	Lag	Lead	Lead		
Lead-Lag Optimize?				Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	None	None	
Act Effct Green (s)	39.2	39.2	19.8	12.4	36.0	9.6	30.9	74.2	
Actuated g/C Ratio	0.33	0.33	0.17	0.10	0.30	0.08	0.26	0.63	
v/c Ratio	1.50	1.44dl	0.77	0.57	0.33	0.44	0.25	0.82	
Control Delay	266.2	136.1	56.8	63.7	33.7	63.2	36.2	13.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	266.2	136.1	56.8	63.7	33.7	63.2	36.2	13.6	
LOS	F	F	Е	Е	С	Е	D	В	
Approach Delay		185.7	56.8		40.6		17.9		
Approach LOS		F	E		D		В		
Intersection Summary									
Cycle Length: 150									
Actuated Cycle Length: 118.4	1								
Natural Cycle: 120									
Control Type: Actuated-Unco	ordinated								
Maximum v/c Ratio: 1.50									
Intersection Signal Delay: 94					ntersectio				
Intersection Capacity Utilizati	on 77.9%)		I(CU Level	of Service	e D		
Analysis Period (min) 15									
dl Defacto Left Lane. Reco	de with 1	though la	ane as a l	eft lane.					
Splits and Phases: 13: Che	estnut Str	മൂ & Mic	sion Stra	≙t					
★ Ø2		COL OX IVIIS	31011 3110	- T				•	go.
▼ Ø2 26 s 43 s	Ø6			2	Ø4 's			44 s	Ø3
20 3				3/	<i>\</i>			1 174 5	4
					™ Ø7				1 Ø8

	٠	-	←	4	†	/	ļ	4	
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR	
Protected Phases	6	6	2	3	8	7	4	6	
Permitted Phases								4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	43.0	43.0	26.0	44.0	32.0	49.0	37.0	43.0	
Total Split (%)	28.7%	28.7%	17.3%	29.3%	21.3%	32.7%	24.7%	28.7%	
Maximum Green (s)	39.0	39.0	22.0	40.0	28.0	45.0	33.0	39.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag				Lag	Lag	Lead	Lead		
Lead-Lag Optimize?				Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	None	None	None	None	None	None	None	
Walk Time (s)	5.0	5.0			5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0			0		0	0	
90th %ile Green (s)	39.0	39.0	22.0	17.4	37.0	13.4	33.0	39.0	
90th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Max	Max	
70th %ile Green (s)	39.0	39.0	22.0	14.4	36.2	11.2	33.0	39.0	
70th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Max	Max	
50th %ile Green (s)	39.0	39.0	21.4	12.5	35.8	9.7	33.0	39.0	
50th %ile Term Code	Max	Max	Gap	Gap	Hold	Gap	Max	Max	
30th %ile Green (s)	39.0	39.0	19.0	10.7	34.1	8.3	31.7	39.0	
30th %ile Term Code	Max	Max	Gap	Gap	Hold	Gap	Gap	Max	
10th %ile Green (s)	39.0	39.0	14.9	7.8	36.1	0.0	24.3	39.0	
10th %ile Term Code	Max	Max	Gap	Gap	Hold	Skip	Gap	Max	
Intersection Summary									

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 118.4 Control Type: Actuated-Uncoordinated 90th %ile Actuated Cycle: 127.4 70th %ile Actuated Cycle: 124.4 50th %ile Actuated Cycle: 121.9 30th %ile Actuated Cycle: 116.4

10th %ile Actuated Cycle: 102

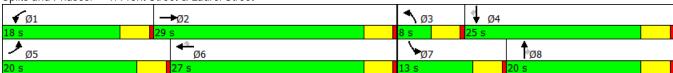
	۶	→	•	+	•	•	†	~	/	+	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻ	∱ ⊅	ሻ	†	7	ሻ	†	7	ሻ	†	7	
Traffic Volume (vph)	108	638	228	379	119	8	170	229	126	327	174	
Future Volume (vph)	108	638	228	379	119	8	170	229	126	327	174	
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Detector Phase	5	2	1	6	6	3	8	8	7	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	29.0	18.0	27.0	27.0	8.0	20.0	20.0	13.0	25.0	25.0	
Total Split (%)	25.0%	36.3%	22.5%	33.8%	33.8%	10.0%	25.0%	25.0%	16.3%	31.3%	31.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	Max	Max	None	Max	Max	None	None	None	None	None	None	
Act Effct Green (s)	16.0	26.0	13.1	23.0	23.0	4.0	12.4	12.4	8.6	23.5	23.5	
Actuated g/C Ratio	0.21	0.34	0.17	0.30	0.30	0.05	0.16	0.16	0.11	0.31	0.31	
v/c Ratio	0.31	0.58	0.78	0.71	0.21	0.09	0.59	0.52	0.68	0.59	0.30	
Control Delay	29.2	23.7	49.8	32.7	2.3	38.2	37.9	8.5	52.6	27.8	5.1	
Queue Delay	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.2	25.3	49.8	32.7	2.3	38.2	37.9	8.5	52.6	27.8	5.1	
LOS	С	С	D	С	Α	D	D	Α	D	С	Α	
Approach Delay		25.8		33.1			21.4			26.5		
Approach LOS		С		С			С			С		
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 76.1												
Natural Cycle: 75												
Control Type: Actuated-Unco	ordinated	d										

Control Type: Actuated-Uncoordinated Maximum v/c Ratio: 0.78

Intersection Signal Delay: 27.4 Intersection LOS: C
Intersection Capacity Utilization 65.1% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Front Street & Laurel Street



PM Peak

	٠	→	•	←	•	4	†	<i>></i>	>	↓	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	29.0	18.0	27.0	27.0	8.0	20.0	20.0	13.0	25.0	25.0	
Total Split (%)	25.0%	36.3%	22.5%	33.8%	33.8%	10.0%	25.0%	25.0%	16.3%	31.3%	31.3%	
Maximum Green (s)	16.0	25.0	14.0	23.0	23.0	4.0	16.0	16.0	9.0	21.0	21.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	Max	Max	None	Max	Max	None	None	None	None	None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
90th %ile Green (s)	16.0	25.0	14.0	23.0	23.0	4.0	16.0	16.0	9.0	21.0	21.0	
90th %ile Term Code	MaxR	MaxR	Max	MaxR	MaxR	Max	Max	Max	Max	Max	Max	
70th %ile Green (s)	16.0	25.0	14.0	23.0	23.0	0.0	15.6	15.6	9.0	28.6	28.6	
70th %ile Term Code	MaxR	MaxR	Max	MaxR	MaxR	Skip	Gap	Gap	Max	Hold	Hold	
50th %ile Green (s)	16.0	25.0	14.0	23.0	23.0	0.0	12.5	12.5	9.0	25.5	25.5	
50th %ile Term Code	MaxR	MaxR	Max	MaxR	MaxR	Skip	Gap	Gap	Max	Hold	Hold	
30th %ile Green (s)	16.0	25.4	13.6	23.0	23.0	0.0	10.6	10.6	9.0	23.6	23.6	
30th %ile Term Code	MaxR	Hold	Gap	MaxR	MaxR	Skip	Gap	Gap	Max	Hold	Hold	
10th %ile Green (s)	16.0	28.8	10.2	23.0	23.0	0.0	7.8	7.8	7.2	19.0	19.0	
10th %ile Term Code	MaxR	Hold	Gap	MaxR	MaxR	Skip	Gap	Gap	Gap	Hold	Hold	
Interception Cummers												

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 76.1

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 80 70th %ile Actuated Cycle: 79.6 50th %ile Actuated Cycle: 76.5 30th %ile Actuated Cycle: 74.6 10th %ile Actuated Cycle: 70

PM Peak

Santa Cruz DRP Study 2: Pacific Avenue & Laurel Street

	۶	-	•	←	•	†	>	ļ	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations	¥	4	ř	4	۲	f)		4	
Traffic Volume (vph)	55	660	41	470	41	79	57	59	
Future Volume (vph)	55	660	41	470	41	79	57	59	
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	
Protected Phases	5	2	1	6		8		4	
Permitted Phases					8		4		
Detector Phase	5	2	1	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	40.0	20.0	40.0	20.0	20.0	20.0	20.0	
Total Split (%)	25.0%	50.0%	25.0%	50.0%	25.0%	25.0%	25.0%	25.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	
Act Effct Green (s)	7.9	37.0	7.2	36.4	16.2	16.2		16.2	
Actuated g/C Ratio	0.12	0.54	0.11	0.54	0.24	0.24		0.24	
v/c Ratio	0.31	0.71	0.23	0.60	0.16	0.32		0.46	
Control Delay	33.3	17.9	32.5	15.2	24.9	19.9		26.0	
Queue Delay	0.0	0.0	0.0	5.4	0.0	0.0		0.0	
Total Delay	33.3	17.9	32.5	20.6	24.9	19.9		26.0	
LOS	С	В	С	С	С	В		С	
Approach Delay		19.0		21.4		21.1		26.0	
Approach LOS		В		С		С		С	
Intersection Summary									
Cycle Length: 80									
Actuated Cycle Length: 68									

Actuated Cycle Length: 68

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 20.8 Intersection LOS: C
Intersection Capacity Utilization 69.0% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Pacific Avenue & Laurel Street

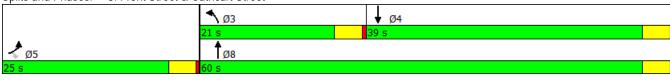


	٠	→	•	•	•	†	\	ļ	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Protected Phases	5	2	1	6		8		4	
Permitted Phases					8		4		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	40.0	20.0	40.0	20.0	20.0	20.0	20.0	
Total Split (%)	25.0%	50.0%	25.0%	50.0%	25.0%	25.0%	25.0%	25.0%	
Maximum Green (s)	16.0	36.0	16.0	36.0	16.0	16.0	16.0	16.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	
90th %ile Green (s)	10.9	37.4	9.5	36.0	16.0	16.0	16.0	16.0	
90th %ile Term Code	Gap	Hold	Gap	MaxR	MaxR	MaxR	MaxR	MaxR	
70th %ile Green (s)	9.1	37.0	8.1	36.0	16.0	16.0	16.0	16.0	
70th %ile Term Code	Gap	Hold	Gap	MaxR	MaxR	MaxR	MaxR	MaxR	
50th %ile Green (s)	7.9	36.8	7.1	36.0	16.0	16.0	16.0	16.0	
50th %ile Term Code	Gap	Hold	Gap	MaxR	MaxR	MaxR	MaxR	MaxR	
30th %ile Green (s)	0.0	36.0	0.0	36.0	16.0	16.0	16.0	16.0	
30th %ile Term Code	Skip	MaxR	Skip	MaxR	MaxR	MaxR	MaxR	MaxR	
10th %ile Green (s)	0.0	36.0	0.0	36.0	16.0	16.0	16.0	16.0	
10th %ile Term Code	Skip	MaxR	Skip	MaxR	MaxR	MaxR	MaxR	MaxR	
Intersection Summary									

Cycle Length: 80

Actuated Cycle Length: 68
Control Type: Actuated-Uncoordinated
90th %ile Actuated Cycle: 74.9 70th %ile Actuated Cycle: 73.1 50th %ile Actuated Cycle: 71.9 30th %ile Actuated Cycle: 60 10th %ile Actuated Cycle: 60

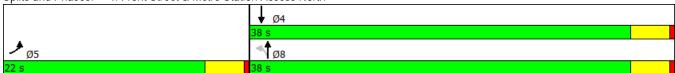
	۶	•	•	†	ţ	
Lane Group	EBL	EBR	NBL	NBT	SBT	
Lane Configurations	ሻ	7	ሻ	†	† 1>	
Traffic Volume (vph)	116	61	56	425	657	
Future Volume (vph)	116	61	56	425	657	
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	5		3	8	4	
Permitted Phases		5				
Detector Phase	5	5	3	8	4	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	25.0	25.0	21.0	60.0	39.0	
Total Split (%)	29.4%	29.4%	24.7%	70.6%	45.9%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	Max	Max	Max	None	Max	
Act Effct Green (s)	21.0	21.0	17.0	56.0	35.0	
Actuated g/C Ratio	0.25	0.25	0.20	0.66	0.41	
v/c Ratio	0.27	0.15	0.17	0.37	0.59	
Control Delay	27.9	8.0	29.7	7.6	20.4	
Queue Delay	0.0	0.0	0.0	2.8	0.0	
Total Delay	27.9	8.0	29.7	10.4	20.4	
LOS	С	А	С	В	С	
Approach Delay	21.0			12.6	20.4	
Approach LOS	С			В	С	
Intersection Summary						
Cycle Length: 85						
Actuated Cycle Length: 8	85					
Natural Cycle: 60						
Control Type: Actuated-L						
Maximum v/c Ratio: 0.59						
Intersection Signal Delay					ntersection	
Intersection Capacity Uti				[(CU Level c	f Service A
Analysis Period (min) 15	i					
Splits and Phases: 3:	Front Street &	Cathcar	t Street			
	<u></u>	• •	,			1 ~



	٦	*	4	†	
Lane Group	EBL	EBR	NBL	NBT	SBT
Protected Phases	5		3	8	4
Permitted Phases		5			
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	25.0	25.0	21.0	60.0	39.0
Total Split (%)	29.4%	29.4%	24.7%	70.6%	45.9%
Maximum Green (s)	21.0	21.0	17.0	56.0	35.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	Max	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0
90th %ile Green (s)	21.0	21.0	17.0	56.0	35.0
90th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
70th %ile Green (s)	21.0	21.0	17.0	56.0	35.0
70th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
50th %ile Green (s)	21.0	21.0	17.0	56.0	35.0
50th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
30th %ile Green (s)	21.0	21.0	17.0	56.0	35.0
30th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
10th %ile Green (s)	21.0	21.0	17.0	56.0	35.0
10th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
Intersection Summary					
Cycle Length: 85					
Actuated Cycle Length: 85					
Control Type: Actuated-Unco	ordinated				
90th %ile Actuated Cycle: 85					
70th %ile Actuated Cycle: 85					
50th %ile Actuated Cycle: 85					
30th %ile Actuated Cycle: 85					
10th %ile Actuated Cycle: 85					
Total Zolle Actuated Cycle. 63					

	٠	4	†	ļ	
Lane Group	EBL	NBL	NBT	SBT	
Lane Configurations	A	ሻ	†	†	
Traffic Volume (vph)	17	5	442	664	
Future Volume (vph)	17	5	442	664	
Turn Type	Prot	Perm	NA	NA	
Protected Phases	5		8	4	
Permitted Phases		8			
Detector Phase	5	8	8	4	
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	
Total Split (s)	22.0	38.0	38.0	38.0	
Total Split (%)	36.7%	63.3%	63.3%	63.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	Max	Max	Max	
Act Effct Green (s)	6.9	52.8	52.8	52.8	
Actuated g/C Ratio	0.12	0.95	0.95	0.95	
v/c Ratio	0.18	0.01	0.26	0.41	
Control Delay	24.9	1.4	1.4	2.1	
Queue Delay	0.0	0.0	0.0	0.1	
Total Delay	24.9	1.4	1.4	2.1	
LOS	С	Α	А	А	
Approach Delay	24.9		1.4	2.1	
Approach LOS	С		Α	А	
Intersection Summary					
Cycle Length: 60					
Actuated Cycle Length: 55.8	3				
Natural Cycle: 50					
Control Type: Actuated-Unc	oordinated				
Maximum v/c Ratio: 0.41					
Intersection Signal Delay: 2.	.3			Ir	ntersection LOS: A
Intersection Capacity Utiliza)			CU Level of Service A
Analysis Period (min) 15					22 20 0 0 0 0 0 0

Splits and Phases: 4: Front Street & Metro Station Access North



	۶	4	†	ļ
Lane Group	EBL	NBL	NBT	SBT
Protected Phases	5		8	4
Permitted Phases	_	8	-	
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	22.0	38.0	38.0	38.0
Total Split (%)	36.7%	63.3%	63.3%	63.3%
Maximum Green (s)	18.0	34.0	34.0	34.0
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0
Recall Mode	None	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0
90th %ile Green (s)	9.9	49.0	49.0	49.0
90th %ile Term Code	Gap	Dwell	Dwell	Dwell
70th %ile Green (s)	0.0	49.0	49.0	49.0
70th %ile Term Code	Skip	Dwell	Dwell	Dwell
50th %ile Green (s)	0.0	49.0	49.0	49.0
50th %ile Term Code	Skip	Dwell	Dwell	Dwell
30th %ile Green (s)	0.0	49.0	49.0	49.0
30th %ile Term Code	Skip	Dwell	Dwell	Dwell
10th %ile Green (s)	0.0	49.0	49.0	49.0
10th %ile Term Code	Skip	Dwell	Dwell	Dwell
Intersection Summary	<u>'</u>			
Intersection Summary				
Cycle Length: 60	n			
Actuated Cycle Length: 55.8				
Control Type: Actuated-Und				
90th %ile Actuated Cycle: 6				
70th %ile Actuated Cycle: 5				
50th %ile Actuated Cycle: 5				
30th %ile Actuated Cycle: 5				
10th %ile Actuated Cycle: 5	3			

P۱	Λ	Pea	k

	۶	→	٦	4	•	←	+	4		
Lane Group	EBL	EBT	EBR	WBL2	WBL	WBT	SBT	SBR		
Lane Configurations	۲	^	Ž.	ሻ	ሻ	∱ 1>	र्स	7		
Traffic Volume (vph)	152	629	110	108	49	630	33	174		
Future Volume (vph)	152	629	110	108	49	630	33	174		
Turn Type	Prot	NA	Perm	Prot	Prot	NA	NA	Perm		
Protected Phases	5	2		1	1	6	8			
Permitted Phases			2					8		
Detector Phase	5	2	2	1	1	6	8	8		
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Minimum Split (s)	8.0	20.0	20.0	8.0	8.0	20.0	20.0	20.0		
Total Split (s)	25.0	42.0	42.0	20.0	20.0	37.0	28.0	28.0		
Total Split (%)	27.8%	46.7%	46.7%	22.2%	22.2%	41.1%	31.1%	31.1%		
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	Max	Max	Max		
Act Effct Green (s)	12.6	37.4	37.4	10.6	10.6	33.1	24.1	24.1		
Actuated g/C Ratio	0.15	0.46	0.46	0.13	0.13	0.40	0.29	0.29		
v/c Ratio	0.59	0.41	0.18	0.50	0.23	0.47	0.38	0.32		
Control Delay	41.1	17.0	9.7	41.0	34.2	19.8	26.5	8.0		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	41.1	17.0	9.7	41.0	34.2	19.8	26.5	8.0		
LOS	D	В	Α	D	С	В	С	Α		
Approach Delay		20.0				23.6	17.5			
Approach LOS		В				С	В			
Intersection Summary										
Cycle Length: 90										
Actuated Cycle Length: 81.	.8									
Natural Cycle: 50										
Control Type: Actuated-Uncoordinated										
Maximum v/c Ratio: 0.59										
Intersection Signal Delay: 2	20.9			lr	ntersectio	n LOS: C				
Intersection Capacity Utiliza	ation 46.0%)		[(CU Level	of Service	e A			
Analysis Daried (min) 15										

Splits and Phases: 7: Pacific Street & Front Street & Mission Street/Water Street

Analysis Period (min) 15



Existing + Project

4 • EBR WBL2 **EBL** EBT **WBL WBT SBT SBR** Lane Group **Protected Phases** 5 2 1 1 6 8 **Permitted Phases** 2 8 Minimum Initial (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 Minimum Split (s) 8.0 20.0 20.0 8.0 8.0 20.0 20.0 20.0 Total Split (s) 25.0 42.0 42.0 20.0 20.0 37.0 28.0 28.0 46.7% 22.2% Total Split (%) 27.8% 46.7% 22.2% 41.1% 31.1% 31.1% Maximum Green (s) 21.0 38.0 38.0 16.0 16.0 33.0 24.0 24.0 Yellow Time (s) 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 All-Red Time (s) 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 Lead/Lag Lead Lag Lag Lead Lead Lag Lead-Lag Optimize? Yes Yes Yes Yes Yes Yes Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Minimum Gap (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 Time Before Reduce (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Time To Reduce (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Recall Mode None None None None None Max Max Max Walk Time (s) 5.0 5.0 5.0 5.0 5.0 Flash Dont Walk (s) 11.0 11.0 11.0 11.0 11.0 Pedestrian Calls (#/hr) 0 0 0 0 0 90th %ile Green (s) 18.0 36.0 36.0 15.0 15.0 33.0 24.0 24.0 90th %ile Term Code Gap Hold Hold Gap Gap MaxR MaxR MaxR 70th %ile Green (s) 12.3 12.3 14.7 35.4 35.4 33.0 24.0 24.0 70th %ile Term Code Gap Gap Hold Hold Gap MaxR MaxR MaxR 50th %ile Green (s) 12.6 35.1 35.1 10.5 10.5 33.0 24.0 24.0 50th %ile Term Code Gap Hold Hold Gap Gap MaxR MaxR MaxR 30th %ile Green (s) 10.6 34.7 34.7 8.9 8.9 33.0 24.0 24.0 30th %ile Term Code Gap Hold Hold Gap MaxR Gap MaxR MaxR 10th %ile Green (s) 7.9 44.9 44.9 0.0 33.0 24.0 24.0 0.0 10th %ile Term Code Gap Skip Hold Hold Skip MaxR MaxR MaxR **Intersection Summary** Cycle Length: 90

Actuated Cycle Length: 81.8

Santa Cruz DRP Study

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 87 70th %ile Actuated Cycle: 83.7 50th %ile Actuated Cycle: 81.6 30th %ile Actuated Cycle: 79.6 10th %ile Actuated Cycle: 76.9

	-	•	←	•	•	†	>	ļ	
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Lane Configurations	4 14	ሻ	4	7		ፋው	ሻ	4	
Traffic Volume (vph)	111	427	94	36	10	318	79	406	
Future Volume (vph)	111	427	94	36	10	318	79	406	
Turn Type	NA	Split	NA	Perm	Perm	NA	Perm	NA	
Protected Phases	2	6	6			8		4	
Permitted Phases				6	8		4		
Detector Phase	2	6	6	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	36.0	36.0	36.0	44.0	44.0	44.0	44.0	
Total Split (%)	20.0%	36.0%	36.0%	36.0%	44.0%	44.0%	44.0%	44.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	
Lead/Lag	Lag	Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	Max	None	None	None	None	
Act Effct Green (s)	10.0	32.6	32.6	32.6		26.4	26.4	26.4	
Actuated g/C Ratio	0.12	0.40	0.40	0.40		0.33	0.33	0.33	
v/c Ratio	0.49	0.39	0.40	0.06		0.51	0.43	0.79	
Control Delay	34.3	22.2	22.3	4.1		15.5	28.8	35.0	
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	34.3	22.2	22.3	4.1		15.5	28.8	35.0	
LOS	С	С	С	Α		В	С	С	
Approach Delay	34.3		21.1			15.5		34.0	
Approach LOS	С		С			В		С	
Intersection Summary									
Cycle Length: 100									
Actuated Cycle Length: 81.2	2								
Natural Cycle: 60									
Control Type: Actuated-Und	coordinated								
Maximum v/c Ratio: 0.79									
Intersection Signal Delay: 2					ntersectio				
Intersection Capacity Utiliza	ation 73.2%			[(CU Level	of Service	e D		
Analysis Period (min) 15									
Splits and Phases: 8: Fro	ont Street &	Soquel A	Avenue						
♣2		- 1							



Synchro 9 Report Page 11 Kimley-Horn Timings

Santa Cruz DRP Study 8: Front Street & Soquel Avenue

	-	•	←	•	4	†	>	↓	
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Protected Phases	2	6	6			8		4	
Permitted Phases				6	8		4		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	36.0	36.0	36.0	44.0	44.0	44.0	44.0	
Total Split (%)	20.0%	36.0%	36.0%	36.0%	44.0%	44.0%	44.0%	44.0%	
Maximum Green (s)	16.0	32.0	32.0	32.0	40.0	40.0	40.0	40.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lag	Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Max	Max	Max	None	None	None	None	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	
90th %ile Green (s)	13.9	32.0	32.0	32.0	40.0	40.0	40.0	40.0	
90th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Max	Max	
70th %ile Green (s)	11.4	32.0	32.0	32.0	31.9	31.9	31.9	31.9	
70th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
50th %ile Green (s)	9.9	32.0	32.0	32.0	26.2	26.2	26.2	26.2	
50th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
30th %ile Green (s)	8.5	32.0	32.0	32.0	21.1	21.1	21.1	21.1	
30th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	
10th %ile Green (s)	6.9	32.0	32.0	32.0	16.0	16.0	16.0	16.0	
10th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Gap	Gap	

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 81.2

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 97.9 70th %ile Actuated Cycle: 87.3 50th %ile Actuated Cycle: 80.1 30th %ile Actuated Cycle: 73.6 10th %ile Actuated Cycle: 66.9

	۶	→	•	+	•	•	†	~	>	↓	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	44	∱ 1≽	ሻ	^	7	ሻ	† †	7	ሻ	^	7	
Traffic Volume (vph)	346	734	112	586	227	120	553	98	290	856	387	
Future Volume (vph)	346	734	112	586	227	120	553	98	290	856	387	
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Detector Phase	5	2	1	6	6	3	8	8	7	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	22.0	42.0	17.0	37.0	37.0	18.0	29.0	29.0	32.0	43.0	43.0	
Total Split (%)	18.3%	35.0%	14.2%	30.8%	30.8%	15.0%	24.2%	24.2%	26.7%	35.8%	35.8%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	None	Min	Min	None	Min	Min	None	Min	Min	
Act Effct Green (s)	15.8	32.8	11.3	28.3	28.3	11.8	23.7	23.7	22.7	34.6	34.6	
Actuated g/C Ratio	0.15	0.31	0.11	0.26	0.26	0.11	0.22	0.22	0.21	0.32	0.32	
v/c Ratio	0.71	0.81	0.62	0.65	0.39	0.63	0.73	0.21	0.80	0.76	0.54	
Control Delay	53.9	41.4	63.9	39.4	6.4	63.2	46.5	2.4	57.8	38.5	8.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	53.9	41.4	63.9	39.4	6.4	63.2	46.5	2.4	57.8	38.5	8.8	
LOS	D	D	Е	D	Α	Е	D	Α	Е	D	Α	
Approach Delay		45.0		34.3			43.5			34.7		
Approach LOS		D		С			D			С		
Intersection Summary												
Cycle Length: 120												
Actuated Cycle Length: 107												

Natural Cycle: 70

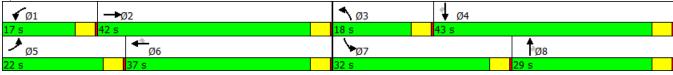
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 38.9 Intersection LOS: D
Intersection Capacity Utilization 74.7% ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 11: Ocean Street & Water Street



	٠	→	•	←	4	4	†	<i>></i>	-	+	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	22.0	42.0	17.0	37.0	37.0	18.0	29.0	29.0	32.0	43.0	43.0	
Total Split (%)	18.3%	35.0%	14.2%	30.8%	30.8%	15.0%	24.2%	24.2%	26.7%	35.8%	35.8%	
Maximum Green (s)	18.0	38.0	13.0	33.0	33.0	14.0	25.0	25.0	28.0	39.0	39.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Min	None	Min	Min	None	Min	Min	None	Min	Min	
Walk Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
90th %ile Green (s)	18.0	38.0	13.0	33.0	33.0	14.0	25.0	25.0	28.0	39.0	39.0	
90th %ile Term Code	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	
70th %ile Green (s)	18.0	38.0	13.0	33.0	33.0	14.0	25.0	25.0	28.0	39.0	39.0	
70th %ile Term Code	Max	Max	Max	Hold	Hold	Max	Max	Max	Max	Max	Max	
50th %ile Green (s)	17.5	36.2	12.9	31.6	31.6	13.4	27.3	27.3	25.1	39.0	39.0	
50th %ile Term Code	Gap	Gap	Gap	Hold	Hold	Gap	Hold	Hold	Gap	Max	Max	
30th %ile Green (s)	14.6	30.4	10.4	26.2	26.2	10.8	23.4	23.4	20.0	32.6	32.6	
30th %ile Term Code	Gap	Gap	Gap	Hold	Hold	Gap	Hold	Hold	Gap	Gap	Gap	
10th %ile Green (s)	11.0	22.3	7.4	18.7	18.7	7.6	17.5	17.5	14.0	23.9	23.9	
10th %ile Term Code	Gap	Gap	Gap	Hold	Hold	Gap	Hold	Hold	Gap	Gap	Gap	
Intersection Summary												

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 107

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 120 70th %ile Actuated Cycle: 120 50th %ile Actuated Cycle: 117.5 30th %ile Actuated Cycle: 100.2 10th %ile Actuated Cycle: 77.2

	۶	-	•	←	•	•	†	<i>></i>	-	ļ	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	7	ተተኈ	44	ተተተ	7	7	†	77	44	†	7	
Traffic Volume (vph)	228	1327	328	1277	472	102	253	447	648	316	249	
Future Volume (vph)	228	1327	328	1277	472	102	253	447	648	316	249	
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm	
Protected Phases	5	2	1	6		4	4		8	8		
Permitted Phases					6			4			8	
Detector Phase	5	2	1	6	6	4	4	4	8	8	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	40.0	77.0	30.0	67.0	67.0	42.0	42.0	42.0	51.0	51.0	51.0	
Total Split (%)	20.0%	38.5%	15.0%	33.5%	33.5%	21.0%	21.0%	21.0%	25.5%	25.5%	25.5%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	Max	Max	Max	
Act Effct Green (s)	31.0	73.0	24.0	66.0	66.0	38.0	38.0	38.0	47.0	47.0	47.0	
Actuated g/C Ratio	0.16	0.37	0.12	0.33	0.33	0.19	0.19	0.19	0.24	0.24	0.24	
v/c Ratio	0.87	0.81	0.85	0.80	0.75	0.32	0.76	0.68	0.85	0.77	0.50	
Control Delay	110.1	60.5	104.1	65.0	38.2	72.3	90.9	48.4	83.0	83.7	20.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	110.1	60.5	104.1	65.0	38.2	72.3	90.9	48.4	83.0	83.7	20.8	
LOS	F	Е	F	Е	D	Е	F	D	F	F	С	
Approach Delay		67.4		65.1			64.9			70.4		
Approach LOS		E		Е			Е			Е		
Intersection Summary												
Cycle Length: 200												
Actuated Cycle Length: 198.1												
Natural Cycle: 90												
Control Type: Actuated-Uncoc	ordinated											
Maximum v/c Ratio: 0.87												
Intersection Signal Delay: 66.9	7			Ir	ntersection	n LOS: E						
Intersection Capacity Utilizatio	n 82.4%)		[(CU Level	of Service	Ε					
Analysis Period (min) 15												

Splits and Phases: 12: Highway 9 & Highway 1



	٠	→	•	←	•	•	†	<i>></i>	>	ļ	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Protected Phases	5	2	1	6		4	4		8	8		
Permitted Phases					6			4			8	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	40.0	77.0	30.0	67.0	67.0	42.0	42.0	42.0	51.0	51.0	51.0	
Total Split (%)	20.0%	38.5%	15.0%	33.5%	33.5%	21.0%	21.0%	21.0%	25.5%	25.5%	25.5%	
Maximum Green (s)	36.0	73.0	26.0	63.0	63.0	38.0	38.0	38.0	47.0	47.0	47.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	Max	Max	Max	
Walk Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0	0	0	0	0	0	0	
90th %ile Green (s)	36.0	73.0	26.0	63.0	63.0	38.0	38.0	38.0	47.0	47.0	47.0	
90th %ile Term Code	Max	MaxR	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
70th %ile Green (s)	36.0	73.0	26.0	63.0	63.0	38.0	38.0	38.0	47.0	47.0	47.0	
70th %ile Term Code	Max	MaxR	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
50th %ile Green (s)	32.5	73.0	25.8	66.3	66.3	38.0	38.0	38.0	47.0	47.0	47.0	
50th %ile Term Code	Gap	MaxR	Gap	Hold	Hold	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
30th %ile Green (s)	28.3	73.0	23.1	67.8	67.8	38.0	38.0	38.0	47.0	47.0	47.0	
30th %ile Term Code	Gap	MaxR	Gap	Hold	Hold	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
10th %ile Green (s)	22.6	73.0	19.4	69.8	69.8	38.0	38.0	38.0	47.0	47.0	47.0	
10th %ile Term Code	Gap	MaxR	Gap	Hold	Hold	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	

Intersection Summary

Cycle Length: 200

Actuated Cycle Length: 198.1 Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 200 70th %ile Actuated Cycle: 200 50th %ile Actuated Cycle: 199.8 30th %ile Actuated Cycle: 197.1 10th %ile Actuated Cycle: 193.4

13. Onestitut Stree	<u> </u>	<u></u>	<u> </u>	•	†	<u> </u>	1	4	
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR	
Lane Configurations	LDL Ĭ	413	4 1	NDL	<u>₩</u>	JDL	<u>361</u>	אמכ	
Traffic Volume (vph)	1312	486	412	74	284	42	275	1380	
Future Volume (vph)	1312	486	412	74	284	42	275	1380	
Turn Type	Split	NA	NA	Prot	NA	Prot	NA	pm+ov	
Protected Phases	6	6	2	3	8	7	4	6	
Permitted Phases		, ,	_	Ü	Ü	,	•	4	
Detector Phase	6	6	2	3	8	7	4	4 6	
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	42.0	42.0	26.0	45.0	32.0	50.0	37.0	42.0	
Total Split (%)	28.0%	28.0%	17.3%	30.0%	21.3%	33.3%	24.7%	28.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag				Lag	Lag	Lead	Lead		
Lead-Lag Optimize?				Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	None	None	
Act Effct Green (s)	38.8	38.8	20.0	10.2	29.3	8.1	27.5	70.4	
Actuated g/C Ratio	0.35	0.35	0.18	0.09	0.27	0.07	0.25	0.64	
v/c Ratio	1.18	1.13dl	0.74	0.46	0.33	0.32	0.31	0.68	
Control Delay	132.4	81.9	51.4	59.8	33.5	58.7	35.4	6.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	132.4	81.9	51.4	59.8	33.5	58.7	35.4	6.7	
LOS	F	F	D	Е	C	Е	D	Α	
Approach Delay		99.7	51.4		38.6		12.7		
Approach LOS		F	D		D		В		
Intersection Summary									
Cycle Length: 150									
Actuated Cycle Length: 110)								
Natural Cycle: 100									
Control Type: Actuated-Und	coordinated	l							
Maximum v/c Ratio: 1.18									
Intersection Signal Delay: 5						n LOS: E			
Intersection Capacity Utiliza	ation 75.0%)		[(CU Level	of Service	e D		
Analysis Period (min) 15									
dl Defacto Left Lane. Rec	code with 1	though la	ane as a	eft lane.					
Splits and Phases: 13: C	hestnut Str	eet & Mis	sion Stre	<u>e</u> t					
	• 1 05triat 5tr 1 06	JOE & IVIIJ	51011 0110		Ø4			↑ ø	
▼ Ø2 26 s 42				37				45 s	13
12				١.					† ø8
				50	Ø7				1 1/2 8

Kimley-Horn Timings Synchro 9 Report Page 17

PM Peak

Santa Cruz DRP Study 13: Chestnut Street & Mission Street

	٠	→	←	4	†	\		1	
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR	
Protected Phases	6	6	2	3	8	7	4	6	
Permitted Phases								4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	42.0	42.0	26.0	45.0	32.0	50.0	37.0	42.0	
Total Split (%)	28.0%	28.0%	17.3%	30.0%	21.3%	33.3%	24.7%	28.0%	
Maximum Green (s)	38.0	38.0	22.0	41.0	28.0	46.0	33.0	38.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag				Lag	Lag	Lead	Lead		
Lead-Lag Optimize?				Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	None	None	None	None	None	None	None	
Walk Time (s)	5.0	5.0			5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0			0		0	0	
90th %ile Green (s)	38.0	38.0	22.0	14.3	36.2	11.1	33.0	38.0	
90th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Max	Max	
70th %ile Green (s)	38.0	38.0	22.0	11.9	35.5	9.4	33.0	38.0	
70th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Max	Max	
50th %ile Green (s)	38.0	38.0	22.0	10.4	32.2	8.2	30.0	38.0	
50th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Gap	Max	
30th %ile Green (s)	38.0	38.0	19.4	8.7	26.4	7.0	24.7	38.0	
30th %ile Term Code	Max	Max	Gap	Gap	Hold	Gap	Gap	Max	
10th %ile Green (s)	38.0	38.0	14.6	0.0	18.2	0.0	18.2	38.0	
10th %ile Term Code	Max	Max	Gap	Skip	Hold	Skip	Gap	Max	
Later and the Commence									

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 110

Control Type: Actuated-Uncoordinated 90th %ile Actuated Cycle: 123.3 70th %ile Actuated Cycle: 120.9 50th %ile Actuated Cycle: 116.4 30th %ile Actuated Cycle: 106.8 10th %ile Actuated Cycle: 82.8

	۶	→	•	←	•	4	†	<i>></i>	>	ļ	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻ	∱ }	٦	†	7	Ŋ	†	7	ሻ	†	7	
Traffic Volume (vph)	165	996	227	830	195	4	228	254	202	366	262	
Future Volume (vph)	165	996	227	830	195	4	228	254	202	366	262	
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Detector Phase	5	2	1	6	6	3	8	8	7	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	33.0	17.0	30.0	30.0	8.0	20.0	20.0	10.0	22.0	22.0	
Total Split (%)	25.0%	41.3%	21.3%	37.5%	37.5%	10.0%	25.0%	25.0%	12.5%	27.5%	27.5%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	Max	Max	None	Max	Max	None	None	None	None	None	None	
Act Effct Green (s)	16.0	29.4	12.7	26.0	26.0	4.0	14.1	14.1	6.0	22.6	22.6	
Actuated g/C Ratio	0.20	0.38	0.16	0.33	0.33	0.05	0.18	0.18	0.08	0.29	0.29	
v/c Ratio	0.49	0.82	0.85	1.44	0.33	0.04	0.73	0.56	1.65	0.73	0.44	
Control Delay	33.5	29.1	59.3	232.9	6.9	37.2	43.7	10.2	352.4	35.7	6.6	
Queue Delay	0.0	48.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	33.5	77.7	59.3	232.9	6.9	37.2	43.7	10.2	352.4	35.7	6.6	
LOS	С	Е	Е	F	Α	D	D	В	F	D	Α	
Approach Delay		71.6		166.2			26.1			103.7		
Approach LOS		Е		F			С			F		

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 78.2 Natural Cycle: 110

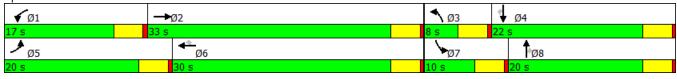
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.65

Intersection Signal Delay: 104.3 Intersection LOS: F Intersection Capacity Utilization 89.3% ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Front Street & Laurel Street



Synchro 9 Report Kimley-Horn Timings Page 1

Protected Phases 5 2 1 6 3 8 7 4		٠	→	•	←	•	•	†	<i>></i>	>	ţ	4	
Permitted Phases	Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Minimum Initial (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 40 40 40 40 40 40 4.0 4.0 4.0 4.0 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 <td>Protected Phases</td> <td>5</td> <td>2</td> <td>1</td> <td>6</td> <td></td> <td>3</td> <td>8</td> <td></td> <td>7</td> <td>4</td> <td></td> <td></td>	Protected Phases	5	2	1	6		3	8		7	4		
Minimum Split (s) 20.0 20.0 8.0 20.0 20.0 8.0 20.0 20.0 8.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0	Permitted Phases					6			8			4	
Total Split (s) 20.0 33.0 17.0 30.0 30.0 8.0 20.0 20.0 10.0 22.0 22.0 Total Split (%) 25.0% 41.3% 21.3% 37.5% 37.5% 10.0% 25.0% 12.5% 27.5% 27.5% Maximum Green (s) 16.0 29.0 13.0 26.0 26.0 4.0 16.0 16.0 18.0 18.0 Yellow Time (s) 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5	Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Total Split (%) 25.0% 41.3% 21.3% 37.5% 37.5% 10.0% 25.0% 25.0% 12.5% 27.5% 27.5% Maximum Green (s) 16.0 29.0 13.0 26.0 26.0 4.0 16.0 16.0 6.0 18.0 18.0 Yellow Time (s) 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5	Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Maximum Green (s) 16.0 29.0 13.0 26.0 26.0 4.0 16.0 16.0 6.0 18.0 18.0 Yellow Time (s) 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5	Total Split (s)	20.0	33.0	17.0	30.0	30.0	8.0	20.0	20.0	10.0	22.0	22.0	
Yellow Time (s) 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5	Total Split (%)	25.0%	41.3%	21.3%	37.5%	37.5%	10.0%	25.0%	25.0%	12.5%	27.5%	27.5%	
All-Red Time (s) 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Maximum Green (s)		29.0		26.0	26.0	4.0	16.0	16.0	6.0	18.0		
Lead/Lag Lead Lag Lag Lag Lead Lag	Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
Lead-Lag Optimize? Yes	All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Minimum Gap (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Time Before Reduce (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time To Reduce (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 6.0 1.0 1.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode Max Max None Max Mone None None None None None Walk Time (s) 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 6.0 2.0 10.0 16.0 6.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0	Time Before Reduce (s)												
Walk Time (s) 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 6.0 2.0 0.0 0.0 16.0 6.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 <td>Time To Reduce (s)</td> <td>0.0</td> <td></td>	Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Flash Dont Walk (s) 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 11.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Recall Mode			None			None	None		None	None	None	
Pedestrian Calls (#/hr) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 18.0 <td>Walk Time (s)</td> <td>5.0</td> <td></td> <td></td> <td>5.0</td> <td></td> <td></td> <td>5.0</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Walk Time (s)	5.0			5.0			5.0					
90th %ile Green (s) 16.0 29.0 13.0 26.0 26.0 4.0 16.0 16.0 6.0 18.0 18.0 90th %ile Term Code MaxR MaxR Max MaxR MaxR MaxR Max	Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
90th %ile Term Code MaxR MaxR Max MaxR Max	Pedestrian Calls (#/hr)										-	-	
70th %ile Green (s) 16.0 29.0 13.0 26.0 26.0 0.0 16.0 16.0 6.0 26.0 26.0 70th %ile Term Code MaxR MaxR MaxR MaxR Skip Max Max Hold Hold 50th %ile Green (s) 16.0 29.0 13.0 26.0 26.0 0.0 16.0 16.0 26.0 26.0 50th %ile Term Code MaxR Max MaxR MaxR Skip Max Max Hold Hold 30th %ile Term Code MaxR MaxR Max MaxR MaxR MaxR Skip Gap Gap Max Hold Hold	90th %ile Green (s)		29.0	13.0		26.0	4.0	16.0	16.0	6.0	18.0	18.0	
70th %ile Term Code MaxR Max Max MaxR Max MaxR Max MaxR Max Max Max Max Max Max Max Max Max Max Max Max Max Max													
50th %ile Green (s) 16.0 29.0 13.0 26.0 26.0 0.0 16.0 16.0 6.0 26.0 26.0 50th %ile Term Code MaxR MaxR MaxR MaxR Skip Max Max Hold Hold 30th %ile Green (s) 16.0 29.0 13.0 26.0 26.0 0.0 13.1 13.1 6.0 23.1 23.1 30th %ile Term Code MaxR MaxR MaxR MaxR Skip Gap Gap Max Hold Hold													
50th %ile Term Code MaxR Max Max MaxR Max Max MaxR Max Max Max Max Max Hold Hold 30th %ile Green (s) 16.0 29.0 13.0 26.0 26.0 0.0 13.1 13.1 6.0 23.1 23.1 30th %ile Term Code MaxR MaxR MaxR MaxR Skip Gap Gap Max Hold Hold		MaxR	MaxR	Max		MaxR	Skip	Max		Max			
30th %ile Green (s) 16.0 29.0 13.0 26.0 26.0 0.0 13.1 13.1 6.0 23.1 23.1 30th %ile Term Code MaxR MaxR MaxR MaxR MaxR Skip Gap Gap Max Hold Hold	50th %ile Green (s)	16.0	29.0	13.0	26.0	26.0	0.0	16.0	16.0	6.0	26.0		
30th %ile Term Code MaxR MaxR MaxR MaxR Skip Gap Gap Max Hold Hold													
						26.0							
10th 0 /tlo $Croon (a)$ 16.0 20.7 11.2 26.0 26.0 0.0 0.0 6.0 10.0 10.0							Skip						
	10th %ile Green (s)	16.0	30.7	11.3	26.0	26.0	0.0	9.8	9.8	6.0	19.8	19.8	
10th %ile Term Code MaxR Hold Gap MaxR MaxR Skip Gap Gap Max Hold Hold	10th %ile Term Code	MaxR	Hold	Gap	MaxR	MaxR	Skip	Gap	Gap	Max	Hold	Hold	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 78.2

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 80 70th %ile Actuated Cycle: 80 50th %ile Actuated Cycle: 80 30th %ile Actuated Cycle: 77.1 10th %ile Actuated Cycle: 73.8

Kimley-Horn Synchro 9 Report Phasings Page 2

	٠	-	•	←	•	†	\	ļ	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations	¥	4	ሻ	î÷	ሻ	f)		4	
Traffic Volume (vph)	162	1075	64	982	59	96	97	59	
Future Volume (vph)	162	1075	64	982	59	96	97	59	
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	
Protected Phases	5	2	1	6		8		4	
Permitted Phases					8		4		
Detector Phase	5	2	1	6	8	8	4	4	
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	40.0	20.0	40.0	20.0	20.0	20.0	20.0	
Total Split (%)	25.0%	50.0%	25.0%	50.0%	25.0%	25.0%	25.0%	25.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	
Act Effct Green (s)	12.8	42.5	8.4	36.1	16.0	16.0		16.0	
Actuated g/C Ratio	0.17	0.55	0.11	0.47	0.21	0.21		0.21	
v/c Ratio	0.64	1.16	0.36	1.32	0.31	0.39		0.87	
Control Delay	41.3	105.6	37.1	176.2	31.6	25.9		59.8	
Queue Delay	0.0	0.0	0.0	1.2	0.0	0.0		0.0	
Total Delay	41.3	105.6	37.1	177.3	31.6	25.9		59.8	
LOS	D	F	D	F	С	С		Е	
Approach Delay		97.5		169.4		27.6		59.8	
Approach LOS		F		F		С		Е	
Intersection Summary									
Overland and the OO									

Cycle Length: 80

Actuated Cycle Length: 76.9

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 118.5 Intersection LOS: F Intersection Capacity Utilization 99.6% ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 2: Pacific Avenue & Laurel Street



Synchro 9 Report Kimley-Horn Timings Page 3

	٦	→	•	+	•	<u></u>	/				
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT			
Protected Phases	5	2	1	6		8		4	_		
Permitted Phases					8		4				
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0			
Total Split (s)	20.0	40.0	20.0	40.0	20.0	20.0	20.0	20.0			
Total Split (%)	25.0%	50.0%	25.0%	50.0%	25.0%	25.0%	25.0%	25.0%			
Maximum Green (s)	16.0	36.0	16.0	36.0	16.0	16.0	16.0	16.0			
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5			
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5			
Lead/Lag	Lead	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Recall Mode	None	Max	None	Max	Max	Max	Max	Max			
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0			
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0			
90th %ile Green (s)	16.0	40.5	11.5	36.0	16.0	16.0	16.0	16.0			
90th %ile Term Code	Max	Hold	Gap	MaxR	MaxR	MaxR	MaxR	MaxR			
70th %ile Green (s)	15.9	42.2	9.7	36.0	16.0	16.0	16.0	16.0			
70th %ile Term Code	Gap	Hold	Gap	MaxR	MaxR	MaxR	MaxR	MaxR			
50th %ile Green (s)	13.4	41.1	8.3	36.0	16.0	16.0	16.0	16.0			
50th %ile Term Code	Gap	Hold	Gap	MaxR	MaxR	MaxR	MaxR	MaxR			
30th %ile Green (s)	11.1	40.0	7.1	36.0	16.0	16.0	16.0	16.0			
30th %ile Term Code	Gap	Hold	Gap	MaxR	MaxR	MaxR	MaxR	MaxR			
10th %ile Green (s)	8.1	48.1	0.0	36.0	16.0	16.0	16.0	16.0			
10th %ile Term Code	Gap	Hold	Skip	MaxR	MaxR	MaxR	MaxR	MaxR			
Intersection Summary											
Cycle Length: 80											
Actuated Cycle Length: 76.	9										
Control Type: Actuated-Und	coordinated										

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 80 70th %ile Actuated Cycle: 79.9 50th %ile Actuated Cycle: 77.4 30th %ile Actuated Cycle: 75.1 10th %ile Actuated Cycle: 72.1

Kimley-Horn Synchro 9 Report Phasings Page 4

	٠	•	4	†	ţ	
Lane Group	EBL	EBR	NBL	NBT	SBT	
Lane Configurations	ň	7	۲	†	∱ β	
Traffic Volume (vph)	193	111	116	569	805	
Future Volume (vph)	193	111	116	569	805	
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	5		3	8	4	
Permitted Phases		5				
Detector Phase	5	5	3	8	4	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	23.0	23.0	20.0	62.0	42.0	
Total Split (%)	27.1%	27.1%	23.5%	72.9%	49.4%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	Max	Max	Max	None	Max	
Act Effct Green (s)	19.0	19.0	16.0	58.0	38.0	
Actuated g/C Ratio	0.22	0.22	0.19	0.68	0.45	
v/c Ratio	0.53	0.29	0.39	0.50	0.79	
Control Delay	34.6	11.2	34.4	8.2	22.9	
Queue Delay	0.0	0.0	0.0	6.4	0.2	
Total Delay	34.6	11.2	34.4	14.5	23.1	
LOS	С	В	С	В	С	
Approach Delay	26.1			17.9	23.1	
Approach LOS	С			В	С	
Intersection Summary						
Cycle Length: 85						
Actuated Cycle Length: 85						
Natural Cycle: 70						
Control Type: Actuated-Unco	ordinated					
Maximum v/c Ratio: 0.79						
Intersection Signal Delay: 21	.8			Ir	ntersection	LOS: C
Intersection Capacity Utilizat	ion 59.5%)		10	CU Level of	f Service B
Analysis Period (min) 15						
Splits and Phases: 3: From	nt Street &	Cathcart	Street			
		√ ø3			↓ ø	4

Kimley-Horn Timings Synchro 9 Report Page 5

	•	•	•	†	ţ
Lane Group	EBL	EBR	NBL	NBT	SBT
Protected Phases	5		3	8	4
Permitted Phases	J	5	<u> </u>	<u> </u>	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0
Total Split (s)	23.0	23.0	20.0	62.0	42.0
Total Split (%)	27.1%	27.1%	23.5%	72.9%	49.4%
Maximum Green (s)	19.0	19.0	16.0	58.0	38.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0
Recall Mode	Max	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0
90th %ile Green (s)	19.0	19.0	16.0	58.0	38.0
90th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
70th %ile Green (s)	19.0	19.0	16.0	58.0	38.0
70th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
50th %ile Green (s)	19.0	19.0	16.0	58.0	38.0
50th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
30th %ile Green (s)	19.0	19.0	16.0	58.0	38.0
30th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
10th %ile Green (s)	19.0	19.0	16.0	58.0	38.0
10th %ile Term Code	MaxR	MaxR	MaxR	Hold	MaxR
Intersection Summary					
Cycle Length: 85					
Actuated Cycle Length: 85					
Control Type: Actuated-Unc	coordinated	d			
90th %ile Actuated Cycle: 8					
70th %ile Actuated Cycle: 8					
50th %ile Actuated Cycle: 8					
30th %ile Actuated Cycle: 8					
10th %ile Actuated Cycle: 8					
50th %ile Term Code 30th %ile Green (s) 30th %ile Green (s) 30th %ile Green (s) 10th %ile Green (s) 10th %ile Term Code Intersection Summary Cycle Length: 85 Actuated Cycle Length: 85 Control Type: Actuated-Unc 90th %ile Actuated Cycle: 8 70th %ile Actuated Cycle: 8 50th %ile Actuated Cycle: 8 30th %ile Actuated Cycle: 8	MaxR 19.0 MaxR 19.0 MaxR Coordinated	MaxR 19.0 MaxR 19.0 MaxR	MaxR 16.0 MaxR 16.0	Hold 58.0 Hold 58.0	Maxl 38. Maxl 38.

Kimley-Horn Synchro 9 Report Phasings Page 6

	۶	1	†	
Lane Group	EBL	NBL	NBT	SBT
Lane Configurations	¥	ሻ	†	†
Traffic Volume (vph)	14	14	661	783
Future Volume (vph)	14	14	661	783
Turn Type	Prot	Perm	NA	NA
Protected Phases	5		8	4
Permitted Phases		8		
Detector Phase	5	8	8	4
Switch Phase	Ţ.			•
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	20.0	40.0	40.0	40.0
Total Split (%)	33.3%	66.7%	66.7%	66.7%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
` /	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?	Maria	N 4	N 4	N.A
Recall Mode	None	Max	Max	Max
Act Effct Green (s)	7.0	54.2	54.2	54.2
Actuated g/C Ratio	0.12	0.90	0.90	0.90
v/c Ratio	0.27	0.05	0.42	0.52
Control Delay	21.2	2.6	2.9	3.8
Queue Delay	0.0	0.0	0.0	0.1
Total Delay	21.2	2.6	2.9	3.9
LOS	С	А	А	Α
Approach Delay	21.2		2.9	3.9
Approach LOS	С		А	А
Intersection Summary				
Cycle Length: 60				
Actuated Cycle Length: 60.3	3			
Natural Cycle: 60				
Control Type: Actuated-Unc	oordinated			
Maximum v/c Ratio: 0.52	ooramatoo			
Intersection Signal Delay: 3.	8			Ir
Intersection Capacity Utiliza				II IC
Analysis Period (min) 15	11011 JZ.Z/0			
Analysis Peliuu (IIIIII) 13				

Splits and Phases: 4: Front Street & Metro Station Access North



Synchro 9 Report Kimley-Horn Timings Page 7

	۶	1	†	
Lane Group	EBL	NBL	NBT	SBT
Protected Phases	5		8	4
Permitted Phases		8		
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	20.0	40.0	40.0	40.0
Total Split (%)	33.3%	66.7%	66.7%	66.7%
Maximum Green (s)	16.0	36.0	36.0	36.0
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0
Recall Mode	None	Max	Max	Max
Walk Time (s)	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0
90th %ile Green (s)	10.5	51.0	51.0	51.0
90th %ile Term Code	Gap	Dwell	Dwell	Dwell
70th %ile Green (s)	8.0	51.0	51.0	51.0
70th %ile Term Code	Gap	Dwell	Dwell	Dwell
50th %ile Green (s)	0.0	51.0	51.0	51.0
50th %ile Term Code	Skip	Dwell	Dwell	Dwell
30th %ile Green (s)	0.0	51.0	51.0	51.0
30th %ile Term Code	Skip	Dwell	Dwell	Dwell
10th %ile Green (s)	0.0	51.0	51.0	51.0
10th %ile Term Code	Skip	Dwell	Dwell	Dwell
Intersection Summary				
Cycle Length: 60	-			
Actuated Cycle Length: 60.3				
Control Type: Actuated-Unc				
90th %ile Actuated Cycle: 6				
70th %ile Actuated Cycle: 6				
50th %ile Actuated Cycle: 5				
30th %ile Actuated Cycle: 5				
10th %ile Actuated Cycle: 5	5			

Kimley-Horn Synchro 9 Report Phasings Page 8

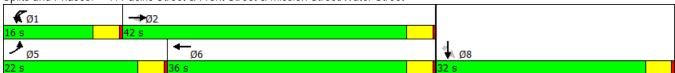
Santa Cruz DRP Study 7: Pacific Street & Front Street & Mission Street/Water Street

	•	-	74	•	←	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	SBT	SBR
Lane Configurations	ň	† †	Ž.	ሻ	∱ 1>	4	7
Traffic Volume (vph)	263	1133	165	166	893	371	221
Future Volume (vph)	263	1133	165	166	893	371	221
Turn Type	Prot	NA	Perm	Prot	NA	NA	Perm
Protected Phases	5	2		1	6	8	
Permitted Phases			2				8
Detector Phase	5	2	2	1	6	8	8
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	22.0	42.0	42.0	16.0	36.0	32.0	32.0
Total Split (%)	24.4%	46.7%	46.7%	17.8%	40.0%	35.6%	35.6%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	Max	Max	Max
Act Effct Green (s)	16.9	37.5	37.5	11.5	32.1	28.0	28.0
Actuated g/C Ratio	0.19	0.42	0.42	0.13	0.36	0.31	0.31
v/c Ratio	0.84	0.82	0.27	0.79	0.79	0.82	0.42
Control Delay	57.9	28.3	18.2	62.8	30.9	42.4	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	28.3	18.2	62.8	30.9	42.4	15.5
LOS	Е	С	В	Е	С	D	В
Approach Delay		32.2			35.7	33.4	
Approach LOS		С			D	С	
Intersection Summary							
Cycle Length: 90							
Actuated Cycle Length: 89							
Natural Cycle: 60							
Control Type: Actuated-Unco	ordinated						
Maximum v/c Ratio: 0.84							
Intersection Signal Delay: 33	.6			Ir	ntersectio	n LOS: C	
	70 (0)						_

Splits and Phases: 7: Pacific Street & Front Street & Mission Street/Water Street

Intersection Capacity Utilization 73.6%

Analysis Period (min) 15



ICU Level of Service D

Kimley-Horn Synchro 9 Report Timings Page 9

Santa Cruz DRP Study 7: Pacific Street & Front Street & Mission Street/Water Street

	۶	→		•	←		4
Lane Group	EBL	EBT	EBR	WBL	WBT	SBT	SBR
Protected Phases	5	2		1	6	8	
Permitted Phases			2				8
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	22.0	42.0	42.0	16.0	36.0	32.0	32.0
Total Split (%)	24.4%	46.7%	46.7%	17.8%	40.0%	35.6%	35.6%
Maximum Green (s)	18.0	38.0	38.0	12.0	32.0	28.0	28.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	Max	Max	Max
Walk Time (s)		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0	0
90th %ile Green (s)	18.0	38.0	38.0	12.0	32.0	28.0	28.0
90th %ile Term Code	Max	Max	Max	Max	MaxR	MaxR	MaxR
70th %ile Green (s)	18.0	38.0	38.0	12.0	32.0	28.0	28.0
70th %ile Term Code	Max	Max	Max	Max	MaxR	MaxR	MaxR
50th %ile Green (s)	18.0	38.0	38.0	12.0	32.0	28.0	28.0
50th %ile Term Code	Max	Max	Max	Max	MaxR	MaxR	MaxR
30th %ile Green (s)	17.5	38.0	38.0	12.0	32.5	28.0	28.0
30th %ile Term Code	Gap	Max	Max	Max	Hold	MaxR	MaxR
10th %ile Green (s)	13.2	35.7	35.7	9.5	32.0	28.0	28.0
10th %ile Term Code	Gap	Hold	Hold	Gap	MaxR	MaxR	MaxR
Intersection Summary							
Cycle Length: 90							
Actuated Cycle Length: 89							
Control Type: Actuated-Unco	oordinated						
90th %ile Actuated Cycle: 90							

70th %ile Actuated Cycle: 90 50th %ile Actuated Cycle: 90 30th %ile Actuated Cycle: 90 10th %ile Actuated Cycle: 85.2

Synchro 9 Report Kimley-Horn Page 10 Phasings

	-	•	←	•	•	†	>	↓				
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT				
Lane Configurations	4î∌	ሻ	4	7		4 1₽	ሻ	₽				
Traffic Volume (vph)	262	498	314	79	46	523	193	649				
Future Volume (vph)	262	498	314	79	46	523	193	649				
Turn Type	NA	Split	NA	Perm	Perm	NA	Perm	NA				
Protected Phases	2	. 6	6			8		4				
Permitted Phases				6	8		4					
Detector Phase	2	6	6	6	8	8	4	4				
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0				
Total Split (s)	20.0	29.0	29.0	29.0	51.0	51.0	51.0	51.0				
Total Split (%)												
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5				
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5				
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0				
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0				
Lead/Lag	Lag	Lead	Lead	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Recall Mode	None	Max	Max	Max	None	None	None	None				
Act Effct Green (s)	15.0	25.0	25.0	25.0		47.0	47.0	47.0				
Actuated g/C Ratio	0.15	0.25	0.25	0.25		0.47	0.47	0.47				
v/c Ratio	0.78	1.00	1.02	0.19		0.81	1.04	0.92				
Control Delay	50.2	82.3	86.3	12.3		27.5	105.3	42.4				
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0				
Total Delay	50.2	82.3	86.3	12.3		27.5	105.3	42.4				
LOS	D	F	F	В		С	F	D				
Approach Delay	50.2		77.9			27.5		55.7				
Approach LOS	D		Е			С		Е				
ntersection Summary												
Cycle Length: 100												
Actuated Cycle Length: 99												
Natural Cycle: 100												
Control Type: Actuated-Und	coordinated											
Maximum v/c Ratio: 1.04												
Intersection Signal Delay: 5					ntersectio							
Intersection Capacity Utiliza	ation 108.39	%		10	CU Level	of Service	e G					
Analysis Period (min) 15												
Splits and Phases: 8: Front Street & Soquel Avenue												
4					T.L.							

 \$\sqrt{\phi_{\text{0}}}\$
 \$\sqrt{\phi_{\text{0}}}\$
 \$\sqrt{\phi_{\text{0}}}\$

 29 s
 \$\sqrt{20 s}\$
 \$\sqrt{51 s}\$

 \$\sqrt{\phi_{\text{0}}}\$
 \$\sqrt{51 s}\$

Kimley-Horn Synchro 9 Report Timings Page 11

	→	•	←	•	•	†	>	ļ	
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	
Protected Phases	2	6	6			8		4	
Permitted Phases				6	8		4		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	20.0	29.0	29.0	29.0	51.0	51.0	51.0	51.0	
Total Split (%)	20.0%	29.0%	29.0%	29.0%	51.0%	51.0%	51.0%	51.0%	
Maximum Green (s)	16.0	25.0	25.0	25.0	47.0	47.0	47.0	47.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lag	Lead	Lead	Lead					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Max	Max	Max	None	None	None	None	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	
90th %ile Green (s)	16.0	25.0	25.0	25.0	47.0	47.0	47.0	47.0	
90th %ile Term Code	Max	MaxR	MaxR	MaxR	Max	Max	Max	Max	
70th %ile Green (s)	16.0	25.0	25.0	25.0	47.0	47.0	47.0	47.0	
70th %ile Term Code	Max	MaxR	MaxR	MaxR	Max	Max	Max	Max	
50th %ile Green (s)	16.0	25.0	25.0	25.0	47.0	47.0	47.0	47.0	
50th %ile Term Code	Max	MaxR	MaxR	MaxR	Hold	Hold	Max	Max	
30th %ile Green (s)	14.9	25.0	25.0	25.0	47.0	47.0	47.0	47.0	
30th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Max	Max	
10th %ile Green (s)	12.1	25.0	25.0	25.0	47.0	47.0	47.0	47.0	
10th %ile Term Code	Gap	MaxR	MaxR	MaxR	Hold	Hold	Max	Max	
Intersection Summary									
Cycle Length: 100		·	<u> </u>				<u> </u>	·	
Actuated Cycle Length: 99									
Control Type: Actuated Up	coordinated	ı							

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 100 70th %ile Actuated Cycle: 100 50th %ile Actuated Cycle: 100 30th %ile Actuated Cycle: 98.9 10th %ile Actuated Cycle: 96.1

Kimley-Horn Synchro 9 Report Phasings Page 12

	۶	-	•	←	•	4	†	<i>></i>	>	ļ	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻሻ	∱ Ъ	Ŋ	^	7	ħ	^	7	ሻ	^	7	
Traffic Volume (vph)	495	1578	168	1008	339	203	1359	96	522	1448	399	
Future Volume (vph)	495	1578	168	1008	339	203	1359	96	522	1448	399	
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	5	2	1	6		3	8		7	4		
Permitted Phases					6			8			4	
Detector Phase	5	2	1	6	6	3	8	8	7	4	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	16.0	47.0	12.0	43.0	43.0	13.0	36.0	36.0	25.0	48.0	48.0	
Total Split (%)	13.3%	39.2%	10.0%	35.8%	35.8%	10.8%	30.0%	30.0%	20.8%	40.0%	40.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min	None	Min	Min	None	Min	Min	None	Min	Min	
Act Effct Green (s)	12.0	43.0	8.0	39.0	39.0	9.0	32.0	32.0	21.0	44.0	44.0	
Actuated g/C Ratio	0.10	0.36	0.07	0.32	0.32	0.08	0.27	0.27	0.18	0.37	0.37	
v/c Ratio	1.57	1.49	1.52	0.94	0.53	1.64	1.55	0.20	1.82	1.19	0.63	
Control Delay	305.4	255.2	311.5	55.8	12.9	352.6	284.7	5.6	410.0	128.1	23.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	305.4	255.2	311.5	55.8	12.9	352.6	284.7	5.6	410.0	128.1	23.5	
LOS	F	F	F	Е	В	F	F	Α	F	F	С	
Approach Delay		266.3		74.6			276.9			172.5		
Approach LOS		F		Е			F			F		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 150

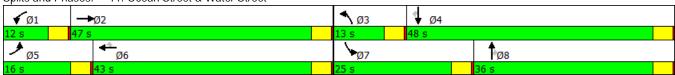
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.82

Intersection Signal Delay: 202.7
Intersection Capacity Utilization 137.9%

Analysis Period (min) 15

Splits and Phases: 11: Ocean Street & Water Street



Intersection LOS: F

ICU Level of Service H

Kimley-Horn Synchro 9 Report Timings Page 13

•	-	•	←	•	•	†	/	-	Ţ	4	
EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
5	2	1	6		3	8		7	4		
				6			8			4	
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	
16.0	47.0	12.0	43.0	43.0	13.0	36.0	36.0	25.0	48.0	48.0	
13.3%	39.2%		35.8%	35.8%	10.8%	30.0%	30.0%	20.8%	40.0%	40.0%	
12.0	43.0	8.0	39.0	39.0	9.0	32.0		21.0	44.0	44.0	
3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	
Lead	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	
					0.0						
None		None			None			None			
	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
	0		0	0		0	0		0	0	
12.0		8.0		39.0		32.0					
Max		Max		Max		Max					
Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	
12.0	43.0	8.0	39.0	39.0	9.0	32.0	32.0	21.0	44.0	44.0	
Max	Max	Max	Max	Max	Max	Max	Max	Max	Max		
12.0			39.0	39.0	9.0	32.0	32.0	21.0			
Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	
12.0	43.0	8.0	39.0	39.0	9.0	32.0	32.0	21.0	44.0	44.0	
Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	
	EBL 5 4.0 8.0 16.0 13.3% 12.0 3.5 0.5 Lead Yes 3.0 0.0 None 12.0 Max 12.0	EBL EBT 5 2 4.0 4.0 8.0 20.0 16.0 47.0 13.3% 39.2% 12.0 43.0 3.5 3.5 0.5 0.5 Lead Lag Yes Yes 3.0 3.0 0.0 0.0 0.0 0.0 None Min 5.0 11.0 0 12.0 43.0 Max Max	EBL EBT WBL 5 2 1 4.0 4.0 4.0 8.0 20.0 8.0 16.0 47.0 12.0 13.3% 39.2% 10.0% 12.0 43.0 8.0 3.5 3.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	EBL EBT WBL WBT 5 2 1 6 4.0 4.0 4.0 4.0 8.0 20.0 8.0 20.0 16.0 47.0 12.0 43.0 13.3% 39.2% 10.0% 35.8% 12.0 43.0 8.0 39.0 3.5 3.5 3.5 3.5 3.5 0.5 0.5 0.5 0.5 0.5 Lead Lag Lead Lag Yes Yes Yes Yes 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 None Min Min Min 5.0 5.0 5.0 11.0 0	EBL EBT WBL WBT WBR 5 2 1 6 4.0 4.0 4.0 4.0 8.0 20.0 8.0 20.0 20.0 16.0 47.0 12.0 43.0 43.0 13.3% 39.2% 10.0% 35.8% 35.8% 12.0 43.0 8.0 39.0 39.0 3.5 3.5 3.5 3.5 3.5 0.5 0.5 0.5 0.5 0.5 Lead Lag Lag Lag Lag Yes Yes Yes Yes Yes 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	EBL EBT WBL WBT WBR NBL 5 2 1 6 3 4.0 4.0 4.0 4.0 4.0 8.0 20.0 8.0 20.0 20.0 8.0 16.0 47.0 12.0 43.0 43.0 13.0 13.3% 39.2% 10.0% 35.8% 35.8% 10.8% 12.0 43.0 8.0 39.0 39.0 9.0 3.5 3.5 3.5 3.5 3.5 3.5 3.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 Lead Lag Lead Lag Lead Lag Lead Yes Yes Yes Yes Yes Yes Yes 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0	EBL EBT WBL WBT WBR NBL NBT 5 2 1 6 3 8 4.0 4.0 4.0 4.0 4.0 4.0 4.0 8.0 20.0 8.0 20.0 8.0 20.0 13.0 36.0 16.0 47.0 12.0 43.0 43.0 13.0 36.0 13.3% 39.2% 10.0% 35.8% 35.8% 10.8% 30.0% 12.0 43.0 8.0 39.0 39.0 9.0 32.0 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.	EBL EBT WBL WBT WBR NBL NBT NBR 5 2 1 6 3 8 4.0 4.0 4.0 4.0 4.0 4.0 4.0 8.0 20.0 20.0 20.0 8.0 20.0 20.0 16.0 47.0 12.0 43.0 43.0 13.0 36.0 36.0 13.3% 39.2% 10.0% 35.8% 35.8% 10.8% 30.0% 30.0% 12.0 43.0 8.0 39.0 39.0 9.0 32.0 32.0 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 Lead Lag Lead Lag Lead Lag Lag Yes Yes <td< td=""><td>EBL EBT WBL WBT WBR NBL NBT NBR SBL 5 2 1 6 3 8 7 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 8.0 20.0 8.0 20.0 20.0 8.0 20.0 20.0 8.0 16.0 47.0 12.0 43.0 43.0 13.0 36.0 36.0 25.0 13.3% 39.2% 10.0% 35.8% 35.8% 10.8% 30.0% 30.0% 20.8% 12.0 43.0 8.0 39.0 39.0 9.0 32.0 32.0 21.0 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5</td><td>EBL EBT WBL WBT WBR NBL NBT NBR SBL SBT 5 2 1 6 3 8 7 4 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 8.0 20.0 20.0 8.0 20.0 20.0 8.0 20.0 16.0 47.0 12.0 43.0 43.0 13.0 36.0 36.0 25.0 48.0 13.3% 39.2% 10.0% 35.8% 35.8% 10.8% 30.0% 30.0% 20.8% 40.0% 12.0 43.0 8.0 39.0 39.0 9.0 32.0 32.0 21.0 44.0 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5</td><td>EBL EBT WBL WBR NBL NBT NBR SBL SBT SBR 5 2 1 6 3 8 7 4 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0</td></td<>	EBL EBT WBL WBT WBR NBL NBT NBR SBL 5 2 1 6 3 8 7 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 8.0 20.0 8.0 20.0 20.0 8.0 20.0 20.0 8.0 16.0 47.0 12.0 43.0 43.0 13.0 36.0 36.0 25.0 13.3% 39.2% 10.0% 35.8% 35.8% 10.8% 30.0% 30.0% 20.8% 12.0 43.0 8.0 39.0 39.0 9.0 32.0 32.0 21.0 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5	EBL EBT WBL WBT WBR NBL NBT NBR SBL SBT 5 2 1 6 3 8 7 4 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 8.0 20.0 20.0 8.0 20.0 20.0 8.0 20.0 16.0 47.0 12.0 43.0 43.0 13.0 36.0 36.0 25.0 48.0 13.3% 39.2% 10.0% 35.8% 35.8% 10.8% 30.0% 30.0% 20.8% 40.0% 12.0 43.0 8.0 39.0 39.0 9.0 32.0 32.0 21.0 44.0 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5	EBL EBT WBL WBR NBL NBT NBR SBL SBT SBR 5 2 1 6 3 8 7 4 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 120 70th %ile Actuated Cycle: 120 50th %ile Actuated Cycle: 120 30th %ile Actuated Cycle: 120 10th %ile Actuated Cycle: 120

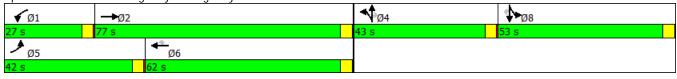
Synchro 9 Report Kimley-Horn Phasings Page 14

	•	→	•	←	•	•	†	<i>></i>	\	↓	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	Ť	ተተቡ	ሻሻ	ተተተ	7	ሻ	†	77	ሻሻ	†	7	
Traffic Volume (vph)	490	2350	561	1862	693	99	454	726	1109	545	571	
Future Volume (vph)	490	2350	561	1862	693	99	454	726	1109	545	571	
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm	
Protected Phases	5	2	1	6		4	4		8	8		
Permitted Phases					6			4			8	
Detector Phase	5	2	1	6	6	4	4	4	8	8	8	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	42.0	77.0	27.0	62.0	62.0	43.0	43.0	43.0	53.0	53.0	53.0	
Total Split (%)	21.0%	38.5%	13.5%	31.0%	31.0%	21.5%	21.5%	21.5%	26.5%	26.5%	26.5%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	Max	Max	Max	
Act Effct Green (s)	38.0	73.0	23.0	58.0	58.0	39.0	39.0	39.0	49.0	49.0	49.0	
Actuated g/C Ratio	0.19	0.36	0.12	0.29	0.29	0.20	0.20	0.20	0.24	0.24	0.24	
v/c Ratio	1.57	1.44	1.56	1.37	1.23	0.31	1.37	1.14	1.43	1.31	1.06	
Control Delay	318.0	246.5	314.4	221.8	157.3	71.9	239.3	131.7	251.0	209.4	92.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	318.0	246.5	314.4	221.8	157.3	71.9	239.3	131.7	251.0	209.4	92.3	
LOS	F	F	F	F	F	Е	F	F	F	F	F	
Approach Delay		258.5		224.1			165.2			200.1		
Approach LOS		F		F			F			F		
Intersection Summary												
Cycle Length: 200												
Actuated Cycle Length: 200												
Natural Cycle: 140												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 1.57												
Intersection Signal Delay: 221.1 Intersection LOS: F												

Intersection Signal Delay: 221.1 Intersection LOS: F
Intersection Capacity Utilization 132.2% ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 12: Highway 9 & Highway 1



Kimley-Horn Synchro 9 Report Timings Page 15

	۶	→	•	←	•	•	†	/	>	ļ	4	
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Protected Phases	5	2	1	6		4	4		8	8		
Permitted Phases					6			4			8	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	8.0	20.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	42.0	77.0	27.0	62.0	62.0	43.0	43.0	43.0	53.0	53.0	53.0	
Total Split (%)	21.0%	38.5%	13.5%	31.0%	31.0%	21.5%	21.5%	21.5%	26.5%	26.5%	26.5%	
Maximum Green (s)	38.0	73.0	23.0	58.0	58.0	39.0	39.0	39.0	49.0	49.0	49.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lead/Lag	Lead	Lag	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	Max	None	Max	Max	Max	Max	Max	Max	Max	Max	
Walk Time (s)		5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)		11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0	0	0	0	0	0	0	
90th %ile Green (s)	38.0	73.0	23.0	58.0	58.0	39.0	39.0	39.0	49.0	49.0	49.0	
90th %ile Term Code	Max	MaxR	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
70th %ile Green (s)	38.0	73.0	23.0	58.0	58.0	39.0	39.0	39.0	49.0	49.0	49.0	
70th %ile Term Code	Max	MaxR	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
50th %ile Green (s)	38.0	73.0	23.0	58.0	58.0	39.0	39.0	39.0	49.0	49.0	49.0	
50th %ile Term Code	Max	MaxR	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
30th %ile Green (s)	38.0	73.0	23.0	58.0	58.0	39.0	39.0	39.0	49.0	49.0	49.0	
30th %ile Term Code	Max	MaxR	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	
10th %ile Green (s)	38.0	73.0	23.0	58.0	58.0	39.0	39.0	39.0	49.0	49.0	49.0	
10th %ile Term Code	Max	MaxR	Max	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	MaxR	

Intersection Summary

Cycle Length: 200

Actuated Cycle Length: 200

Control Type: Actuated-Uncoordinated

90th %ile Actuated Cycle: 200 70th %ile Actuated Cycle: 200 50th %ile Actuated Cycle: 200 30th %ile Actuated Cycle: 200 10th %ile Actuated Cycle: 200

Kimley-Horn Synchro 9 Report Phasings Page 16

DI	M		D۵	מב	V
7	IV	ш	76	ea	ĸ

	۶	→	←	•	†	\	+	4	
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR	
Lane Configurations	۲	ፋ ገት	4T)	ሻ	∱ Ъ	ħ	† †	77	
Traffic Volume (vph)	2436	1060	849	138	332	71	497	1822	
Future Volume (vph)	2436	1060	849	138	332	71	497	1822	
Turn Type	Split	NA	NA	Prot	NA	Prot	NA	pm+ov	
Protected Phases	6	6	2	3	8	7	4	6	
Permitted Phases								4	
Detector Phase	6	6	2	3	8	7	4	4 6	
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	
Total Split (s)	53.0	53.0	26.0	44.0	32.0	39.0	27.0	53.0	
Total Split (%)	35.3%	35.3%	17.3%	29.3%	21.3%	26.0%	18.0%	35.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag				Lag	Lag	Lead	Lead		
Lead-Lag Optimize?				Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	None	None	
Act Effct Green (s)	49.1	49.1	22.0	15.8	28.1	10.7	23.0	76.1	
Actuated g/C Ratio	0.39	0.39	0.17	0.13	0.22	0.08	0.18	0.60	
v/c Ratio	2.09	2.00dl	1.74	0.67	0.52	0.50	0.82	1.04	
Control Delay	520.3	453.9	370.4	67.5	44.9	66.6	61.0	48.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	520.3	453.9	370.4	67.5	44.9	66.6	61.0	48.9	
LOS	F	F	F	Е	D	Е	Е	D	
Approach Delay		476.8	370.4		50.9		51.9		
Approach LOS		F	F		D		D		
Intersection Summary									

Cycle Length: 150

Actuated Cycle Length: 125.9

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

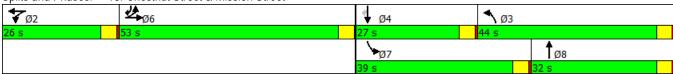
Maximum v/c Ratio: 2.09

Intersection Signal Delay: 296.3 Intersection LOS: F Intersection Capacity Utilization 129.8% ICU Level of Service H

Analysis Period (min) 15

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 13: Chestnut Street & Mission Street



Synchro 9 Report Kimley-Horn Timings Page 17

	۶	→	←	•	†	\	ļ	4
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Protected Phases	6	6	2	3	8	7	4	6
Permitted Phases								4
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	53.0	53.0	26.0	44.0	32.0	39.0	27.0	53.0
Total Split (%)	35.3%	35.3%	17.3%	29.3%	21.3%	26.0%	18.0%	35.3%
Maximum Green (s)	49.0	49.0	22.0	40.0	28.0	35.0	23.0	49.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag				Lag	Lag	Lead	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	None	None	None	None
Walk Time (s)	5.0	5.0			5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0			11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0			0		0	0
90th %ile Green (s)	49.0	49.0	22.0	21.8	29.9	14.9	23.0	49.0
90th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Max	Max
70th %ile Green (s)	49.0	49.0	22.0	18.1	28.7	12.4	23.0	49.0
70th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Max	Max
50th %ile Green (s)	49.0	49.0	22.0	15.8	28.1	10.7	23.0	49.0
50th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Max	Max
30th %ile Green (s)	49.0	49.0	22.0	13.5	27.4	9.1	23.0	49.0
30th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Max	Max
10th %ile Green (s)	49.0	49.0	22.0	10.2	26.3	6.9	23.0	49.0
10th %ile Term Code	Max	Max	Max	Gap	Hold	Gap	Max	Max

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 125.9 Control Type: Actuated-Uncoordinated 90th %ile Actuated Cycle: 131.8 70th %ile Actuated Cycle: 128.1 50th %ile Actuated Cycle: 125.8 30th %ile Actuated Cycle: 123.5

10th %ile Actuated Cycle: 120.2

Kimley-Horn Synchro 9 Report Phasings Page 18

FINAL ENVIRONMENTAL IMPACT REPORT

Downtown Plan Amendments



City of Santa Cruz

SCH NO: 2017022050

October 2017

FINAL ENVIRONMENTAL IMPACT REPORT

DOWNTOWN PLAN AMENDMENTS

SCH NO. 2017022050

PREPARED FOR

CITY OF SANTA CRUZ

Planning and Community Development Department

PREPARED BY

DUDEK

Santa Cruz, California

TABLE OF CONTENTS

1	INTE	RODUCTION	1-1
	1.1	Purpose of the EIR	1-1
	1.2	Project Overview	1-2
	1.3	Scope of the EIR	1-3
	1.4	Environmental Review and Approval Process	1-4
	1.5	Organization of EIR	1-7
2	SUN	IMARY	2-1
	2.1	Introduction	2-1
	2.2	Project Overview	2-1
	2.3	Areas of Controversy or Concern	2-1
	2.4	Summary of Alternatives	2-2
	2.5	Summary of Impacts and Mitigation Measures	2-3
	2.6	Issues to Be Resolved	2-10
3	CHA	NGES TO DRAFT EIR	3-1
	3.1	Introduction	3-1
	3.2	Changes to All Sections	3-1
	3.3	Changes to Sections 1 and 2 - Introduction and Summary	3-1
	3.4	Changes to Section 3 - Project Description	3-1
	3.5	Changes to Section 4.3- Biological Resources	3-2
	3.6	Changes to Section 4.5 - Hydrology and Water Quality	3-2
	3.7	Changes to Section 4.6 - Public Services	3-4
	3.8	Changes to Section 4.9 - Land Use	3-5
	3.9	Changes to Section 6 - References	3-7
4	PUB	LIC COMMENTS AND RESPONSES	
	4.1	Introduction	4.2-1
	4.2	List of Comment Letters Received	4.2-1
	4.3	Comment Letters and Responses	4.2-2
APPE	ENDIC	CES	
A.	Mitio	ation Monitoring and Reporting Program	
В.	_	ew of Project Consistency with California Coastal Act Policies	
TABL	ES		
4.9-1	REVI	SED – Potential Conflicts with City Of Santa Cruz Policies	3-8

INTENTIONALLY LEFT BLANK

CHAPTER 1 INTRODUCTION

1.1 PURPOSE OF THE EIR

This EIR has been prepared for the City of Santa Cruz (City), which is the lead agency for the project. This document, together with the Draft EIR dated July 2017, constitutes the Final EIR for the proposed Downtown Plan Amendments project. This EIR has been prepared in accordance with the California Environmental Quality Act (CEQA), which is found in the California Public Resources Code, Division 13, and with the State CEQA Guidelines, which are found in Title 14 of the California Code of Regulations, commencing with section 15000.

As stated in the CEQA Guidelines section 15002, the basic purposes of CEQA are to:

environmental effects of proposed activities.
Identify the ways that environmental damage can be avoided or significantly reduced.
Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
Disclose to the public the reasons a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Pursuant to State CEQA Guidelines section 15121, an EIR is an informational document which will inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. The public agency shall consider the information in the EIR along with other information which may be presented to the agency. While the information in the EIR does not control the ultimate decision about the project, the agency must consider the information in the EIR and respond to each significant effect identified in the EIR by making findings pursuant to Public Resources Code section 21081.

This EIR is being prepared as a "Program EIR" pursuant to section 15168 of the State CEQA Guidelines. A program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related geographically, by similar environmental effects, as logical parts in the chain of contemplated actions, or in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program. A program EIR can provide a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action and can ensure consideration of cumulative impacts. A program EIR can be used as part of the environmental review for later individual projects to be carried out pursuant to the project previously analyzed in the program EIR, where impacts have been adequately addressed in the program EIR. This is referred to as "tiering" as

set forth in section 15152 of the State CEQA Guidelines. "Tiering" uses the analysis of general matters contained in a broader EIR (such as one prepared for a general plan) with later EIRs and negative declarations on narrower projects, incorporating by reference the general discussions from the broader EIR and concentrating the later EIR or negative declaration solely on the issues specific to the later project. The State CEQA Guidelines encourage agencies to tier the environmental analyses which they prepare for separate but related projects, including general plans, zoning changes, and development projects.

For later individual projects proposed in the areas covered by the plans and amendments covered in this EIR, the City will determine whether the individual project or subsequent activity is within the scope of this Program EIR, meaning it is an activity within the same project as analyzed in the program EIR or within the same geographic area encompassed by the program EIR. Depending on the City's determination, including whether new effects could occur or new mitigation measures would be required, the analysis for later projects could range from no new CEQA document to a new EIR. The City potentially could apply one or more CEQA "streamlining" tools when it considers later projects, including, but not limited to the focused analytical routes offered under Public Resources Code sections 21155.2, 21083.3, and 21099, and CEQA Guidelines sections 15152, 15182, 15183, and 15183.3. If appropriate and applicable to a proposed project, the City may also consider one or more statutory or categorical exemptions.

Pursuant to CEQA (Public Resources Code section 21002), public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures which would substantially lessen the significant environmental effects of such projects. Pursuant to section 15021 of the State CEQA Guidelines, CEQA establishes a duty for public agencies to avoid or minimize environmental damage where feasible. In deciding whether changes in a project are feasible, an agency may consider specific economic, environmental, legal, social, and technological factors. According to the State CEQA Guidelines, "feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors. This section further indicates that CEQA recognizes that in determining whether and how a project should be approved, a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors, and an agency shall prepare a "statement of overriding considerations" as to reflect the ultimate balancing of competing public objectives when the agency decides to approve a project that will cause one or more significant effects on the environment. The environmental review process is further explained below in subsection 1.4.

1.2 PROJECT OVERVIEW

This Environmental Impact Report (EIR) addresses the potential environmental effects of a series of proposed amendments to the following adopted plans and regulations; a full description of all project components is provided in the Chapter 3.0, Project Description, of the Draft EIR.

	Α,	wntown Recovery Plan: Amendment to extend and modify the Additional Height Zone modify allowed heights in the Additional Height Zone B, modify development ndards set forth in Chapter 4, and other minor revisions;
		neral Plan 2030: Amendment to modify Floor Area Ratio for the Regional Visitor mmercial land use designation in the downtown area;
	Urk sta	cal Coastal Program (LCP): Amendment to Land Use Plan text to modify San Lorenzo can River Plan land use development policies and modification of development industrial incorporated by reference in the Central Business Zone District that is part of implementation Plan;
	Bus	ning Code sections: Amendment to Municipal Code Section 24.10, Part 24, Central siness District (CBD) of the Zoning Code, an implementation ordinance of the City's P, to modify extension area regulations and add standards for outdoor curb extension as.
1.3		SCOPE OF THE EIR
An Initial signification initial signification initial signification in the second sec	cant cant Stud cially QA	scope of the EIR tudy and Notice of Preparation were prepared for the project, which identify potentially impacts and discuss issues that were found to result in no impacts or less-than-impacts. (See Appendix A in the Draft EIR document.) Based on the analyses in the y and responses to the Notice of Preparation (as discussed below), the EIR evaluates significant impacts for the topics listed below. The EIR also evaluates topics required and CEQA Guidelines, including growth inducement, project alternatives, and impacts. The environmental analysis for this EIR includes:
An Initial signification initial signification initial signification in the second sec	cant cant Stud ially QA ative	tudy and Notice of Preparation were prepared for the project, which identify potentially impacts and discuss issues that were found to result in no impacts or less-than-impacts. (See Appendix A in the Draft EIR document.) Based on the analyses in the y and responses to the Notice of Preparation (as discussed below), the EIR evaluates significant impacts for the topics listed below. The EIR also evaluates topics required and CEQA Guidelines, including growth inducement, project alternatives, and
An Initial signification initial signification initial signification in the second sec	cant cant Stud ially QA ative	tudy and Notice of Preparation were prepared for the project, which identify potentially impacts and discuss issues that were found to result in no impacts or less-than-impacts. (See Appendix A in the Draft EIR document.) Based on the analyses in the y and responses to the Notice of Preparation (as discussed below), the EIR evaluates significant impacts for the topics listed below. The EIR also evaluates topics required and CEQA Guidelines, including growth inducement, project alternatives, and impacts. The environmental analysis for this EIR includes:
An Initial signification initial signification initial signification in the second sec	cant cant Stud ially QA ative	tudy and Notice of Preparation were prepared for the project, which identify potentially impacts and discuss issues that were found to result in no impacts or less-than-impacts. (See Appendix A in the Draft EIR document.) Based on the analyses in the y and responses to the Notice of Preparation (as discussed below), the EIR evaluates significant impacts for the topics listed below. The EIR also evaluates topics required and CEQA Guidelines, including growth inducement, project alternatives, and impacts. The environmental analysis for this EIR includes:
An Initial signification initial signification initial signification in the second sec	cant cant Stud ially QA ative	tudy and Notice of Preparation were prepared for the project, which identify potentially impacts and discuss issues that were found to result in no impacts or less-than-impacts. (See Appendix A in the Draft EIR document.) Based on the analyses in the y and responses to the Notice of Preparation (as discussed below), the EIR evaluates significant impacts for the topics listed below. The EIR also evaluates topics required and CEQA Guidelines, including growth inducement, project alternatives, and impacts. The environmental analysis for this EIR includes: Aesthetics Air Quality and Greenhouse Gas Emissions

The focus of the environmental review process is upon significant environmental effects. As defined in section 15382 of the CEQA Guidelines, a "significant effect on the environment" is:

Solid Waste, Electrical and Natural Gas Utilities)

Public Services (Fire and Police Protection Services, Parks and Recreation, Schools,

... a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water,

October 2017 1-3

□ Transportation and Traffic

■ Water and Wastewater Utilities ☐ Land Use – Plan and Policy Review minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether a physical change is significant.

In evaluating the significance of the environmental effect of a project, the State CEQA Guidelines require the lead agency to consider direct physical changes in the environment and reasonably foreseeable indirect physical changes in the environment which may be caused by the project (CEQA Guidelines section 15064[d]). A direct physical change in the environment is a physical change in the environment which is caused by and immediately related to the project. An indirect physical change in the environment which is not immediately related to the project, but which is caused indirectly by the project. An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project.

CEQA Guidelines section 15064(e) further indicates that economic and social changes resulting from a project shall not be treated as significant effects on the environment, although they may be used to determine that a physical change shall be regarded as a significant effect on the environment. In addition, where a reasonably foreseeable physical change is caused by economic or social effects of a project, the physical change may be regarded as a significant effect in the same manner as any other physical change resulting from the project.

1.4 ENVIRONMENTAL REVIEW AND APPROVAL PROCESS

1.4.1 Scoping

Under CEQA, the lead agency for a project is the public agency with primary responsibility for carrying out or approving the project, and for implementing the requirements of CEQA. CEQA Guidelines section 15083 authorizes and encourages an early consultation or scoping process to help identify the range of actions, alternatives, mitigation measures, and significant effects to be analyzed and considered in an EIR, and to help resolve the concerns of affected regulatory agencies, organizations, and the public. Scoping is designed to explore issues for environmental evaluation, ensuring that important considerations are not overlooked and uncovering concerns that might otherwise go unrecognized.

A Notice of Preparation (NOP) for this EIR was circulated for a 30-day comment period on February 14, 2017. The NOP, with an Initial Study as an attachment, was circulated to the State Clearinghouse and to local, regional, and federal agencies in accordance with State CEQA Guidelines. The NOP also was sent to organizations and interested citizens that have requested notification in the past for the proposal project or any project. A public scoping meeting also was held at a Planning Commission meeting on June 15, 2017.

Written comments were received from three public agencies (California Coastal Commission, Caltrans and FEMA), two organizations (Friends of San Lorenzo River Wildlife and Sierra Club), and five individuals (Candace Brown, Gillian Greensite, Debbie Hencke, Jane Mio, and Jack Nelson). These letters are included in Appendix B in the Draft EIR volume. Both the written comments and oral comments received at the scoping meeting have been taken into consideration in the preparation of this EIR for comments that address environmental issues. Comments received during the scoping period regarding environmental issues generally include the following concerns:

Aesthetics and impacts to the visual character of the surrounding area;
Biological impacts to San Lorenzo River habitat, including potential impacts to birds;
Flood hazards and effects of climate change and sea level rise;
Drainage and water quality impacts;
Traffic and parking impacts; and
Provision of public access and recreation along the river.

1.4.2 Public Review of Draft EIR

The Draft EIR was published and circulated for review and comment by the public and other interested parties, agencies, and organizations for a 45-day public review period from July 26, 2017 through September 8, 2017. Nineteen letters of comment were received; agencies, organizations and individuals that submitted written comments on the draft EIR are outlined below.

State & Local Agencies

- 1. California Coastal Commission
- 2. California State Clearinghouse
- 3. Monterey Bay Air Resources District

Organizations

- 4. Campaign for Sensible Transportation
- 5. Coastal Watershed Council
- 6. Santa Cruz Bird Club
- 7. Sierra Club, Santa Cruz Group

Individuals

- 8. Shawn Arnold
- 9. Candace Brown
- 10. Ted Burke
- 11. Will Cassilly

- 12. Tyler Derheim
- 13. Eric McGrew
- 14. Jane Mio
- 15. Salina Nevarez
- 16. Gary A. Patton
- 17. Reed Searle
- 18. Veronica Tonay
- 19. Russell Weisz

This Final EIR volume includes written responses to significant environmental issues raised in comments received during the public review period in accordance with CEQA Guidelines section 15088. The Final EIR also includes Draft EIR text changes and additions that became necessary after consideration of public comments. (See CEQA Guidelines, § 15088, subd. (c)).) The Final EIR, which includes the July 2017 Draft EIR, will be presented to the City the City Planning Commission and City Council. Before it can approve the project or any of the alternatives described in the Final EIR, the City Council must first certify that it has reviewed and considered the information in the EIR, that the EIR has been completed in conformity with the requirements of CEQA, and that the document reflects the City's independent judgment. (See CEQA Guidelines, § 15090, subd. (a).)

1.4.3 Final EIR / Project Approval

The Final EIR document, which includes both the Draft EIR and Final EIR documents, will be presented to the City Planning Commission for consideration of the proposed actions and recommendation to the City Council. The City Council will make the final decision on the proposed Downtown Plan amendments. The Planning Commission and the City Council must ultimately certify that it has reviewed and considered the information in the EIR, that the EIR has been completed in conformity with the requirements of CEQA, and that the document reflects the City's independent judgment.

Pursuant to sections 21002, 21002.1 and 21081 of CEQA and sections 15091 and 15093 of the CEQA Guidelines, no public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant effects unless both of the following occur:

- (a) The public agency makes one or more of the following findings with respect to each significant effect:
 - 1. Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects on the environment
 - Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by such other agency.

- 3. Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report.
- (b) With respect to significant effects which were subject to a finding under paragraph (3) of subdivision (a), the public agency finds that specific overriding economic, legal, social, technological, or other benefits of the project outweigh the significant effects on the environment.

Although these determinations (especially regarding feasibility) are made by the public agency's final decision-making body based on the entirety of the agency's administrative record as it exists after completion of a final EIR, the draft EIR must provide information regarding the significant effects of the proposed project and must identify the potentially feasible mitigation measures and alternatives to be considered by that decision-making body.

1.4.4 Adoption of Mitigation Monitoring & Reporting Program

CEQA requires that a program to monitor and report on mitigation measures be adopted by a lead agency as part of the project approval process. CEQA requires that such a program be adopted at the time the agency approves a project or determines to carry out a project for which an EIR has been prepared to ensure that mitigation measures identified in the EIR are implemented. The Mitigation Monitoring and Reporting Program is included in Appendix A of this document.

1.5 ORGANIZATION OF EIR

This document, together with the Draft EIR dated July 2017, constitutes the Final EIR for the project. This document contains responses to comments received on the Draft EIR. The Final EIR is organized with the following sections.

Chapter 1, Introduction , explains the CEQA process; describes the scope and purpose of this EIR; provides information on the environmental review and approval process; and outlines the organization of this Final EIR document.
Chapter 2, Summary , presents an overview of the project; provides a summary of the impacts of the project and mitigation measures; provides a summary of the alternatives being considered; includes a discussion of known areas of controversy; and lists the topics not carried forward for further analysis.
Chapter 3, Changes to Draft EIR, outlines revisions to the Draft EIR text as a result of review of comments and responses as may be needed. Additional clarification provided

October 2017 1-7

by City staff also is included.

Chapter 4, Public Comments and Responses , includes each comment letter with responses to comments immediately following the comment letter.
Appendices. A Mitigation Monitoring and Reporting Program is included in Appendix A Appendix B includes a review of project consistency with Coastal Act policies since the project will require approval of a Local Coastal Plan (LCP) amendment by the California Coastal Commission,

9711.0003 October 2017 1-8

CHAPTER 2 SUMMARY

2.1 INTRODUCTION

This chapter provides a brief description of the proposed project, known areas of controversy or concern, project alternatives, all potentially significant impacts identified during the course of this environmental analysis, and issues to be resolved. This summary is intended as an overview and should be used in conjunction with a thorough reading of the EIR. The text of this report, including figures, tables and appendices, serves as the basis for this summary.

2.2 PROJECT OVERVIEW

This Environmental Impact Report (EIR) addresses the potential environmental effects of construction of This Environmental Impact Report (EIR) addresses the potential environmental effects of a series of proposed amendments to the following adopted plans and regulations; a full description of all project components is provided in the Chapter 3.0, Project Description, of this EIR.

Downtown Recovery Plan: Amendment to extend <u>and modify</u> Additional Height Zone A, the Additional Height Zone B, and modify development standards <u>set forth in Chapter 4</u> , <u>and other minor revisions</u> ;
General Plan 2030: Amendment to modify Floor Area Ratio for the Regional Visitor Commercial land use designation in the downtown area;
Local Coastal Plan (LCP): Amendment to Land Use Plan text to modify San Lorenzo Urban River Plan land use development policies <u>and modification of development standards incorporated by reference in the Central Business Zone District that is part of the Implementation Plan;</u>
Zoning Code sections: Amendment to Municipal Code Section 24.10, Part 24, Central Business District (CBD) of the Zoning Code, an implementation ordinance of the City's LCP, to modify extension area regulations and add standards for outdoor curb extension

2.3 AREAS OF CONTROVERSY OR CONCERN

The City of Santa Cruz, as the Lead Agency, has identified areas of concern based on the Initial Study and Notice of Preparation (NOP), which are included in Appendix A. In response to the NOP, letters of comment were received from three agencies (California Coastal Commission, Caltrans and FEMA), two organizations (Friends of San Lorenzo River Wildlife and Sierra Club), and five individuals (Candace Brown, Gillian Greensite, Debbie Hencke, Jane Mio, and Jack

areas Parklet standards.

Nelson). An agency and public scoping also was held at the Planning Commission meeting on June 15, 2017 to receive public comments on the scope of the EIR's analyses and project alternatives. Both the written comments and oral comments received at the scoping meeting have been taken into consideration in the preparation of this EIR for comments that address environmental issues.

Written comments on the NOP, oral comments received at the scoping meeting, and comments on the Draft EIR raised the following environmental concerns, some of which may be areas of controversy:

<u>Concerns regarding future building heights and</u> aesthetics and impacts to the visual character of the surrounding area;
Biological impacts to San Lorenzo River habitat, including potential impacts to birds;
Flood hazards and effects of climate change and sea level rise;
Drainage and water quality impacts;
Traffic and parking impacts;
Impacts to parks;
Consistency with City policies and regulations; and
Provision of public access and recreation along the river.

2.4 SUMMARY OF ALTERNATIVES

CEQA Guidelines require that an EIR describe and evaluate alternatives to the project that could eliminate significant adverse project impacts or reduce them to a less-than-significant level. The following alternatives are evaluated in Section 5.5 of the Draft EIR.

No Project – Required by CEQA
Alternative 1 – Reduced Height for Expanded Additional Height Zone A to 75 feet and Elimination of Additional Height Zone B
Alternative 2 – Reduced Height for Additional Height Zone A to 75 feet along Pacific/Front and Reduced Height for Additional Height Zone B to 60 feet along the San Lorenzo River with Development Standard Modifications: eliminate encroachment over property line and require 10-foot setback above 50 feet

Table 5-5 in Section 5 of this EIR presents a comparison of project impacts between the proposed project and each alternative. None of the alternatives, including the No Project Alternative would <u>eliminate reduce</u> significant project impacts and cumulative impacts related to traffic to a <u>less-than-significant level</u>, although all alternatives would reduce the level of impact <u>somewhat</u>. Table 5-5 (on page <u>5-29 of the Draft EIR</u>) presents a comparison of project impacts between the proposed project and the alternatives. Excluding the No Project Alternative,

Alternative 1 – Reduced Height for Additional Height Zone A and Elimination of Additional Height Zone B – is considered the environmentally superior alternative of the alternatives considered. Although it would not reduce significant impacts to less-than-significant levels, it could result in the greatest reduction of traffic and water demand impacts and reduce some of the other identified significant impacts. However, it would not fully meet project objectives.

2.5 SUMMARY OF IMPACTS AND MITIGATION MEASURES

All impacts identified in the subsequent environmental analyses are summarized in this section. This summary groups impacts of similar ranking together, beginning with significant unavoidable impacts, followed by significant impacts that can be mitigated to a less-than-significant level, followed by impacts not found to be significant. The discussions in the Initial Study of impacts that are not being addressed in detail in the text of the Draft EIR are intended to satisfy the requirement of CEQA Guidelines section 15128 that an EIR "shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and therefore were not discussed in detail in the EIR." The Initial Study is included in Appendix A of this EIR. A summary of less-than-significant and no impacts identified in the Initial study is presented at the end of this section.

2.5.1 Significant Unavoidable Impacts

The following impacts were found to be potentially significant, and while mitigation measures have been identified in some cases, the impact cannot be reduced to a less-than-significant level. Section 5.5, Project Alternatives, examines alternatives to eliminate or reduce the level of significance of these impacts.

Cumulative Impacts

The proposed project will contribute to significant cumulative traffic impacts at six locations in the project vicinity and along state highways. Future development projects within the area of the proposed plan amendments will be required to pay the City's traffic impact fee. However, payment of the traffic impact fee and the associated improvements would not mitigate impacts to a less-than-significant level at three intersections: Ocean Street/Water Street, Highway 1/ Highway 9, and Chestnut Street/Mission Street. Improvements could be made to the other intersections to achieve an acceptable LOS of D.

MITIGATION 5-1:

Require future development projects within the downtown area to contribute fair-share payments for improvements at the following intersections: Front/Soquel (signal timing and lane modifications); Front/Laurel (westbound lane addition and north and south right-turn overlap); and Pacific/Laurel (southbound left-turn lane addition).

With implementation of Mitigation 5-1, significant cumulative impacts at three intersections would be mitigated, and the project's contribution would not be cumulatively considerable. Future development projects in the downtown area would be required to pay the City's traffic impact fees for improvements at the other three intersections, but planned improvements would not result in acceptable levels of service, and no other feasible improvements have been identified. Therefore, cumulative traffic impacts remain significant at three City intersections and along state highways. This is a significant <u>unavoidable</u> cumulative impact, and the project's contribution to cumulative traffic impacts would be cumulatively considerable at these locations.

2.5.2 Significant Impacts

The following impacts were found to be potentially significant, but could be reduced to a less-than-significant level with implementation of identified mitigation measures should the City's decision-makers impose the measures on the project at the time of final action on the project.

Impacts Evaluated in EIR

Biological Resources

- **Impact 4.3-2: Indirect Impacts to Sensitive Riparian Habitat.** Future development of taller buildings as a result of the proposed Downtown Plan amendments could result in indirect impacts to birds in the area that could lead to bird mortalities.
 - MITIGATION 4.3-2: Revise Downtown Plan to include standard for design guidance for bird-safe structures along the San Lorenzo River, including:
 - Minimize the overall amount of glass on building exteriors facing the San Lorenzo River.
 - Avoid mirrors and large areas of reflective glass.
 - Avoid transparent glass skyways, walkways, or entryways, free-standing glass walls, and transparent building corners.
 - Utilize glass/window treatments that create a visual signal or barrier to help alert birds to presence of glass. Avoid funneling open space to a building facade.
 - Strategically place landscaping to reduce reflection and views of foliage inside or through glass.
 - Avoid or minimize up-lighting and spotlights.
 - Turn non-emergency lighting off (such as by automatic shutoff), or shield it, at night to minimize light from buildings that is visible to birds, especially during bird

9711.0003

migration season (February-May and August-November).

Impact 4.3-3: Indirect Impacts to Nesting Birds. Future development as a result of the proposed Downtown Plan amendments could result in disturbance to nesting birds if any are present in the vicinity of construction sites along the San Lorenzo River.

MITIGATION 4.3-3: Require that a pre-construction nesting survey be conducted by a qualified wildlife biologist if construction, including tree removal, adjacent to the San Lorenzo River is scheduled to begin between March and late July to determine if nesting birds are in the vicinity of the construction sites. If nesting raptors or other nesting species protected under the MBTA are found, construction may need to be delayed until late-August or after the wildlife biologist has determined the nest is no longer in use or unless a suitable construction buffer zone can be identified by the biologist. (Citywide Creeks and Wetlands Management Plan Standard 12).

Public Services

Impact 4.6-1c: Schools. Adoption of the proposed plan amendments could indirectly result in increased population associated with potential development that would generate elementary school student enrollments that could exceed capacity of existing schools.

MITIGATION: No mitigation measures are required beyond Payment of school impact fees <u>pursuant to Government Code section 65996</u> will be collected at the time of issuance of a building permit. Section 65996, subdivision (d) specifies that payment of school impact fees "are hereby deemed to provide full and complete school facilities mitigation" under CEQA. Therefore, impacts of the plan amendments on school capacity are considered to be mitigated to a less-than-significant level through the payment of required impact fees.

Impact 4.6-2: Parks and Recreation. Adoption of the proposed plan amendments could indirectly result in increased population associated with potential development that could be accommodated by the Plan, which that would result in increased demand for parks and recreational facilities that could result in some deterioration of existing parks and recreational facilities.

MITIGATION: 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 4.6-2 and required payment of park fees, the proposed project's indirect impact on parks and recreational facilities would be considered less-than-significant.

Impacts Evaluated in Initial Study (Appendix A)

Noise

Noise-1: Exposure to Noise. Future development in the project area would be exposed to exterior and / or interior noise levels that exceed local and state requirements. However, the project area is not within locations that would expose people to noise in excess of established standards.

MITIGATION NOISE-1: Require preparation and implementation of acoustical studies for future residential development along Front Street to specify building design features that meet state interior sound levels.

2.5.3 Less-Than-Significant Impacts

The following impacts were found to be less-than-significant. Mitigation measures are not required.

- **Impact 4.1-1: Scenic Views.** Future development accommodated by the proposed plan amendments would not eliminate or substantially adversely affect, modify, or obstruct a visually prominent or significant public scenic vista.
- Impact 4.1-3: Visual Character of the Surrounding Area. The proposed project would result in amendments to the DRP and General Plan that would allow increased heights of 20 to 35 feet over existing allowable standards, and future development could result in taller and more massive buildings. With implementation of required development standards for massing, required percentage variation of heights, and upper-level skyline variation, future buildings would be of similar height and scale as the other taller buildings in the downtown area, which already contains several multi-story buildings of varied height, and would not substantially degrade the visual character of the surrounding area.
- Impact 4.1-4: Introduction of Light and Glare. The proposed project would result in amendments to the DRP and General Plan that would allow increased heights and building coverage, and future development would include exterior and interior lighting typical of residential developments, but would not result in introduction of a major new source of light or glare.

- Impact 4.2-1: Criteria Pollutant Emissions. Future development and growth accommodated by the proposed project would result in emissions of criteria pollutants, but would not exceed adopted thresholds of significance, violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- **Impact 4.2-2: Greenhouse Gas (GHG) Emissions.** Future development and growth accommodated by the proposed project would result in in GHG emissions, which are not considered significant.
- Impact 4.3-1: Indirect Impacts to Special Status Species and Aquatic Habitat. Future development of taller buildings as a result of the proposed Downtown Plan amendments could result in indirect to impacts to riparian and aquatic special status species due to increased shading due to increased building heights, but would not substantially affect habitats.
- Impact 4.4-1: Archaeological and Tribal Cultural Resources. Future development accommodated by the proposed plan amendments could result to impacts to archaeological, historical archaeological, human remains, and/or tribal cultural resources. However, City requirements for cultural resource investigations would ensure that future development projects assess and mitigate potential impacts.
- **Impact 4.4-2: Historic Resources.** Future development accommodated by the proposed plan amendments could result in impacts to historical resources, however, site-specific redevelopment could occur under existing conditions without the proposed plan amendments.
- **Impact 4.4-3:** Paleontological Resources. Future development accommodated by the proposed plan amendments could result to impacts to unknown paleontological resources discovered during construction. However, adherence to City procedures would not result in significant impacts.
- Impact 4.5-1: Stormwater Drainage. Future development accommodated by the proposed plan amendments could result in stormwater runoff, but would not substantially alter the existing drainage pattern of the area, substantially increase the rate or amount of surface runoff, exceed the capacity of existing or planned storm drain facilities, cause downstream or off-site drainage problems, or increase the risk or severity of flooding in downstream areas.
- **Impact 4.5-2:** Water Quality. Future development accommodated by the proposed plan amendments could result in water quality degradation to San Lorenzo River

from automobile oils and greases carried in stormwater runoff. Project grading could also result in erosion and potential downstream sedimentation if not properly managed.

- **Impact 4.5-3:** Flood Hazards. Future development accommodated by the proposed plan amendments could result in exposure to flood hazards, including watercourse flooding, sea level rise or tsunami. (5d-g). However, with compliance with federal flood requirements and implementation of City plans and programs, the proposed project would not lead to indirect impacts related to exposure to flood hazards.
- **Impact 4.6-1a: Fire Protection.** Adoption of the proposed plan amendments could indirectly result in increased population density associated with potential new development accommodated by the Plan that would result in increased fire protection and emergency service demands. Existing and future development and growth within the City would result in the need to construct new or expanded fire stations, however, the impacts of fire station construction or expansion are not expected to be significant.
- **Impact 4.6-1b: Police Protection.** Adoption of the proposed plan amendments 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 facilities.
- **Impact 4.6-3: Solid Waste.** Adoption of the proposed plan amendments could indirectly result in increased population associated with potential development that could be accommodated by the Plan, which could result in indirect generation of solid waste that could be accommodated within the remaining landfill capacity.
- **Impact 4.6-4: Energy Use.** Adoption of the proposed plan amendments could indirectly result in increased population associated with potential development that could be accommodated by the Plan, which could result in indirect increased energy demands, which would not be wasteful or an inefficient use of resources.
- **Impact 4.7-1:** Circulation System Impacts. The project will result in an increase in daily and peak hour trips, but would not cause existing or planned intersections to operate at an unacceptable Level of Service (LOS) or further degrade intersections that already operate at an unacceptable LOS.

- **Impact 4.7-2: Highway Segment Impacts.** The project will result in an increase in daily and peak hour trips, but would not result in a change to an unacceptable LOS along state highway segments.
- **Impact 4.8-1:** Water Supply. Adoption of the proposed plan amendments could indirectly result in intensified development with a demand for potable water in a system that, under existing conditions, has adequate supplies during average and normal years, but is subject to potential supply shortfalls during dry and critically dry years. The additional project demand would not result in a substantial increase during dry years and would not be of a magnitude to affect the level of curtailment that might be in effect.
- **Impact 4.8-2:** Wastewater Treatment. Adoption and implementation of the proposed plan amendments 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.

2.5.4 No Impacts

CEQA Guidelines section 15128 require that an EIR contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR. Through the Initial Study, NOP scoping process, and EIR, the City of Santa Cruz determined that the proposed project would have no impact on the environmental issues outlined below, and thus, are not further analyzed in the EIR. See the Initial Study in Appendix A for further discussion.

Impacts Evaluated in EIR

- **Impact 4.1-2: Scenic Resources.** Future development accommodated by the proposed plan amendments would not result in elimination or a substantial adverse effect to scenic resources.
- **Impact 4.7-3: Project Access.** The project will not result in creation of hazards due to design of the project circulation system or introduction of incompatible uses.
- **Impact 4,7-4: Emergency Access.** The project will not result in inadequate emergency access.
- **Impact 4.7-5: Transit, Pedestrian and Bicycle Travel.** The project will not conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Impact 4.9-1: Conflicts with Policies and Regulations. The proposed project will not conflict with policies or regulations adopted for the purpose of avoiding or mitigating an environmental effect, and therefore, will result in *no impact* related to consistency with local plans and policies.

Impacts Evaluated in Initial Study (Appendix A)

- Agricultural and Forest Resources
- Hazards and Hazardous Materials, except Wildland Fire Risk
- Mineral Resources
- Noise: Generation of Vibration, Location Within Airport Land Use Plan

2.6 ISSUES TO BE RESOLVED

CEQA Guidelines section 15123 requires the Summary to identify "issues to be resolved including the choice among alternatives and whether or how to mitigate the significant effects." This EIR has presented mitigation measures and project alternatives, and the City Planning Commission and City Council will consider the Final EIR when considering the proposed project. In considering whether to approve the project, the Planning Commission and City Council will take into consideration the environmental consequences of the project with mitigation measures and project alternatives, as well as other factors related to feasibility. "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors (CEQA Guidelines, § 15364). Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or already owns the alternative site). No one of these factors establishes a fixed limit on the scope of reasonable alternatives. The concept of feasibility also encompasses the question of whether a particular alternative or mitigation measure promotes the underlying goals and objectives of a project. Moreover, feasibility under CEQA encompasses "desirability" to the extent that desirability is based on a reasonable balancing of the relevant economic, environmental, social, legal, and technological factors.

CHAPTER 3 CHANGES TO DRAFT EIR

3.1 INTRODUCTION

This chapter provides a brief description of the proposed project, known areas of controversy or concern, project alternatives, all potentially significant impacts identified during the course of this environmental analysis, and issues to be resolved. This summary is intended as an overview and should be used in conjunction with a thorough reading of the EIR. The text of this report, including figures, tables and appendices, serves as the basis for this summary.

3.2 CHANGES TO ALL SECTIONS

Revise text throughout the document to:

- ☐ Change all references to the San Lorenzo Riverwalk to <u>Santa Cruz</u> Riverwalk, which was formally renamed by the Santa Cruz City Council; and
- Change other references to LCP from Local Coastal Plan to Local Coastal Program.

3.3 CHANGES TO SECTIONS 1 and 2 – INTRODUCTION and SUMMARY

Page 16 Correct the second sentence of the second paragraph under subsection 1.4.3 as follows:

The City Council will make the final decision on the proposed General Plan amendment, rezoning and permit applications Downtown Plan amendments.

Page 2-1 Revise Summary as shown in Chapter 2 of this document.

3.4 CHANGES TO SECTION 3 - PROJECT DESCRIPTION

Page 3-4 Revise the overview of project components as follows:

The proposed project consists of a series of amendments to the following adopted City plans and regulations:

☐ Downtown Recovery Plan: Amendment to extend <u>and modify</u> Additional Height Zone A, the Additional Height Zone B, and modify development standards <u>set forth in Chapter 4</u>, and other minor revisions;

- General Plan 2030: Amendment to modify Floor Area Ratio for the Regional Visitor Commercial land use designation in the downtown area;
 Local Coastal Plan (LCP): Amendment to Land Use Plan text to modify San Lorenzo Urban River Plan land use development policies and modification of development standards incorporated by reference in the Central Business Zone District that is part of the Implementation Plan;
 Zoning Code sections: Amendment to Municipal Code Section 24.10, Part 24, Central Business District (CBD) of the Zoning Code, an implementation ordinance of the City's LCP, to modify extension area regulations and add standards for outdoor curb extension areas Parklet standards.
- Page 3-4 Revise the fifth sentence of the last paragraph as follows:

Increasing densities in the downtown is consistent with the overarching objectives of the City to maintain a compact downtown with a dense urban core in exchange for retaining with a greenbelt around the City.

Page 3-12 Revise the second paragraph under the Local Coastal Program subsection to read:

Chapter 4 of the Downtown Recovery Plan is incorporated by reference in the CBD zone district, and the district is part of the implementation section of the LCP. Thus, revisions to the DRP Chapter 4 and CBD zone district require review and approval by the California Coastal Commission as part of an LCP amendment.

Page 3-13 In the Zoning Code Amendments subsection and subsequent sections, change reference to "parklets" to "outdoor curb extension areas".

3.5 CHANGES TO SECTION 4.3 – BIOLOGICAL RESOURCES

Page 4.3-21 Revise Mitigation Measure 4.3-2 as shown in Chapter 2, Summary, of this document.

3.6 CHANGES TO SECTION 4.5 – HYDROLOGY AND WATER QUALITY

Page 4.5-3 Add the following new text after the Stormwater Management Program section.

Integrated Pest Management Program. The City of Santa Cruz initiated its Integrated Pest Management (IPM) Program in November of 1998 after the City Council adopted Resolution No. NS-24,067, the Integrated Pest Management

Policy. This policy sets forth the following goals for all City Departments: Eliminate or reduce pesticide applications on City property to the maximum extent feasible; eliminate the application of all U.S. Environmental Protection Agency (EPA) Toxicity Category I and II pesticide products by 20001; and establish a Citywide IPM Program focusing on coordinated administration and public outreach and education. Any development of publicly owned land adjacent to the Riverwalk is required to follow the guidelines established by the City's IMP.

Page 4.5-9 Revise the last two paragraphs as follows

Portions of downtown and beach areas have been mapped as being within areas of sea level rise. As sea level continues to rise, seawater could extend farther upstream in the San Lorenzo River flood control channel more frequently, and rising gradually to higher elevations. This would lead to a rise in the water table beneath downtown. This area of the city has always been vulnerable to an elevated water table but this will become a more significant issue in the future as the water table rises, likely resulting in the need for more pumping and implementation of other adaptation strategies (Griggs, Haddad, January 2011). The Climate Change Vulnerability Study includes the following recommendation:

Recommendation 2. Install a series of ground water monitoring wells (piezometers) in the downtown area to continuously monitor the level of the water table, recording changes seasonally and over time in relation to the river levels.

The City's Climate Change Vulnerability Study indicates that flood risks will increase with sea level rise, and recommends that the City continue to work with the U.S. Army Corps of Engineers (USACE) regarding the ability/capacity of the levees to contain a 100-year flood. The study also provides a risk assessment that uses three different levels of "Magnitude": Low, Moderate and High, and four different levels of "Probability" or "Likelihood of Occurrence": Low, Moderate, High and Very High. This assessment ranks downtown flooding as a high magnitude/moderate probability occurrence to the year 2050 and a high magnitude/high probability occurrence between the years 2050 and 2100.

The City has continued working with the USACE regarding levee performance and capacity issues. In 2014, the USACE conducted a performance analysis for the San Lorenzo River levees, taking into account the existing and likely-future channel geometry, the latest flood-frequency data, river profile, sediment load, future flows and sea level rise (USACE, 2014). This assessment evaluated the existing and future safety of the levee system, and determined that the levees could safely pass the 1% flood (100-year flood). However, the evaluation concluded that sediment deposition near the upstream end of the levee project (between Water Street and Highway 1) may continue to decrease the capacity of the

channel, to the point that the 1% flood cannot be safely passed. The City has been working with the USACE to develop potential options for increasing flood capacity in this section of the river.

3.7 CHANGES TO SECTION 4.6 - PUBLIC SERVICES

Page 4.6-4 Expand Setting section for Parks and Recreation at the end of the fourth paragraph:

Additionally, the existing Downtown Recovery Plan identifies opportunities to improve connections to existing parkland. The plan envisions a riverfront park along the levee promenade between Soquel and Laurel Streets. The plan also calls for strengthening the linkage between the river and downtown along Cooper Street through the Galleria to the existing pedestrian bridge leading to San Lorenzo Park. It also recommends establishing stronger pedestrian linkages to the river at the northeast corner of Soquel Avenue and Front Street, at or near the extensions of Cathcart, Elm, and Maple streets, and leading to a significantly expanded pedestrian/bicycle bridge with retailing uses alongside, as well as a more active linkage to San Lorenzo Park.

Page 4.6-13 Add the following text before the last paragraph:

New development that may occur under the Downtown Plan will be located within a half-mile (the service radius for neighborhood-serving parks) to several existing neighborhood and community parks which will provide a variety of recreational opportunities to new residents. Some of the larger parks include San Lorenzo Park, Riverside Gardens Park, Mike Fox Park, Laurel Park, and Depot Park. Mimi De Marta Park is limited to off-leash dog use; however, it is located within close proximity to Mike Fox Park and Riverside Gardens Park and serves a specific role in a broader mix of available uses. Similarly, some of the parks are located along the Santa Cruz Riverwalk, including a multi-use trail along the San Lorenzo River, which, when considered together, form a larger park corridor that provides access to a wide range of natural and developed recreational areas.

Page 4.6-15 Add the following new text before the first paragraph:

Additionally, the existing Downtown Recovery Plan identifies opportunities to improve connections to existing parkland as described in section 4.6-1. The City's General Plan established a long-term goal to "strive" for 4.5 acres of neighborhood and community parkland per 1,000 residents. To help meet the goal, the General Plan includes an action to require park land dedications of suitable recreational land at a ratio or 4.5 acres/1,000 population generated by a development project, or payment of a corresponding in-lieu fees. The City's

Municipal Code requires new residential subdivisions to dedicate land, or pay an in-lieu fee, for parks and open space as authorized by the Quimby Act. Additionally, the City has adopted a Park and Recreation Facilities Tax on residential construction and fees are collected on various forms of residential development.

Page 4.6-15 Add the following new text after the first paragraph:

Park-In Lieu fees and Park and Recreation Facilities Tax revenues are placed into separate accounts from the General Fund and mitigate for the impact of growth. The fees are collected incrementally as development occurs which can help the Parks and Recreation Department pool a larger sum of money to be used for park improvements. The funds can be used to purchase parkland and/or rehabilitate existing facilities that will receive more use as a result of new development. Acquiring new parkland can be challenging but does occur. For example, Riverside Gardens Park was constructed in 2014 and is near downtown.

3.8 CHANGES TO SECTION 4.9 - LAND USE

Page 4.9-4 Add the following new section at the top of the page.

San Lorenzo Urban River Plan

The San Lorenzo Urban River Plan (SLURP) is the City's guide for restoring, managing, and maintaining natural resources, riverfront development, as well as recreation and public access improvements for the lower San Lorenzo River, Jessie Street Marsh and Branciforte Creek. (Branciforte Creek is not located within the coastal zone.) The SLURP 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. The San Lorenzo Urban River Plan provides an update to the 1987 San Lorenzo River Design Concept Plan and the 1989 San Lorenzo River Enhancement Plan.

The SLURP 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 recreational and public open space amenity. It contains recommendations for habitat enhancement, public access and trail improvements, public art, and community programs to guide river-oriented development. It seeks to guide the City of Santa Cruz in re-establishing and improving its management of and relationship to this major, recently expanded landscape feature over the next 20 years.

The SLURP includes conceptual plans for areas adjacent to the River. These conceptual plans are provided only to stimulate potential design ideas and are not required for particular properties in development applications. In general, the SLURP promotes river-oriented development to promote the river as an amenity. It contains conceptual ideas, as well as site-specific recommendations, for accomplishing the goals that guided the Plan's development.

The project area is located within the "Transitional Reach" of the San Lorenzo River in the SLURP. This reach includes the area from Laurel Street Bridge to the Water Street Bridge. Recommended improvements in the study area include:

- Front Street Plaza at Cathcart or Maple Lane: Construction river view plaza;
 add riverway makers, directional and interpretive and public art opportunities
- Mimi de Marta Park
- <u>Urban Interface Connections the goal of the urban interface connections in</u>
 the Transitional Reach is to provide features that connect downtown areas
 with the river via "green corridors" of trees and landscaping via Cathcart St
 and Maple Lane to the River.

The project area also is located along the "Front Street Riverfront Area" identified in the SLURP as a significant riverfront area that is a prime opportunity site to engage the community with the river with improved public access being a primary goal of the SLURP. Twelve existing specific recommendations for this area are included in the SLURP.

Page 4.9-4 Add the following new section after the *Zoning Code* subsection.

California Coastal Act

The proposed project includes amendments to the City's certified Local Coastal Plan (LCP) that will require California Coastal Commission approval. Chapter 4 of the Downtown Recovery Plan is incorporated by reference in the CBD zone district, and the district is part of the implementation section of the LCP. Thus, revisions to the DRP Chapter 4 require review and approval by the California Coastal Commission as part of an LCP amendment. In addition, several LCP policies related to the SLURP are proposed to be modified. In accordance with the comments from the California Coastal Commission staff, a review of project consistency with Coastal Act policies has been added, and is included in Appendix B of this document.

The review does not reveal any conflicts with Coastal Act policies. The proposed amendments would provide for new public access connections to the San

Lorenzo River. The proposed amendment does not change existing certified LCP land uses within the downtown area and do not affect oceanfront lands or marine waters. Future development resulting from the proposed amendments would not result in adverse impacts to biological, cultural or scenic resources and would be located within developed areas with adequate public services.

Page 4.9-9 Change table number to 4.9-1 and revise policy review as shown on the revised table at the end of this section.

3.9 CHANGES TO SECTION 6 - REFERENCES

Page 6-1 Add the following to the References section.

Borden, W.C., O.M. Lockhart, A.W. Jones, and M.S. Lyonn, 2010. "Seasonal, Taxonomic and Local Habitat Components of Bird-Window Collisions on an Urban Campus in Cleveland, OH." *Ohio Journal of Science* 110 (3):44-52.

Cusa, M., D.A. Jackson, and M. Mesure, 2015. "Window Collisions by Migratory Bird Species: Urban Geographical Patterns and Habitat Associations." *Urban Ecosystems*. doi:10.1007/s11252-015-0459-3) Abstract.

Hager S.B., B.J. Cosentino, K.J. McKay, C. Monso, W. Zuurdee, and B. Blevins. 2013. "Window Area and Development Drive Spatial Variation in Bird-Window Collisions in an Urban Landscape." *PLoS ONE* 8(1). Available online at: http://people.hws.edu/cosentino/publications-files/PLoS%20ONE%202013%20Hager.pdf.

Hager S.B., M.E. Craig. 2014. Bird-Window Collisions in the Summer Breeding Season. *PeerJ* 2:e460. https://dx.doi.org/10.7717/peerj.460.

Håstad, O., and A. Ödeen. 2014. "A Vision Physiological Estimation of Ultraviolet Window Marking Visibility to Birds." *PeerJ* 2:e621. DOI10.7717/peerj.621.

Kahle L.Q., M.E. Flannery, J.P Dumbacher. 2016 "Bird-Window Collisions at a West-Coast Urban Park Museum: Analyses of Bird Biology and Window Attributes from Golden Gate Park, San Francisco." *PLoS ONE* 11(1): e0144600. doi:10.1371/journal.pone.0144600.

Klem, D., Jr., and P.G. Saenger. 2013. "Evaluating the Effectiveness of Select Visual Signals to Prevent Bird-window Collisions." *Wilson Journal of Ornithology* 125(2):406–41. Available online at:

http://www.muhlenberg.edu/main/academics/biology/faculty/klem/aco/Birdwindow.html.

Martin, G.R. 2011. "Understanding Bird Collisions with Man-made Objects: A Sensory Ecology Approach." *Ibis* 153:239-54.

Martin, G.R. 2012. "Through Birds' Eyes: Insights into Avian Sensory Ecology." *Journal of Ornithology* 153 (Issue 1 Supplement): 23-48.

Pelley, J., 2014. "Campus Windows Save Birds, Energy." *Frontiers in Ecology and the Environment* 12: 372–375. http://dx.doi.org/10.1890/1540-9295-12.7.372.

Sabo, A.M., N.D.G. Hagemayer, A.S. Lahey, and E.L. Walters. 2016. "Local Avian Density Influences Risk of Mortality from Window Strikes." *PeerJ* 4:e2170. DOI 10.7717/peerj.2170.

Switala Elmhurst, K., and K. Grady, 2017. "Fauna Protection in a Sustainable University Campus: Bird-Window Collision Mitigation Strategies at Temple University." Pp. 69–82 in *Handbook of Theory and Practice of Sustainable Development in Higher Education*, Vol 1. Ed. W.L. Filho, L. Brandli, P. Castro, and J. Newman. Springer International Publishing. Available online at: https://sustainability.temple.edu/sites/sustainability/files/uploads/documents/4 28356 1 En 5 Chapter OnlinePDF.pdf.

U.S. Army Corps of Engineers, San Francisco District. May 2014. "San Lorenzo River Project Performance Evaluation FINAL."

Wittig, Thomas, 2016. "New Perspectives on Bird-Window Collision: The Effects of Species Traits and Local Abundance on Collision Susceptibility." Duke University Master's Thesis. Available online at: http://dukespace.lib.duke.edu/dspace/handle/10161/11898.

Zink, R.M., and J. Eckles. 2010. "Twin Cities Bird-Building Collisions: A Status Update on 'Project Birdsafe'." *The Loon* 82(1):34–37.

 TABLE 4.9-1: Potential Project Conflicts with City of Santa Cruz General Plan Policies

[POLICIES RELATED TO MITIGATING ENVIRONMENTAL IMPACTS]

Element	Policy Number	Policy	Potential Conflict				
General Plan 2030	General Plan 2030						
COMMUNITY DESIGN	CD1.2	Ensure that the scale, bulk and setbacks of new development preserve important public scenic views and vistas.	NO CONFLICT: Future development would not impact public scenic views.				
	CD3.2	Ensure that the scale, bulk and setbacks of new development preserve public views of city landmarks where possible.	NO CONFLICT: Future development would not affect public views or City landmarks as none exist in the vicinity of the project.				
LAND USE	LU1.3	Ensure that facilities and services required by a development are available, proportionate, and appropriate to development densities and use intensities.	NO CONFLICT: Public services are available.				
MOBILITY	M3.1.3	Strive to maintain the established "level of service" D or better at signalized intersections.	NO CONFLICT: Project traffic would not result in a decrease in level of service below D at any signalized intersection.				
	M3.3.4	Mitigate safety, noise, and air quality impacts from roadways on adjacent land uses through setbacks, landscaping, and other measures.	NO CONFLICT WITH MITIGATION: No significant air emission impacts were identified. Inclusion of structural design features to attenuate exterior noise levels is a requirement in the Zoning Code required mitigation measure for future development.				
CIVIC AND COMMUNITY FACILITIES	CC5.1.8	Require new development to maintain predevelopment runoff levels.	NO CONFLICT: Future development accommodated by the proposed Plan amendments will be required to comply with the City's stormwater requirements and regulations.				
	CC5.1.9	Reduce stormwater pollution.	NO CONFLICT: Future development would be in compliance with City requirements.				
HAZARDS, SAFETY AND NOISE	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."	NO CONFLICT: No significant air emission impacts were identified, and no mitigation is required.				

Downtown Plan Amendments 9711.0003

 TABLE 4.9-1: Potential Project Conflicts with City of Santa Cruz General Plan Policies

[POLICIES RELATED TO MITIGATING ENVIRONMENTAL IMPACTS]

Element	Policy Number	Policy	Potential Conflict		
	HZ3.1.1	Require land uses to operate at noise levels that do not significantly increase surrounding ambient noise.	NO CONFLICT: No significant impacts were identified related to project increases in ambient noise levels.		
	HZ3.1.6	Require evaluation of noise mitigation measures for projects that would substantially increase noise.	NO CONFLICT WITH MITIGATION: Inclusion of structural design features in future development to attenuate exterior noise levels is a required mitigation measure.		
PARKS, RECREATION,	PR1.3.1	Ensure that adequate park land is provided in conjunction with new development.	NO CONFLICT: Future projects will be required to pay park dedication fee.		
AND OPEN SPACE	PR4.2.3	Require development projects located along planned trail routes to dedicate trails or trail easements.	NO CONFLICT: Proposed Downtown Plan amendments require dedication of land adjacent to the Maple Street alley between Pacific and Front, and the proposed plan amendments require development and maintenance of the publicly accessible open space connections access along Cathcart, Maple and Elm Street extensions to the Riverwalk. The intent of the policy is achieved in a superior manner than a direct dedication with required private maintenance and private liability for these accessways to the Riverwalk.		
NATURAL RESOURCES AND	NRC1.2.1	Evaluate new uses for potential impacts to watershed, riverine, stream, and riparian environments.	NO CONFLICT WITH MITIGATION: Potential indirect significant impacts to birds as a result of future construction of taller buildings can be mitigated to a less-than-significant level by		
CONSERVATION	NRC2.1.3	Evaluate development for impacts to special-status plant and animal species.	NO CONFLICT: No potentially significant impacts to special status plant or wildlife species were identified.		
LCP Land Use Plan					
ENVIRONMENTAL QUALITY	4.2.2.1	Require that all development within 100 feet of these areas be consistent with the applicable management plan provisions under EQ 4.2.1 and L 3.4, if one has been established.	NO CONFLICT: Future development would be consistent with the applicable management plans for San Lorenzo River-the Citywide Creeks and Wetlands Management Plan and the San Lorenzo Urban River Plan.		

Downtown Plan Amendments 9711.0003

 TABLE 4.9-1: Potential Project Conflicts with City of Santa Cruz General Plan Policies

[POLICIES RELATED TO MITIGATING ENVIRONMENTAL IMPACTS]

Element	Policy Number	Policy	Potential Conflict
	4.2.5	Protect and minimize the impact of development on bird, fish and wildlife habitat in and adjacent to waterways.	NO CONFLICT WITH MITIGATION: The proposed project with implementation of mitigation would prevent and minimize potential impacts to birds along the San Lorenzo River.
	4.5	Continue the protection of rare, endangered, sensitive and limited species and the habitats supporting them as shown in Map EQ-9 or as identified through the planning process or as designated as part of the environmental review process. (See Map EQ-9)	NO CONFLICT WITH MITIGATION: Potential impacts are evaluated in the EIR.
COMMUNITY DESIGN	2.2	Preserve important public views and viewsheds by ensuring that the scale, bulk and setback of new development does not impede or disrupt them.	NO CONFLICT: Future development would not impact public scenic views.

Downtown Plan Amendments 9711.0003

INTENTIONALLY LEFT BLANK

CHAPTER 4 COMMENTS AND RESPONSES

4.1 INTRODUCTION

This chapter provides responses to individual comments that were submitted by agencies, organizations, and individuals as summarized below in subsection 4.2. Each letter of comment is included in subsection 4.3; a response to each comment is provided immediately following each letter. Appropriate changes that have been made to the Draft EIR text based on these comments and responses are provided in Chapter 3, Changes to Draft EIR.

State CEQA Guidelines section 15088(a) requires a lead agency to evaluate comments on environmental issues and provide written responses. Section 15204(a) provides guidance on the focus of review of EIRs as follows:

In reviewing draft EIRs, persons and public agencies should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated. Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate the significant environmental effects. At the same time, reviewers should be aware that the adequacy of an EIR is determined in terms of what is reasonably feasible, in light of factors such as the magnitude of the project at issue, the severity of its likely environmental impacts, and the geographic scope of the project. CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commenters. When responding to comments, lead agencies need only respond to significant environmental issues and do not need to provide all information requested by reviewers, as long as a good faith effort at full disclosure is made in the FIR.

In reviewing comments and providing responses on the following pages, this section of the CEQA Guidelines will be considered. The focus will be on providing responses to significant environmental issues.

4.2 LIST OF COMMENT LETTERS RECEIVED

The Draft EIR was published and circulated for review and comment by the public and other interested parties, agencies, and organizations for a 45-day public review period from July 26, 2017 through September 8, 2017. Nineteen comment letters were received; agencies, organizations and individuals that submitted written comments on the draft EIR are listed below.

State & Local Agencies

- 1. California Coastal Commission
- 2. California State Clearinghouse
- 3. Monterey Bay Air Resources District

Organizations

- 4. Campaign for Sensible Transportation
- 5. Coastal Watershed Council
- 6. Santa Cruz Bird Club
- 7. Sierra Club, Santa Cruz Group

Individuals

- 8. Shawn Arnold
- 9. Candace Brown
- 10. Ted Burke
- 11. Will Cassilly
- 12. Tyler Derheim
- 13. Eric McGraw
- 14. Jane Mio
- 15. Salina Nevarez
- 16. Gary A. Patton
- 17. Reed Searle
- 18. Veronica Tonay
- 19. Russell Weisz

4.3 COMMENT LETTERS AND RESPONSES

Agencies, organizations, and individuals that submitted written comments on the Draft EIR are outlined above in section 4.2. Each comment letter is included in this section. As indicated above, CEQA Guidelines section 15088(a) requires a lead agency to evaluate comments on environmental issues and provide a written response to all substantive comments. A response to each comment is provided immediately following each letter. As indicated in subsection 4.1 above, the emphasis of the responses will be on significant environmental issues raised by the commenters. (CEQA Guidelines, § 15204, subd. (a).) Appropriate changes that have been made to the Draft EIR (DEIR) text based on these comments and responses are provided in the Chapter 3, Changes to Draft EIR.

Downtown Plan Amendments Final EIR



CALIFORNIA COASTAL COMMISSION

CENTRAL COAST DISTRICT OFFICE 725 FRONT STREET, SUITE 300 SANTA CRUZ, CA 95060 PHONE: (831) 427-4863 FAX: (831) 427-4877 WEB: WWW.COASTAL.CA.GOV



August 28, 2017

Ron Powers City of Santa Cruz Planning and Community Development Department 809 Center Street, Room 206 Santa Cruz, CA 95060

Subject:

Draft Environmental Impact Report: Downtown Recovery Plan, General

Plan and Local Coastal Program Amendments

Dear Ron:

Thank you for the opportunity to provide written comments on the Draft Environmental Impact Report (DEIR) for the Downtown Recovery Plan (DRP), General Plan and Local Coastal Program (LCP) amendments project. We would like to take this opportunity to again reiterate our shared goal with the City to provide better pedestrian access connections between the City's downtown area and the San Lorenzo Riverwalk, and to improve the Riverwalk as a public access and recreation focal point for the City's downtown and Beach areas. We continue to believe that the Riverwalk is an extremely under-utilized public access and recreation feature of the City, and strongly support an improved user experience for the Riverwalk. We also appreciate the City's effort to incorporate our prior comments on the Notice of Preparation (which are attached hereto and hereby incorporated by reference), including with respect to the DEIR's project objectives. The purpose of this letter is to provide more focused comments on the project in order to facilitate the Commission's review of the proposed changes to the certified LCP.

Local Coastal Program Amendment

The DEIR correctly identifies that several of the proposed amendments include changes to the City's certified LCP, and will therefore require Commission approval of an LCP amendment. In fact, the proposed amendments include both Land Use Plan (LUP) Policy changes, including to the San Lorenzo Urban River Plan (SLURP), as well as Implementation Plan (IP) standards, including the Central Business District Zone standards. The standard of review for LUP amendments is that they must be consistent with and adequate to carry out the Chapter 3 policies of the Coastal Act; and the standard of review for IP amendments is that they must be consistent with and adequate to carry out the policies of the certified LUP. As a practical matter, this means that these proposed changes will require review and approval by the Coastal Commission. Under, *Banning Ranch Conservancy v. City of Newport Beach* (2017) 2 Cal.5th 918, the EIR is therefore required to expressly disclose, consider and analyze the jurisdictional claims and regulatory opinions of the Commission.

Heights and Land Use/Zoning Designations along the Riverwalk

As our previous comments have indicated, our main area of concern for this project/LCP Amendment relates to the public access and recreational user experience along the San Lorenzo

Ron Powers Downtown Recovery Plan Amendments - DEIR August 28, 2017 Page 2

Riverwalk, particularly between Elm Street and Laurel Street. We continue to have concerns regarding how the proposed new height standards and land use/zoning designations will affect the public access and recreation user experience along this stretch of the Riverwalk.

With regard to the proposed height standards, we appreciate that the DEIR included visual simulations. We believe that these simulations show that the proposed maximum new building heights would very much tower over the Riverwalk and potentially negatively impact the user experience in terms of public views and aesthetics. We would therefore continue to encourage the City to consider a reasonable range of lower height alternatives, including the alternative of retaining the existing height standards along this specific stretch of the Riverwalk.

- Another one of our central concerns is the fact that the land use designation and zoning appear to authorize residential use in the first stories of the buildings adjacent to the Riverwalk. This is reflected both in the proposed changes to the Downtown Recovery Plan (see, e.g. DRP amendments, Table 4-2; DEIR Figure 3-5.) As we stated in our comments on the NOP, the Coastal Act and LCP prioritize visitor serving and coastal recreational uses over residential uses. The CEQA document should therefore evaluate designating the ground floor adjacent to the Riverwalk with visitor serving and coastal recreational uses (e.g. restaurants with outdoor seating, bike/kayak rental, etc.) Moreover, to the extent that such uses may be seen as infeasible along the entire stretch, the DEIR should include an analysis of the broadest array of incentives (e.g. reduced parking requirements, density bonuses for residential use on upper floors, etc.) to encourage these types of uses.
- Finally, with respect to Figure 3-5, we continue to have concerns regarding the use of the public right-of-way along the Riverwalk (and the associated fill area) for private residential use. Figure 3-5 depicts that this area may be used for private residential use if the property owner "obtain[s] [an] extension license from the City." We would again reiterate that for the portion of the property located in the Coastal Zone, we believe that the entire public space between the Riverwalk and the proposed buildings along Front Street should be fully utilized for public purposes, including maximization of public access and recreation, and that the first floors of these buildings should be reserved for visitor-serving commercial uses, including outdoor restaurant seating or other similar uses.

Thank you for your consideration of these comments.

Ryan Moroney

District Supervisor

Central Coast District Office

Enclosure: NOP Letter

CALIFORNIA COASTAL COMMISSION

CENTRAL COAST DISTRICT OFFICE 725 FRONT STREET, SUITE 300 SANTA CRUZ, CA 95060 PHONE: (831) 427-4863 FAX: (831) 427-4877 WEB: WWW.COASTAL.CA.GOV



March 2, 2017

Ron Powers
City of Santa Cruz Planning and Community Development Department
809 Center Street, Room 206
Santa Cruz, CA 95060

Subject:

Notice of Preparation of EIR: Downtown Recovery Plan, General Plan and

Local Coastal Plan Amendments

Dear Ron:

Thank you for the opportunity to provide written comments on the Notice of Preparation (NOP) for the Downtown Recovery Plan (DRP), General Plan and Local Coastal Program (LCP) amendments project. As a preliminary matter, we would like to acknowledge our shared goal with the City to provide better pedestrian access connections between the City's downtown area and the San Lorenzo Riverwalk, and to improve the Riverwalk as a public access and recreation focal point for the City's downtown area. We believe that the Riverwalk is an extremely under-utilized public access and recreation feature of the City, and strongly support improved user experience for this area. The purpose of this letter is to help the City realize these goals by facilitating the Commission's review of the proposed changes to the certified LCP.

Local Coastal Program Amendment

The NOP correctly notes that several of the proposed amendments include changes to the City's certified LCP, and will therefore require Commission approval of an LCP amendment. In fact, the proposed amendments include both Land Use Plan (LUP) Policy changes, including to the San Lorenzo Urban River Plan (SLURP), as well as Implementation Plan (IP) standards, including the Central Business District Zone standards. The standard of review for LUP amendments is that they must be consistent with and adequate to carry out the Chapter 3 policies of the Coastal Act; and the standard of review for IP amendments is that they must be consistent with and adequate to carry out the policies of the certified LUP.

Project Description/Goals

- 7 The September 15, 2016 Staff Report to the Planning Commission stated that the project was intended to be consistent with the following Coastal Act policies related to access and recreation, protection of sensitive biologic resources, and protection of visual resources:
 - Encourage and incentivize maximum public access to the San Lorenzo River in accordance with Section 30210 of the Coastal Act.

Ron Powers Downtown Recovery Plan Amendments March 2, 2017 Page 2

- Achieve superior connections to the San Lorenzo River above the existing DRP and existing SLURP policies, consistent with Section 30211 of the Coastal Act.
- Ensure that development adjacent to the Riverwalk will be designed to prevent impacts to the adjacent sensitive San Lorenzo River and will incentivize clean-up of degraded areas along the levee, consistent with Section 30240 of the Coastal Act. The DRP will continue to be sensitive to the pedestrian experience along the Riverwalk with design guidelines and upper floor step backs and open river pedestrian connections that will provide light, air and open space between buildings.
- Enhance opportunities to view and interact with the San Lorenzo River as a coastal resource consistent with Section 30251 of the Coastal Act. The DRP standards ensure that development will be sited and designed to be visually compatible with the surrounding downtown, while promoting new open space pedestrian plazas and passageways to the Riverwalk.

We would recommend that the CEQA document include these project goals as key objectives of the project.

Impact Analysis - Aesthetics

We have some concerns regarding the proposed new height standards along Front Street, which have the potential to impact public views along the Riverwalk and adjacent public recreational facilities. We would therefore request that the CEQA analysis include a visual resource analysis that includes extensive visual simulations from all appropriate public vantage points, including from along both sides of the Riverwalk, from the Soquel Avenue and Laurel Street bridges, from San Lorenzo Park, etc. The simulations should include a comparison between existing development and as proposed under the new height standards so that potential impacts to public views can be evaluated. The City should also consider installing story poles to show the limits of the proposed new height standards. In addition, the CEQA document should evaluate alternatives to the proposed new height standards that meet most of the project objectives but also reduce potential aesthetic impacts.

Biological Resources

The Coastal Act and LCP require that new development avoid impacts to environmentally sensitive habitat. The CEQA document should include an analysis of how the project may impact the San Lorenzo River, including: 1) establishing the appropriate setback of new development, and 2) potential impacts from shading resulting from the proposed building heights.

Hazards

The Coastal Act and LCP require that new development be sited and designed to avoid hazards. The CEQA document should analyze the project's location with respect to potential impacts from flooding. This analysis should account for the effects of sea level rise.

Ron Powers Downtown Recovery Plan Amendments March 2, 2017 Page 3

Land Use

The Coastal Act and LCP prioritize visitor serving and coastal recreational uses over residential uses. The CEQA document should evaluate appropriate land use and zoning designations for the locations adjacent to and near the Riverwalk along Front Street. Specifically, the CEQA document should evaluate requiring a mixed use zoning for this area, especially along the Riverwalk, with visitor serving and coastal recreational uses (e.g. restaurants with outdoor seating, bike/kayak rental, etc.) on the ground floor, and residential uses on higher floors.

Recreation

We understand that some initial conceptual renderings of the project suggested transferring public right-of-way along the Riverwalk (and associated fill area) to the project developer. However, for the portion of the property located in the Coastal Zone, we believe that the entire public space between the Riverwalk and the proposed buildings along Front Street should be fully utilized for public purposes, including maximization of public access and recreation. Moreover, any such transfer of property would require a Coastal Development Permit that would be appealable to the Commission.

Water Quality

Finally, the Coastal Act and LCP require that erosion control measures be implemented to prevent siltation of streams and coastal lagoons, that discharge of polluted runoff be minimized, and that on-site detention and other appropriate storm water best management practices be used to reduce pollution from urban runoff. The CEQA document should evaluate implementation of Low Impact Development Best Management Practice standards such as bioretention/bioswales, permeable pavers/concrete, roof runoff catchment system and parking lot runoff catchment system for storage; and reuse on site and underground retention/detention units that include additional pre-filtration to remove hydrocarbons, metals, and other potential pollutants generated in the automobile use areas, including for new development along Front Street as well as proposed improvements to the levy system (i.e. the filling of the sloped levy) with the goal of reducing or eliminating runoff and pollution discharges into the River.

Thank you for your consideration of these comments. We look forward to working with the City through the local process.

Ryan Moroney
District Supervisor

Central Coast District Office

LETTER A1 – California Coastal Commission

- A1-1 Improved Pedestrian Access Connections. The comment reiterates California Coastal Commission's (CCC) shared goal with the City to provide better pedestrian access connections between the City's downtown area and the San Lorenzo Riverwalk¹, and to improve the Riverwalk as a public access and recreation focal point for the City's downtown and Beach areas. CCC staff believes that the Riverwalk is an extremely under-utilized public access and recreation feature of the City, and strongly supports an improved user experience for the Riverwalk. CCC staff also appreciates the City's effort to incorporate prior CCC comments on the Notice of Preparation. The introductory comment is acknowledged, but does not address analyses in the DEIR, and no response is necessary.
- Local Coastal Plan Amendment and Review of Consistency with Coastal Act Policies. The comment indicates that the DEIR correctly identifies that several of the proposed amendments include changes to the City's certified Local Coastal Plan (LCP) and will therefore require Commission approval of an LCP amendment. The comment indicates that the standard of review for LUP amendments is consistency with and adequately carrying out the Chapter 3 policies of the California Coastal Act. The comment notes that pursuant to a recent California Supreme Court case, Banning Ranch Conservancy v. City of Newport Beach (2017) 2 Cal.5th 918, the EIR is required to expressly disclose, consider and analyze the jurisdictional claims and regulatory opinions of the Commission. In response to this comment, a review of project consistency with Coastal Act policies has been added; see section 3.8 of Chapter 3, Changes to Draft DEIR. The review does not reveal any conflicts with Coastal Act policies. The proposed amendments would provide for new public access connections to the San Lorenzo River. The proposed amendments do not change existing certified LCP land uses within the downtown area and do not affect oceanfront lands or marine waters. Future development resulting from the proposed amendments would not result in adverse impacts to biological, cultural or scenic resources and would be located within developed areas with adequate public services.
- A1-3 Heights Along Riverwalk. The comment indicates that the main area of concern for this project/LCP amendment relates to the public access and recreational user experience along the Riverwalk, particularly between Elm Street and Laurel Street. CCC staff have concerns regarding how the proposed new height standards and land use/zoning designations will affect the public access and recreational user experience along this stretch of the Riverwalk. The commenter further believes that the visual simulations in the DEIR show that the proposed new maximum building heights would tower over the Riverwalk and potentially negatively impact the user experience in terms of public views and aesthetics. CCC staff encourages the City to consider a reasonable range of lower height alternatives, including the alternative of retaining the existing height standards along this specific stretch of the Riverwalk.

The DEIR does evaluate potential impacts on aesthetics within the CEQA significance thresholds that relate to effects on scenic views, scenic resources, degradation of the visual quality of the

¹ NOTE: Per subsequent comments (see Comment B2-3), the official name is now Santa Cruz Riverwalk.

surrounding area, and lighting. However, effects on a person's subjective "experience" is not a an impact on the environment with one "correct" characterization under CEQA. Under CEQA, only the adverse environmental impacts are to be identified and considered. The City has concluded, based on substantial evidence in this EIR and the whole of the administrative record, that the plan will result in positive impacts relating to the Riverwalk experience through improvements resulting in more eyes on the river that will reduce negative social behavior and non-visible areas adjacent to the levee, which will be required to be filled-in adjacent to new development. Changing the grade to eliminate these side slopes of the levee will create a safer environment and improve the experience of persons using the Riverwalk. As the commenter suggests, the DEIR does include analysis of an alternative that maintains the existing 50-foot building height limits along the river; see DEIR discussion on pages 5-22 to 5-24 for Alternative 1. Retaining the existing height limit for this area, which is also analyzed in the No Project Alternative, will not achieve the desired project objectives to improve public access and connections to the Riverwalk or provide additional housing opportunities.

A1-4 Land Uses. The comment indicates that the Coastal Act and City's LCP prioritize visitor-serving and coastal recreational uses over residential uses and that the EIR should evaluate designating the ground floor adjacent to the Riverwalk with visitor serving and coastal recreational uses (e.g. restaurants with outdoor seating, bike/kayak rental, etc.). Chapter 4 of the Downtown Recovery Plan, certified by the California Coastal Commission as an implementing part of the City's Local Coastal Program, currently allows both residential and non-residential uses above the Front Street (ground level) for properties between Front Street and the Riverwalk (between Soquel Avenue and Laurel Street). The upper floors, including the Riverwalk level, would continue to allow both residential and non-residential (visitor-serving) uses under the proposed Downtown Plan amendments. Therefore, the proposed Downtown Plan does not weaken or lessen the degree of visitor-serving uses that could be developed on the Riverwalk level. The allowable uses are the same as the existing Downtown Recovery Plan, which were previously found to be fully consistent with the Coastal Act. In response to Comment A1-2, a review of project consistency with Coastal Act policies has been added as Appendix B to this FEIR; see Response to Comment A1-2.

There is no mandate to require visitor-serving uses along the Riverwalk level or to prohibit residential uses at this same level. The proposed Downtown Plan amendments do not change allowed uses in the study; see page 3-5 in the DEIR. Hotels, motels and other visitor-serving uses are currently allowed on ground and upper floors, and the proposed amendments do change these uses. These permitted uses are already part of the City's certified LCP. The proposed Downtown Plan amendments increase the potential allowable visitor-serving uses in the area east of Front Street, between Soquel Avenue and Laurel Street, by increasing the allowable width of potential hotel/motel uses at the northern and southern ends of this area. The existing Downtown Recovery Plan limits the potential of hotel/motel area to 75 feet from Soquel Avenue or 75 feet from Laurel Street. The proposed Downtown Plan would allow hotels/motels to be up to 200 feet from either end of this Riverwalk area, thereby potentially

Downtown Plan Amendments Final EIR

9711.0003

increasing allowable visitor-serving uses with the revised plan. (See Draft Downtown Plan pages 38 and 43.)

The DEIR has evaluated the mix of potential allowable uses for the entire project area and has made reasonable assumptions for development as detailed in Appendix D of the DEIR. The DEIR cannot speculate about the site-specific uses that may be proposed as part of any particular future development project, and the future decisions on such projects will be made on an individual basis.

The City shares the Commission's strong goal and vision to improve pedestrian connections between the downtown and to increase activity along the Riverwalk. The proposed Plan is an attempt to balance the three key objectives of providing more opportunities for housing, improving and enhancing visitor experiences to the coast, and maintaining strong environmental protections for the river. Some of the expressed concerns are not solely CEQArelated issues, including the comments relating to specific type and composition of Riverwalk uses, but remain important items for Planning Commission and City Council consideration. Under the proposed Plan, individual projects that include heights taller than 50 feet are not considered a by-right allowance and will be subject to discretionary approval by the City Council. The taller projects will be assessed for consistency with the "Additional Height Criteria for Project Approval" for Additional Height Zone B, as detailed on page 81 of the Draft Downtown Plan. Unlike the existing Downtown Recovery Plan, the list of criteria includes many of the incentive topics identified in the Coastal Commission comment letter. To encourage and promote the public improvements and amenities, the additional height is the incentive built into the draft Plan. This is a fundamental premise that the Plan embraces - the desired improvements noted by the City and the Coastal Commission staff, are directly connected to the additional height. The enhancements of public use of the area will not occur without the added height, which will also coincide with providing more opportunities for desperately needed housing. The improved connections between Front Street and the Riverwalk have been identified as desirable improvements since at least November 1978 (Pacific Avenue Design Plan), yet these improvements have not materialized. There has never been the combination of market and regulatory conditions for these improvements to be privately developed, but the Plan amendments are intended to provide further incentive for property owners to propose those kinds of improvements on their properties.

A1-5 <u>Public Right-of-way Along the Riverwalk</u>. Regarding the use of the public right-of-way along the Riverwalk (and the associated fill area) for private residential use, CCC staff believes that the entire public space between the Riverwalk and the proposed buildings along Front Street should be fully utilized for public purposes, including maximization of public access and recreation, and that the first floors of these buildings should be reserved for visitor-serving commercial uses, including outdoor restaurant seating or other similar uses. See Response to Comment A1-4 regarding first floor uses. With regards to use of the public right-of-way along the Riverwalk, an earlier version of Figure 3-5 used the phrase "private residential use" as an option for leasing of this area. This language has been corrected to accurately reflect that this

area may be leased to the adjacent developer, but that the area must be "publicly accessible" as shown on Figure 3-5 in the DEIR.

Comments on EIR Notice of Preparation (NOP)

- A1-6 Local Coastal Plan Amendment and Review of Consistency with Coastal Act Policies. The comment indicates that the DEIR correctly identifies that several of the proposed amendments include changes to the City's certified LCP that will therefore require Commission approval of an LCP amendment. The comment indicates that the standard of review for LUP amendments is consistency with and adequately carry out the Chapter 3 policies of the California Coastal Act. As indicated in Response to Comment A1-2, a review of project consistency with Coastal Act policies has been added; see section 3.8 of Chapter 3, Changes to Draft DEIR.
- A1-7 <u>Project Objectives</u>. The comment recommends project objectives, which were incorporated as part of the project objectives; see pages 3-3 and 3-4 of the DEIR.
- A1-8 <u>Aesthetics</u>. The comment is part of the CCC's letter in response to the EIR NOP, which asks that the EIR analysis include a visual resource analysis and visual simulations, consider installation of story poles to show the limits of the proposed new height standards, and evaluate alternatives to reduce potential aesthetic impacts. The DEIR does include an assessment of potential aesthetics impacts; see DEIR pages 4.1-8 through 4.1-23, which includes photo simulations. The use of story poles was not considered viable as explained on page 4.1-13 of the DEIR. Although, the analyses did not identify a significant impact related to aesthetics, the EIR Alternatives sections does evaluate alternatives with reduced height limits.
- A1-9 <u>Biological Impacts</u>. The comment is part of the CCC's letter in response to the EIR NOP, which asks that the EIR include an analysis of how the project may impact the San Lorenzo River, including: 1) establishing the appropriate setback of new development, and 2) potential impacts from shading resulting from the proposed building heights. Both these issues are addressed in the DEIR; see page 4.3-19 regarding riparian habitat and setbacks and pages 4.3-17 and 4.3-18 regarding potential effects of shading. The project is in compliance with the LCP regarding riparian setbacks as set forth in the City-wide Creeks and Wetlands Management Plan and San Lorenzo Urban River Plan LCP policies.
- A1-10 <u>Hazards-Sea Level Rise</u>. The comment indicates that the Coastal Act and City LCP require that new development be sited and designed to avoid hazards, and that the EIR should analyze the project's location with respect to potential impacts from flooding that accounts for the effects of sea level rise. Both these issues are addressed in the DEIR; see pages 4.5-9 and 4.5-13.
- A1-11 <u>Land Use</u>. The comment indicates that the Coastal Act and LCP prioritize visitor serving and coastal recreational uses over residential uses. The CEQA document should evaluate appropriate land use and zoning designations for the locations adjacent to and near the

Riverwalk along Front Street. Specifically, the CEQA document should evaluate requiring a mixed use zoning for this area, especially along the Riverwalk, with visitor serving and coastal recreational uses (e.g. restaurants with outdoor seating, bike/kayak rental, etc.) on the ground floor, and residential uses on higher floors. See Response to Comment A1-4.

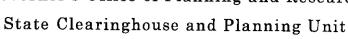
- A1-12 Recreation. The comment indicates that the initial conceptual renderings of the project suggested transferring public right-of-way along the Riverwalk (and associated fill area) to the project developer. CCC staff believes this space should be fully utilized for public purposes, including maximization of public access and recreation. See Response to Comment A1-5. CCC staff also indicates that any such transfer of property would require a Coastal Development Permit that would be appealable to the Commission. The City acknowledges that Extension Area Permits within the Coastal Zone adjacent to the Riverwalk will require a Coastal Permit, which are appealable to the California Coastal Commission.
- A1-13 Water Quality. The comment indicates that the Coastal Act and LCP require that erosion control measures be implemented to prevent siltation of streams, minimize discharge of polluted runoff, and to provide on-site detention and other appropriate storm water best management practices to reduce pollution from urban runoff. The CEQA document should evaluate implementation of Low Impact Development Best Management Practice standards such as bioretention/bioswales, permeable pavers/concrete, roof runoff catchment system and parking lot runoff catchment system for storage; and reuse on site and underground retention/detention units that include additional pre-filtration to remove hydrocarbons, metals, and other potential pollutants generated in the automobile use areas. As indicated in the DEIR (pages 4.5-2, 4.5-3, 4.5-6), the City has a comprehensive stormwater management program developed and implemented in compliance with federal and state requirements. Future development would be subject to these requirements that would prevent water quality degradation as discussed on page 4.5-12 of the DEIR.

9711.0003 October 2017 4-12



STATE OF CALIFORNIA

Governor's Office of Planning and Research





Ken Alex Director

September 11, 2017



Ron Powers City of Santa Cruz 809 Center St, Rm 206 Santa Cruz, CA 95060

Subject: Downtown Recovery Plan Amendments

SCH#: 2017022050

Dear Ron Powers:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. The 1 review period closed on September 8, 2017, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely.

Scott Morgan

Director, State Clearinghouse

Document Details Report State Clearinghouse Data Base

SCH# 2017022050

Project Title Downtown Recovery Plan Amendments

Lead Agency Santa Cruz, City of

Type EIR Draft EIR

Description The project application consists of a series of amendments to the city's DRP, the GP 2030, and the

LCP that include revisions to plan text, modifications to guidelines and standards, and changes to coastal policies. The proposed DRP amendment would expand the location in which the Additional Height Zones are applied and revisions to the chapter 4 development standards of the DRP. The primary proposed modification would increase allowable building heights in the lower Pacific Ave and lower Front St areas and along the San Lorenzo River, between Cathcart and Laurel St, that could lead

to increased upper floor residential development.

Lead Agency Contact

Name Ron Powers

Agency City of Santa Cruz

Phone (831) 420-5216

email

Address 809 Center St, Rm 206

City Santa Cruz

State CA Zip 95060

Fax

Project Location

County Santa Cruz

City Santa Cruz

Region

Lat / Long

Parcel No.

Township Range Section Base

Proximity to:

Highways

1, 17

Airports

Railways

Waterways

San Lorenzo River

Schools

Land Use

Developed/central business district and public facilities/regional visitor commercial and community

facilities

Project Issues

Air Quality; Archaeologic-Historic; Biological Resources; Coastal Zone; Drainage/Absorption; Flood

Plain/Flooding; Growth Inducing; Landuse; Noise; Public Services; Recreation/Parks;

Schools/Universities; Traffic/Circulation; Water Quality; Wetland/Riparian; Septic System; Sewer

Capacity; Vegetation; Water Supply; Cumulative Effects

Reviewing Agencies Resources Agency; California Coastal Commission; Department of Fish and Wildlife, Region 3; Cal Fire; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol;

Caltrans, District 5; Office of Emergency Services, California; Department of Housing and Community Development; Native American Heritage Commission; Regional Water Quality Control Board, Region

3; Department of Fish and Wildlife, Marine Region

Date Received

07/26/2017

Start of Review 07/26/2017

End of Review 09/08/2017

LETTER A2 – California Governor's Office of Planning & Research State Clearinghouse

A2-1 <u>Compliance with State Clearinghouse Review</u>. The letter acknowledges that the City of Santa Cruz complied with the State Clearinghouse review requirements for review of draft environmental documents pursuant to the California Environmental Quality Act and that no state agencies submitted comments through the Clearinghouse. The comment is acknowledged; and no response is necessary.

Downtown Plan Amendments Final EIR

4-15



24580 Silver Cloud Court Monterey, CA 93940 PHONE: (831) 647-9411 • FAX: (831) 647-8501

September 8, 2017

Ron Powers
City of Santa Cruz –
Department of Planning & Community Development
809 Center Street, Room 107
Santa Cruz, CA 95060
Email: rpowers@cityofsantacruz.com

Subject: Comments on Downtown Plan Amendments Draft EIR

Dear Mr. Powers,

Thank you for providing the Monterey Bay Air Resources District (Air District) the opportunity to comment on the Downtown Plan Amendments Draft EIR. The Air District has reviewed the document and has provided the following:

• The Air District has no comments.

Please let me know if you have any questions. I can be reached at (831) 718-8027 or cduymich@mbard.org.

Best Regards,

1

Christine Duymich Air Quality Planner

Mumer

cc: David Frisbey

LETTER A3 – Monterey Bay Air Resources District

A3-1 <u>No Comment</u>. The letter indicates that the District reviewed the Draft EIR, and has no comments. The comment is acknowledged; no response is necessary.

Downtown Plan Amendments Final EIR

Ron Powers

From:

Rick Longinotti < longinotti@baymoon.com>

Sent:

Thursday, September 07, 2017 8:49 AM

To:

Ron Powers

Subject:

comments on draft EIR

Attachments:

CFST Comments on traffic congestion impacts.pdf

Hi Ron,

Here are the Campaign for Sensible Transportation comments on the draft EIR for the Downtown Plan. Would you please write me back that you received this?

Thanks,

Rick Longinotti, Co-Chair Campaign for Sensible Transportation

Comments on the Draft EIR for the Downtown Plan

- The Campaign for Sensible Transportation considers the Downtown Plan to be an opportunity to move towards a more walk-able, less auto-centric Downtown. This would contribute to increased vibrancy as well as public health and environmental sustainability. We intend these comments as a contribution to that goal.
- The significant growth that the Downtown Plan allows will exacerbate traffic congestion. However, the Draft EIR concludes that there will be no significant traffic delay impacts. That conclusion misses an opportunity to formulate mitigation measures that shift City policy towards less auto-centric development. In our comments below we explain our reasoning that the Draft EIR's conclusion of no significant traffic impacts is based on a methodology that is inconsistent with the analysis in the General Plan EIR. We suggest that a revision of the methodology may result in a conclusion that the new vehicle trips generated by the build-out of the Downtown Plan will significantly impact traffic delay.
- We urge the City to include in the Downtown Plan a policy of *no net increase in vehicle trips*. This letter lists measures that could achieve this goal, followed by five comments on the Draft EIR methodology.

Measures to achieve zero net increase in vehicle trips:

1. Require that developers unbundle the cost of parking from the cost of renting or purchasing a unit.

When the consumer has a choice on whether to purchase parking, the demand for parking drops (and so does the price of housing).

- 2. Require that parking providers charge the real cost of providing the parking. (No subsidies).
- 3. Require businesses that provide parking to their employees charge for parking.
- 4. **Phase out the subsidy of the City's monthly parking permits.** Currently the cost of monthly permits is significantly below the cost to provide the parking. Residents of new development will not purchase unbundled parking in their buildings so long as the City offers residential parking permits at below cost.
- 5. Offer all employees within the Downtown Parking District incentives to commute using alternatives to single occupant auto: free bus passes; discount carpool parking; vanpools; emergency rides home; cash rewards; credit for Zipcar, Uber; credit at bike stores, etc. These measures will be paid through parking revenue.

- 6. Offer deep discounts to businesses paying the parking deficiency fee based on employee participation in alternative commutes.
- 7. Require new development to offer free bus passes to all tenants.
- 8. Reduce or eliminate parking requirements for new development, while protecting adjacent neighborhoods from spillover parking through neighborhood permit parking.
- 9. Commute Impact Criteria: Amend the City's criteria for offering density bonuses for residential housing to require that developers offer preference for the local workforce.

Comments on Draft EIR Methodology

Comment 1

4 Vehicle trip calculation appears at odds with the General Plan EIR
The Draft reports, "Trip generation calculations include a 40 percent trip reduction
due to proximity to the downtown transit center, mixed use development, bicycle
use and walking trips." We don't understand the basis for this trip reduction
allowance. It seems at odds with the General Plan EIR that applied a maximum trip
reduction of 17.3% for Soquel Ave. According to the General Plan EIR, apartments
Downtown generate more trips than Soquel Ave. (Offices and commercial trip
generation was the same for both.)

Comment 2

The Draft EIR needs to be congruent with the General Plan EIR regarding existing traffic delay (Level of Service)

The Draft's report of existing Level of Service for several intersections is different from the Level of Service report of the EIR for the 2030 General Plan. For example, the General Plan EIR reports that existing conditions at Ocean St. /Water St is E, rather than the D reported by the Draft. Highway 1 and 9 is rated F by the General Plan EIR and E by the Downtown Plan Draft EIR.

This is an important difference, since it could affect the finding of significant impact. The City's threshold for considering the traffic congestion impacts of the project to be significant:

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 three percent at intersections currently operating at unacceptable levels (E or F)

The Draft concludes that there would be no significant impacts due to traffic:

The project will result in an increase in daily and peak hour trips, but would not cause existing or planned intersections to operate at an unacceptable Level of Service (LOS) or further degrade intersections that already operate at an unacceptable LOS. Therefore, the impact is less than significant.

Comment 3

The Draft EIR needs to be congruent with the General Plan EIR regarding traffic delay at buildout. The following table lists key differences between the documents.

Level of Service at key intersections

	General Plan Buildout	Downtown Plan Draft EIR
Ocean/Water	F	D
Hwy 1/9	F	E
Chestnut/Mission	F	E
Pacific/Laurel	D	В

Comment 4

The Draft needs to publish the assumptions that it makes on the distribution of traffic exiting Downtown. Does the Draft assume that the additional trips will follow the pattern of existing traffic? If so, there may need to be an adjustment, since a significant portion of the newly allowed development would take place near the Soquel and Laurel exit routes from Downtown. Commute traffic exiting along those routes could further congest the Ocean/Broadway and Branciforte/Soquel intersections. The General Plan EIR projects that these intersections will have unacceptable Levels of Service at buildout.

Comment 5

The Draft EIR needs to include impacted intersections in LOS analysis.

The Draft needs to consider the impact of downtown growth on some additional intersections affected by commute trips to downtown. According to the General Plan EIR, the LOS at the following intersections at buildout will be greater than the

acceptable standard. Increased congestion at these intersections could significantly delay bus transit.

Intersection	Existing LOS	LOS at GP buildout
N Branciforte/Water	D	E
Branciforte/Soquel	С	E
Ocean/Broadway	С	F
Seabright/Water	F	F with further delays

LETTER B1 – Campaign for Sensible Transportation

- B1-1 <u>Downtown Plan</u>. The commenter considers the Downtown Plan to be "an opportunity to move towards a more walkable, less auto-centric Downtown". The comment is acknowledged, but does not address analyses in the DEIR, and no response is necessary.
- B1-2 <u>Traffic Impact Methodology</u>. The commenter believes that the DEIR's conclusion of no significant traffic impacts is based on a methodology that is inconsistent with the General Plan EIR analyses, and revisions to the methodologies are suggested. See Response to Comments B1-4, B1-5, B1-6, and B1-7.
- B1-3 No Net Increase in Vehicle Trips. The comment urges the City to include a policy of "no net increase in vehicle trips" in the Downtown Plan, and offers suggestions to achieve a zero net increase in vehicle trips. The comment is acknowledged, but does not address analyses in the DEIR. City staff notes that the Downtown Recovery Plan and the proposed Downtown Plan contain no parking standards, other than locational and design criteria and the allowance of off-site parking for projects. The parking standards are set forth by Resolution by the City Council as established by the Downtown Commission, which oversees the management of Parking District #1. All of the nine items noted in the comment letter are options for consideration on a project-specific basis, and are not relevant to the programmatic level DEIR for the Downtown Plan.
- B1-4 Vehicle Trip Generation. The comment questions the basis for a 40% trip reduction in the downtown area, which seems at odds with the General Plan EIR that applied a maximum trip reduction of 17.3% for Soquel Avenue. The calculations for mixed use reductions are based a number of factors including square footage of commercial development, number of employees, number of housing units, transit accessibility, pedestrian environment and bicycle facilities in the area. The combination of these factors in the downtown area results in a significantly higher potential reduction, which was developed by City staff for the Traffic Impact program. In particular, the large number of employees already in the downtown area will make walking trips to shop and eat in the area.
- B1-5 <u>Intersection Levels of Service</u>. The comment indicates that the DEIR reports a different level of service (LOS) under existing conditions than reported in the General Plan EIR at the Ocean Street/Water Street intersection (D compared to E in the General Plan EIR) and at the Highway 9/Highway 1 intersection (E compared to F in the General Plan EIR). The level of service calculation for existing conditions are based on traffic counts made at the time analyses are conducted. Traffic counts fluctuate daily, and therefore, can result in different level of service calculations day to day.
- B1-6 <u>Levels of Service with General Plan Buildout</u>. The comment states that the DEIR needs to be "congruent" with the General Plan EIR at buildout and suggests that the DEIR LOS is less than the General Plan EIR at buildout. The alleged discrepancies compare General

9711.0003

Plan buildout (Existing with General Plan buildout) existing conditions in the Downtown Plan DEIR, which is not an accurate comparison. General Plan buildout is part of the cumulative scenario analyzed in the Downtown Plan Amendments DEIR, and when cumulative conditions of the two EIRs are compared, the cumulative LOS is the same and slightly worse in the Downtown Plan Amendments DEIR than in the General Plan EIR as summarized below. See Response to Comment B1-5 regarding differences in reported existing levels of service in the two documents.

Level of Service Comparisons

<u> </u>				
	General Plan EIR Cumulative	Downtown Plan EIR Cumulative		
	LOS / Delay [in seconds]	LOS / Delay [in seconds]		
Ocean St./Water St.	F / 172.7	F /228.1		
Highways 1/9	F / 244.5	F / 269.2		
Chestnut St./Mission St.	F / 164.8	F / 344		
Pacific Avenue/Laurel St	D	F /105.9		

B1-7 Trip Distribution Assumptions and Impacted Intersections. The comment states that the trip distribution assumptions should be identified and asks whether additional trips follow the pattern of existing traffic. The existing distribution of traffic is generally reflected in the traffic study. Intersection-by-intersection distribution is normally disaggregated per the existing ratios. The City's Traffic Impact Study Guidelines require that all intersections with 25 or more new trips be evaluated. The intersections noted in the comment as having unacceptable LOS at General Plan buildout (Ocean/Broadway, Branciforte/Soquel, Branciforte/Water, Seabright/Water) would indeed receive additional trips but in numbers (less than 25 trips during the peak hour) that would not result in a major change to their level of service. Mitigation measures for these intersections are included in the City's traffic impact program. This means that all development in the City contributes to the modifications needed to improve intersection levels of service.



Ron Powers Principal Planner City of Santa Cruz 809 Center Street, Room 206 Santa Cruz, CA 95060

Re: Draft EIR for Downtown Recovery Plan Amendments

Dear Mr. Powers,

3

4

Thank you for the opportunity to provide written comment on the City's Draft Environmental Impact Report (EIR) and the efforts to update and amend the Downtown Recovery Plan (DRP). The Coastal Watershed Council's (CWC) mission is to preserve and protect coastal watersheds through community stewardship, monitoring and education. CWC's goals align with many of the City's stated goals in this project and with the City's overall goal of protecting natural resources.

CWC respectfully requests that City staff and consultants consider the following comments to improve the EIR process and eventual Downtown Plan.

Having reviewed the EIR itself, comments shared in the Notice of Preparation process and related documents, CWC appreciates that care is being given to ensure that future projects guided by the DRP will consider bird-safe design guidelines, the impacts of lighting on riparian species and established best practices and permit requirements for water quality protection and stormwater management. I will not restate the importance of those considerations since they are already part of the EIR process, other than to offer a suggestion with regard to Low Impact Development (LID) best management practices: since the projects along the Santa Cruz Riverwalk will be located next to public open space, perhaps a demonstration site could improve the public's awareness of runoff reduction and stormwater pollution elimination measures taken as part of the project. For example, if a stormwater retention basin, permeable pavers, bioswale or other unique LID measures are included in a given project, showcasing it for the public could add to the community's awareness of how those measures protect the environment and specifically, the river people can see and enjoy right behind them.

On another note, two items are offered here as suggested corrections:

- 1) The EIR includes references to the San Lorenzo Riverwalk (in Appendix C and I believe in other sections as well). The Santa Cruz City Council formally renamed this City park the Santa Cruz Riverwalk a few years ago and making all City document consistent so that every opportunity is made towards branding the park with the right name makes sense.
- 2) Section 4.5.1 states that the San Lorenzo River is on the 303(d) list (impaired water bodies) for sediment, nutrients and pathogens. The river is also listed (with a corresponding TMDL) for pesticides (chlorpyrifos). Accordingly, reference to the City's Integrated Pest Management policies may be appropriate for projects governed by the DRP.

More generally, the current DRP already allows for development along Front Street, which could harm or help the river. CWC's hope is that development along Front Street could improve the public's experience at the Santa Cruz Riverwalk and create a vibrant and thriving public space where people connect to nature and learn how they can take individual stewardship actions to improve the health of the river. That sequence of events leading to a healthier river is all based on how the development is shaped, what is included in each project and whether projects proceed in isolation to the City's existing management of the river and Riverwalk or are integrated into it.

For example, in Section 3.4 - Project Components, the EIR project description lists four City plans and regulations, but fails to include the San Lorenzo Urban River Plan (SLURP), which is the key guiding document for how the City manages the Riverwalk and river ecosystem inside of the levees. A plan that deals with what happens on the *outside* of the levee would ideally mesh with the plan governing what happens on the *inside* of the levee. The City can be most successful at meeting the seven stated objectives (listed in Section 3.3) of this project (particularly objectives 3 through 7) by having a clearly articulated approach for how to integrate what is happening on each side of the Riverwalk pedestrian/bike path, since separating them is impractical.

The 2003 SLURP is only partially implemented at this time. When projects governed by the amended DRP are built, they *could* improve the health of the river ecosystem, provided their implementation drives additional actions in the SLURP for improving the Riverwalk and river ecosystem. While the SLURP is referenced in Section 4.3.1 under local plans, including it in Section 3.3 would serve to elevate its importance, integrate efforts on either side of the Riverwalk path and ensure that the projects improve rather than damage the lower river. Beyond the inclusion of the SLURP in Section 3.3, an effort by the City to map out how the SLURP actions will be integrated into projects governed by the DRP would serve both the river and the new development's owners, tenants, customers and the overall community. If not appropriate for inclusion in this EIR, such an implementation (or integration) plan would aid both sides of the Riverwalk path and our overall community.

Thank you for your leadership of this important process to shape the future of this community. Take care.

Respectfully,

6

Greg Pepping
Executive Director

Com Paping

Coastal Watershed Council

LETTER B2 – Coastal Watershed Council

- B2-1 <u>Coastal Watershed Council Mission and Goals</u>. The letter indicates that the Coastal Watershed Council's (CWC) mission is to preserve and protect coastal watersheds through community stewardship, monitoring and education and that CWC's goals align with many of the City's stated goals in this project and with the City's overall goal of protecting natural resources. The comment is acknowledged, but does not address analyses in the DEIR, and no response is necessary.
- B2-2 Low Impact Development. The comment suggests that the City consider a demonstration site along the river to showcase stormwater retention, permeable pavers, bioswale or other unique LID measures in a given project to improve the public's awareness of runoff reduction and stormwater pollution elimination measures. The comment is acknowledged, but does not address analyses in the DEIR. Low Impact Development (LID) best management practices (BMPs) are incorporated into all development project reviews by the Department of Public Works and included in all discretionary project reviews for land use permits issued by the Department of Planning and Community Development. Runoff associated with development adjacent to the river will not be directed to the river, but instead collected at the back of the levee in a large pipe, part of a storm drainage system that will connect to the City's downtown stormwater system. The amendments to the Downtown Recovery Plan are programmatic in nature and there are no proposed City sponsored projects planned at this time. In the event that a privately funded development occurs adjacent to the Riverwalk, the storm drain system will be required to be engineered to incorporate stormwater pollution elimination measures and use BMPs for water quality protection.
- B2-3 <u>Santa Cruz Riverwalk</u>. The letter indicates that the Santa Cruz City Council formally renamed City's San Lorenzo Riverwalk park to the Santa Cruz Riverwalk. References to the Riverwalk have been corrected; see Chapter 3, Changes to Draft DEIR.
- B2-4 San Lorenzo River Impaired Waters. Regarding San Lorenzo River's inclusion on the 303(d) list (impaired water bodies) for sediment, nutrients and pathogens, the comment indicates that reference to the City's Integrated Pest Management policies may be appropriate for projects governed by the DRP. The comment is acknowledged, but does not address analyses in the DEIR, and no response is necessary. However, the Downtown Plan is a planning document that includes some specific development standards and guidelines, but it is not a compendium of all regulations that would be required for new development projects. Parking requirements, drainage requirements, including BMPs, and Water Department requirements are just some of the additional regulations that must be followed for any development projects. Therefore, the Downtown Plan is not the appropriate location for referencing the City's Integrated Pest Management Program. However, a reference to the City's Integrated Pest Management Program is appropriate under Local Regulations on page 4.5-3 and has been added to the text; see Chapter 3, Changes to Draft EIR, of this document.

- B2-5 San Lorenzo Urban River Plan (SLURP). The letter indicates that Section 3.4 (Project Components) in the DEIR Project Description fails to include the San Lorenzo Urban River Plan (SLURP), which is a key document guiding how the City manages the River Walk and river ecosystem inside the levees and a plan for outside of the levee should mesh with the SLURP. The comment indicates that the SLURP should be referenced in section 3.3. It is agreed that the SLURP is an important guiding document, and some of its provisions related to biological resources are summarized on page 4.3-6 of the DEIR. Section 3.3 of the DEIR identifies project objectives, and section 3.4 identifies proposed amendments to existing City plans and regulations as part of the project. The San Lorenzo Urban River Plan (SLURP) is not referenced in this section because it is not proposed to be amended and is not a regulatory document for land use. The project is not proposing any changes for lands located between the levees. Several recommendations of the SLURP were subsequently adopted as Local Coastal Program (LCP) policies, some of which are proposed to be amended as part of the project, and therefore, the LCP is listed as one of the adopted City plans that is proposed to be amended. The remaining recommendations of the SLURP are resource protection and enhancement guidelines addressing lands located between the levees, which lie within the public realm under City control. However, further description of the SLURP has been added to the DEIR; see the "Land Use" section of Chapter 3 of this document.
- B2-6 SLURP and Downtown Plan. The letter recommends that an effort by the City to map out how the SLURP actions will be integrated into projects governed by the DRP would serve both the river and the new development's owners, tenants, customers and the overall community. If not appropriate for inclusion in this EIR, the commenter suggests such an implementation (or integration) plan would aid both sides of the Riverwalk path and the overall community. The comment is acknowledged, but does not address analyses in the DEIR. Project objective #4 includes reference to the SLURP to achieve superior connections to the San Lorenzo River beyond the existing Downtown Recovery Plan and SLURP recommendations. Referencing the remainder of the SLURP river enhancements is not part of the project study area. The proposed amendments included in the Downtown Plan are not related to a plan for physical improvements between the levees.

9711.0003 October 2017 4-28

Ron Powers

From:

Lisa Sheridan <trotrider@aol.com>

Sent:

Thursday, September 07, 2017 4:05 PM

To:

Ron Powers

Subject:

CAUTION: Verify Sender Before Opening! Comments on DEIR for Downtown Recovery

Amendments

Attachments:

Ron Powers DEIR final.doc

Dear Mr. Powers,

Please confirm you have received our response letter to the Downtown Recovery Proposed Amendments/Biological Resources.

Thank you, Lisa Sheridan Santa Cruz Bird Club President



September 7, 2017

From: Santa Cruz Bird Club

To: Ron Powers, City of Santa Cruz Planning Department, Santa Cruz City Council

Re: Comments on DEIR for Downtown Recovery proposed amendments/Biological Resources

Dear Mr. Powers and Santa Cruz City Council:

The Santa Cruz Bird Club (SCBC) appreciates the opportunity to comment on the Draft Environmental Impact Report (DEIR) for the City of Santa Cruz Downtown Plan Amendments.

The proposal for building height allowances-along the San Lorenzo River (SLR) riparian corridor would alter the current allowable building height up to seventy feet from a current maximum of fifty feet.

The SLR is one of the city's significant natural resources and is in the Pacific Flyway. Migrating birds, protected under the Migratory Bird Treaty Act, are known to breed, nest, raise young, rest, feed, take refuge from storms and refuel for their remaining migratory journey. The SLR corridor/open space is considered one of the more populated bird species corridors in the entire Santa Cruz County. (The citizen science ebird data lists the SLR as number thirteen of one hundred sites with most number of bird species.)

The SCBC recommends the following considerations based on the San Lorenzo's DEIR findings:

- 1). The SCBC believes that the mitigations understate the potential negative impacts of the proposed height increases, which are outlined in the body of the DEIR. We recommend a "no height increase" for any buildings above fifty feet along the SLR corridor. Evidence suggests this policy change would interfere substantially with the movement of native and migratory species of birds as well as impact the migratory corridors they use.
- 2). The SCBC encourages the strongest language possible to be added to the DEIR language as it relates to building design mitigations for any new construction at any height near the SLR. We recommend replacing wording in 4.3 mitigation from "minimize" and "consider" to "required."
- 4 3). Because of the lack of data on year-round use of the SLR habitat, the DEIR findings are insufficient to adequately determine the impact of the proposed amendments on bird wildlife.
- Section 4.3.2: There are more extensive and up-dated studies on bird collision with glass available and should be included in the analysis of impacts. Refer to <u>Bird Collisions with Windows American Bird Conservancy</u>, as well as the (Klem, March 2009, Hager et al., September 2008). https://abcbirds.org/wpcontent/uploads/2017/02/Window_Collision_Bibliography-February-2017.pdf

Thank you for your consideration,

Lisa Sheridan

President, Santa Cruz Bird club 2016-2017

LETTER B3 - Santa Cruz Bird Club

- B3-1 <u>San Lorenzo River.</u> The letter indicates that the San Lorenzo River is one of the City's significant natural resources and is in the Pacific Flyway. The comment is acknowledged, but does not address analyses in the DEIR, and no further response is necessary.
- B3-2 Proposed Heights Along San Lorenzo River. The commenter recommends no height increase for any buildings above fifty feet along the San Lorenzo River corridor. The comment is acknowledged, and referred to City staff and decision makers for further consideration. The comment also states that evidence suggests that this policy change would interfere substantially with the movement of native and migratory species of birds and impact the migratory corridors they use. The analysis in the DEIR acknowledges that increased building height would potentially result in an increase in bird collisions. This impact could specifically affect migratory birds. Although the precise impacts are not known, the analysis assumes the increased building height would result in a potentially significant impact. As noted in the DEIR, it is generally accepted that an increase in the amount of window space results in a higher mortality from building strikes and that an increase in night-time lighting could degrade the quality of the surrounding habitat. The mitigation for this impact offers standard measures for reducing these impacts consistent with guidelines established by the American Bird Conservancy (2015).
- B3-3 <u>Mitigation Measure 4.3-2</u>. The comment indicates that the mitigation wording be changed from "minimize" and "consider" to "require". However, the word "consider" is not included in this measure or Mitigation Measure 4.3-3. The word choice of "minimize" is appropriate in mitigation measure 4.3-2 as the City consider it feasible or desirable to prohibit the use of glass. The proposed language reflects common CEQA convention for the phrasing of mitigation measures. Subsequent development projects would be evaluated on a case-by-case basis. The measure has been revised to require avoidance of up-lighting and spotlights. See Chapter 2, Summary of Impacts, in this document.
- B3-4 <u>Bird Studies</u>. The comment states that because of the lack of data on year-round use of the San Lorenzo River habitat, the DEIR findings are insufficient to adequately determine the impact of the proposed amendments on bird wildlife. As noted in the Response to Comment B3-2, the DEIR does not deny that the increase in birld height, without guidelines for building design, could result in an increase in birld mortality from collisions with buildings. The proposed mitigation for this impact is inclusion of a new development standard in the Downtown Plan for design guidance for bird-safe structures along the San Lorenzo River. It should be acknowledged, as implied by the comment, that factors other than building design are presumed to influence bird mortality from building collisions. These include the surrounding habitat,

the time of year, and bird density in the surrounding area (e.g., Borden et al. 2010, Cusa et al. 2015, Hager and Craig 2014, Zink and Eckles 2010, Sabo et al. 2016, Wittig 2016), as well as bird physiology (Håstad and Ödeen 2014, Kahle et al. 2016, Martin 2011, 2012). However, studies consistently emphasize that exactly how these factors influence bird collisions with buildings is poorly understood. And factors influencing mortality in one location may be different from those influencing mortality in another. For this reason, there are no standards for predicting the level of bird mortality from buildings. Therefore, a study intended to do this would be of limited value.

In addition, a year-round study is not needed to identify and analyze impacts and would exceed the standard for impact evaluation under the California Environmental Quality Act as outlined in the thresholds of significance on page 4.3-16 of the DEIR.

B3-5 San Lorenzo Urban River Plan. The comment indicates that there are more extensive and updated studies on bird collision with glass available and should be included in the analysis of impacts. The comment cites the following: 1) Bird Collisions with Windows -American Bird Conservancy; 2) Klem (March 2009); and 3) Hager et al. (September 2008). The studies noted are Daniel Klem Jr., Christopher J. Farmer, Nicole Delacretaz, Yigal Gelb, and Peter G. Saenger, "Architectural Landscape Risk Factors Associated with Bird-Glass Collisions in an Urban Environment," Wilson Ornithological Society (2009) 121(1): 126–134, and Stephen B. Hager, Heidi Trudell, Kelly J. McKay, Stephanie M. Crandall, and Lance Mayer, "Bird Density and Mortality at Windows, Wilson Journal of Ornithology (2008) 120 (3): 550-564. Both studies mentioned in the comment were consulted during preparation of the analysis of the potential for bird collisions with windows, and both are cited in the DEIR analysis. In addition, the DEIR analysis cites findings in Y. Gelb and N. Delacretaz, "Windows and Vegetation: Primary Factors in Manhattan Bird Collisions," Northeastern Naturalist (2009) 16(3): 455-470, and cites information summarized in the American Bird Conservancy, Bird-Friendly Building (https://abcbirds.org/wp-content/uploads/2015/05/Bird-friendly-Design (2015)Building-Guide_2015.pdf).

The DEIR analysis of the effects of building height on birds relies on the above studies to emphasize the long-established hazard that buildings, especially glass windows, pose to birds. As the comment notes, extensive research has been conducted since 2009, including much that is described in C.L. Seewagen and C. Sheppard, *Bird Collisions with Windows: An Annotated Biobliography* (2017), which is also mentioned in the comment as "Birds Collisions with Windows – American Bird Conservancy." These studies have focused on a variety of factors influencing bird collisions with buildings, such as bird physiology (Håstad and Ödeen 2014, Kahle et al. 2016, Martin 2011, 2012), habitat (Borden et al. 2010, Cusa et al. 2015, Hager and Craig 2014), abundance (Sabo et al. 2016, Wittig 2016), and seasonality (Borden et al. 2010, Zink and Eckles 2010).

Downtown Plan Amendments Final EIR

9711.0003

The DEIR analysis also relies on Klem et al. (2009) and American Bird Conservancy (2015) to summarize building design factors that influence bird mortality. Additional recent literature included in Seewagen and Sheppard (2017) focuses on how building and window design can reduce collisions (Hager et al. 2013, Klem and Saenger 2013, Pelley 2014, Switala Elmhurst and Grady 2017). Some of these provide evidence that building design can influence and reduce bird collisions mortality (Pelley 2014, Switala Elmhurst and Grady 2017). The American Bird Conservancy (2015) incorporates several of these studies in their guidelines. More recent literature (Kahle et al. 2016, Switala Elmhurst and Grady 2017) has mostly confirmed what was learned from previous studies. Therefore, the DEIR approach in relying on American Bird Conservancy guidelines is up to date with current thinking on reducing bird collisions with buildings.

To: Ron Powers

From: The Sierra Club

Re: DEIR Downtown Recovery Plan

Date: September 8, 2017

Dear Mr. Powers:

Please find below the Sierra Club's comments on the Draft Environmental Impact Report (DEIR) sections for the Downtown Recovery Plan (DRP). We look forward to your responses to these comments.

Sincerely,

Greg McPheeters Chair, Sierra Club Santa Cruz Group

4.1 AESTHETICS

The DEIR does not address these codes in the California Public Resources Code section 21099, 21099(4), (2)(A), (2)(e) Codes Display Text

Since January 2014 the SB 743 has received various guidelines revisions with the potential of raising legal difficulties. Jan. 2016 CEQA guideline on evaluating Transportation impacts in CEQA states: "The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data."

SB 743 doesn't address/include developments areas that are adjacent to City's Open Spaces area, watershed, riparian corridors with a detailed aesthetic definition. Consequently local public lead agencies have responsibility to fulfill the City's Plans such as "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." (City's 2030 General Plan Park & Rec. Open Spaces)

Codes 21099 (4), (2)(A) & (2)(e) codes validate the City's local Plans. The codes demonstrates that the aesthetic assessment of the SB 743/21099 codes is

defined by public lead agencies, other agencies & local Plans for which the San Lorenzo River qualifies.

The DEIR Aesthetics SB 743 findings are incomplete and unsubstantiated, because not all CPRC codes pertaining to proposed amendments were addressed nor were all current CEQA guidelines considered. The omission of the San Lorenzo River as an Open Space, riparian corridor in the Regional Setting section (pg. 4.1–5) affected the DEIR analysis for SB 743 in regard to City plans.

Scenic Resources: 4.1-7

- To quote from the DEIR, "The DRP indicates that the river offers potential as an open space, habitat and a recreational amenity and provides opportunities for creation of linkages to the downtown." The DEIR fails to adequately address the habitat value of the San Lorenzo River (SLR) and therefore inadequately assesses the environmental impacts of the project on the SLR. The SLR is not a "potential" habitat: it is a recognized, documented habitat in the city's General Plan.
- According to the DEIR, no significant impacts have been identified. This finding is possible only because of the above deficiencies noted.
- Impact 4.1-3 The DEIR states that, "future buildings would be of similar height and scale as the other tall buildings in the downtown area". One major area of height increase is along the San Lorenzo River levee. The DEIR fails to allow for the difference between increased heights downtown and increased heights along the river, which is a habitat. Downtown is not a habitat. The impact of increased human activity on the SLR habitat generated by the project is inadequately addressed in the DEIR. The volumetric approach is not an adequate response to the increased heights and massing allowed under the amendments. The claim in the DEIR that full build-out is unlikely is unsubstantiated. The fact that buildings along Front St. have not been built to the current maximum is not a yardstick for future building of zoned mixed use with increased heights and massing.
- With respect to the proposed new widened alleys connecting to the river, currently the SLR is accessible from various river paths. The reasoning that 3 pathways through high building mass areas will create superior connections to the San Lorenzo River lacks proof. There is no evaluation of the human impact to the river habitat via such corridors nor impact to bird life from such corridors that will have night lights and windows.
- The DEIR states that the project will, "Enhance opportunities to view and interact with the San Lorenzo River as a coastal resource." This statement is

invalidated as demonstrated by Figure 4.1-3a-3c, which show according to Figure 4.1-3a-3c that views are not enhanced by high buildings & building mass. The impact on views is not fully explored in the DEIR

The Visual Character of the Project Area DEIR statement (*6) is acknowledging the value of the SLR's existing visual character to which the CEQA Thresholds of Significance guidelines 1a-1d apply. The proposed amendments would impact 1a-1d when evaluated w/existing City guiding Plans & Figure 4.1-3a-3c, consequently Codes 21099 (e) & (b) (4) would apply.

The DEIR analysis here is unsubstantiated.

Scenic Views: The conclusion for Impact 4.1.1: Mitigation Measures is not substantiated by incorporating/addressing 4.1.2 CEQA thresholds of significance adequately w/valid proof. (Analytical Method 4.1–8, 1st paragraph) The City's 2030 General Plan Chapters (9–11) are not mentioned nor incorporated for this MM conclusion.

The DEIR MM reasoning is not substantiated with the SLR environmental policies/recommendations from adopted City's Plans and is incomplete.

4.3 BIOLOGICAL RESOURCES

- 4.3.1 Environmental Setting
- Throughout this section the DEIR is addressing the Transitional Stretch as an isolated part of the diverse SLR riparian corridor ecosystem. Each stretch of the SLR has its own microclimate ecosystem, which interacts with each other.
 - The DEIR analysis is incomplete, because it fails to integrate its Transitional Stretch findings to the entire SLR riparian corridor.
- The DEIR 'San Lorenzo River Habitats' findings were not derived from an up-to-date, year long scientific data base of a comprehensive San Lorenzo River wildlife & plant inventory that includes nesting inventory of local and migratory birds and specifies bird species that depend in various ways on SLR corridor habitat as a food source.

The DEIR's findings are therefore unsubstantiated due to lack sufficient data to analyze the impact of proposed amendments on the San Lorenzo River Habitat.

A seasonal bird survey is insufficient to adequately assess the SLR bird population. A minimal year -long scientific survey is needed for an in-depth

analysis of the SLR habitat. Not all species are included in the analysis, for example bats are not included nor the impacts on all species from the project assessed.

The DEIR's analysis is incomplete, because findings are not substantiated by adequate data.

- pg. 18 These statements require further data to gauge additional effects on ecosystems:
 - 1. The Solar Heat Gain from windows (diffuse radiation is the solar radiation that is absorbed, stored and scattered in the atmosphere.)
 - 2. The winter shade cooling long-range effect on vegetation & water temperature
 - 3. Increased wind flow impact on birds & vegetation.

The DEIR's findings are incomplete and require further information.

- 4.3.2 Up-dated studies on bird collision with glass is available and should be included in the analysis of impacts] Bird Collisions with Windows American Bird Conservancy than (Klem, March 2009, Hager et al., September 2008).
- Note the quote that: "The most dangerous building in this study was not a high-rise, but instead was a 6- story office building adjacent to densely vegetated open space. ", which is above 50'.

This statement substantiates the SLURP recommendation of 50' height maximum adjacent to densely vegetated open space.

The SLURP recommendation of 50' height is also supported with these findings:

- 1. The San Lorenzo River is an important riparian habitat, which is in the Pacific Flyway of winter & summer migrating birds, protected under Migratory Bird Treaty Act.
- 2. Migrating birds are known to rest, fed, take refuge from storms in water bodies & natural spaces, either to recuperate, refuel for the remaining migratory journey or stay for a season.
- 3. Neo-tropical migrants & local birds are known to nest in riparian & open-space ecosystems.
- 4. Riparian corridors are receiving increased Fed.& State agencies conservation efforts due to steep bird habitat loss caused by development.

- 5. The City's 2030 General Plan Natural Resources Goals, policies, actions reinforces the 50' height limit with NRC1.2.1-NRC1.3.
- 13 The DEIR fails to substantiate its findings for proposed height increase.

4.5 HYDROLOGY AND WATER QUALITY

The Draft EIR notes that a project impact would be considered significant if the project would

"Result in construction of habitable structures within a 100-year floodplain ... which would expose people or structures to a significant risk of loss, injury or death due to flooding;"

The Draft EIR acknowledges that the construction allowed by the Downtown Plan Amendments would take place within the San Lorenzo River 100-year floodplain. However, the Draft EIR concludes regarding flood risk, "No mitigation measures are required as a significant impact has not been identified." This contradiction could be resolved by a conclusion that the Project would have a significant impact due to flood risk.

the City's Vulnerability Study by Gary Griggs and Brent Haddad articulated a new understanding of the flood risk downtown. The Draft summarizes the flood risk due to rising groundwater, "As sea level continues to rise, seawater could extend farther upstream in the San Lorenzo River flood control channel more frequently, and rising gradually to higher elevations. This would lead to a rise in the water table beneath downtown. This area of the City has always been vulnerable to an elevated water table but this will become a more significant issue in the future, likely resulting in the need for more pumping and implementation of other adaptation strategies."

The Draft apparently expresses a belief that adaptation strategies can prevent significant loss to structures downtown due to an elevated water table. However, Gary Griggs, the author of the Vulnerability Study reports that adaptation measures are only temporary. In correspondence with Gary Griggs, the question was posed, "Does that mean a sea level rise of more than two to four feet will result in ground water at grade level downtown during peak tides?"

Here is an excerpt from his response: (correspondence between Gary Griggs and Rick Longinotti):

You read that correctly.... When you stop and think or consider what is under or beneath downtown, from electrical and phone lines, to water and sewer lines, and the extent of the downtown floodplain sand and gravels and their connectivity to the river and the ocean, the enormity of the problem

becomes apparent. We are not alone, look at New Orleans, but I'm not sure that's any consolation. We have some time but I don't see any adaptation measure short of eventually relocating downtown.

The City's Climate Adaptation Plan cites estimates for sea level rise that envision a 2-4 foot rise occurring between 2070 and 2100.

We conclude that the Environmental Impact Report needs to clearly represent the significant risk of locating buildings in the downtown floodplain.

The City's Climate Adaptation Plan notes that after increasing the height of the river levy in 2002, "New buildings and improvements are no longer mandated to meet FEMA flood construction requirements." We urge that a mitigation for the Project include restoration of flood construction requirements.

Consistency with City Plans

The Project needs to be made consistent with the adopted plans of the City of Santa Cruz. We note that the General Plan requires the City to make land use decisions that reduce impacts of sea level rise.

GENERAL PLAN GOALS RELATED TO CLIMATE ADAPTATION

NRC 4.3 Support initiatives, legislation and actions for reducing and responding to climate change.

NRC 4.5Minimize impacts of future sea level rise.

NRC 4.6Take early action on significant and probable global warming, land use and development issues, including those that arise after 2025.

We note that the City's Climate Adaptation Plan considers the following to be a "very high priority action":

Protect downtown and beach area from San Lorenzo River flooding

And the following is a "high priority action":

Restrict development in flood plains

4.6 PUBLIC SERVICES

According to the DEIR "The City is currently underserved for neighborhood and community parks and requires a total of 57 acres to meet these goals (City of Santa Cruz, February 2017). Yet the DEIR finds no significant impact from the project on parks and recreation. That the Park User fee will be a sufficient mitigation is not substantiated since there is little land left to acquire and city has a budget shortfall. The Mimi de Mata dog park, listed as a nearby park for the project population is tiny, for dog use and inadequate to be used to justify as mitigation. The upcoming Parks Master Plan does not include specifics for acquiring new park space. Given the current inadequate park space for current

residents, the project is more likely to have a significant and negative impact due to the lack of additional designated park space for the project.

4.7 TRAFFIC AND TRANSPORTATION

The DEIR underestimates the impact on the listed intersections as compared with the EIR for the 2030 General Plan. The DEIR should be amended to be consistent with the General Plan with the addition of the impacts of the project.

9711.0003

LETTER B4 – Sierra Club

- B4-1 Aesthetics and SB 743. The comment indicates that the DEIR does not address California Public Resources Code sections 21099, 21099(4), (2)(A), (2)(e), and that the "Aesthetics SB 743 findings are incomplete and unsubstantiated". The comment suggests that omission of the San Lorenzo River as an open space, riparian corridor affected the DEIR analysis pursuant to SB 743 regarding City plans. Section 21099 was enacted by California Senate Bill (SB) 743 in 2013. It addresses how traffic impacts be analyzed and requires that the Office of Planning and Research and the Natural Resources Agency develop and adopt new CEQA Guidelines with criteria for traffic impact analysis that does not use level of service as a measure of impact significance. The State has not yet taken any final action on new transportation thresholds as discussed in section 4.7, Traffic & Transportation, of the DEIR. The Aesthetics section further notes on pages 4.1-8 to 4.1-9 that provisions of Section 21099 with regards to determination of significant aesthetic impacts may be applicable to future developments within the study area that are within one-half mile of the Santa Cruz Metro Transit Center. The provisions of SB 743 are not applicable to the adoption of the Downtown Plan amendments, and there is no legal requirement for the City to make any findings pursuant to SB 743. See Response to Comment B4-2 regarding the San Lorenzo River.
- B4-2 Scenic Resources-San Lorenzo River. Regarding a statement in the Downtown Plan about the San Lorenzo River, the comment states that the DEIR fails to adequately address the habitat value of the San Lorenzo River and therefore inadequately assesses the environmental impacts of the project on the San Lorenzo River. The DEIR recognizes the San Lorenzo River as a prominent natural and open space feature in the downtown area as part of the review of existing scenic resources (see DEIR page 4.1-7). Impacts to scenic resources, including the San Lorenzo River are addressed on DEIR pages 4.1-9 to 4.1-11 with regards to scenic views and scenic resources. The proposed plan amendments and subsequent future development would not block views along the river or vegetation or natural features within the river's riparian corridor. Effects of increased heights on the visual character of the area, including the San Lorenzo River, are discussed on pages 4.1-11 to 4.1-16. The habitat value and biological resources of the San Lorenzo River are discussed in section 4.3, Biological Resources, in the DEIR; see pages 4.3-7 to 4.3-9 for a description. The section also identifies the riparian area along the river as a sensitive habitat, special status species utilizing the river habitats, and wildlife movement and breeding. Impacts to special status species, aquatic habitat, sensitive riparian habitat and nesting birds are evaluated on pages 4.3-17 through 4.3-23.
- B4-3 <u>Aesthetics Impact Significance</u>. The comment claims that the DEIR finding of no significant aesthetics impact is possible only because of the deficiencies noted in the above comment(s). The DEIR analyses are based on the thresholds of significance

identified on page 4.1-8 and as explained in the impact analyses. See also Response to Comments B4-1 and B4-2.

B4-4 Impact 4.1-3-Building Heights. The comment states that the DEIR fails to allow for the difference between increased heights downtown and along the San Lorenzo River, which is a habitat, and downtown is not. The comment also states that a volumetric approach is not an adequate response to the increased heights and massing allowed under the amendments, and that the claim in the DEIR that full buildout is unlikely is unsubstantiated.

The Downtown Plan amendments propose a lower increased height (50 feet up to 70 feet) adjacent to the river than other areas downtown (55 feet up to 85 feet) as reported and analyzed in the DEIR. See Response to Comment B4-2 regarding impact of increased height on the river. The DEIR reports on other plan amendments, including required upper floor setbacks/stepbacks to break up building mass and changes in the stepback standard that would allow a certain percentage of a site to have heights over a specified limit. The DEIR reports that this "volumetric approach" is intended to ensure both vertical and horizontal building variation to avoid monolithic structures as considered by City staff and Planning Commission in proposing new standards.

The DEIR does not claim that "full build-out is unlikely", but indicates that the photosimulations were developed to inform the public and City decision makers about the hypothetical "worst-case" appearance of full buildout under the DRP amendments, and it is not known whether properties will be assembled to achieve the size needed for the additional height allowance. See Response to Comment C9-1 for further discussion. Buildout assumptions for the EIR analyses are described on pages 3-13 and 3-14 in the DEIR.

The Comment states that the impact of increased human activity on the San Lorenzo habitat generated by the project is inadequately addressed in the DEIR. See Response to Comment B4-5.

B4-5 Access Connections to the San Lorenzo River. The comment states that the reasoning that three pathway connections to the San Lorenzo River will "create superior connections" to the river "lacks proof," and that there is no evaluation of the human impact to the river via such corridors. The comment regarding public access connections to the river is in reference to the Downtown Plan and does not address analyses in the DEIR; no response is required.

With regards to potential impacts to wildlife as a result of access along the river, the public currently has access to the Riverwalk on the west side of the San Lorenzo River, including from both Laurel Street and Soquel Avenue. The proposed amendment

9711.0003

introduces no new development, so would not result in the removal of any habitat or vegetation along the river. Because the area is already publicly accessible, any species, such as nesting or migratory birds, using this area are adapted to human presence. In addition, increased access to the river is already promoted in the San Lorenzo Urban River Plan (SLURP). As noted in Section 4.3 of the DEIR, the SLURP "contains recommendations for habitat enhancement, as well as public access and ideas to promote river-oriented development. 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." Therefore, any increase in access under this proposed amendment would only reinforce a priority of the SLURP, which also includes enhancing the river's biotic values. The DEIR analyzes and acknowledges potential impacts to birds from increased building heights because of the increase in window space and increased night-time lighting. See the discussion in Biological Resources, Section 4.3.2, Impact 4.3-2: Indirect Impacts to Sensitive Riparian Habitat, which focuses on this issue.

- B4-6 Impacts on Views. The comment says that the DEIR states that the project will "Enhance opportunities to view and interact with the San Lorenzo River as a coastal resource," which is invalid as demonstrated by Figure 4.1-3a-3c, which show that views are not enhanced by high buildings & building mass. The comment claims that the impact on views is not fully explored in the DEIR. The referenced statement is one of the project objectives identified on pages 3-3 and 3-4 of the DEIR. According to City staff, there are only four areas that provide access to the Riverwalk from Front Street in the project area: 2 asphalt ramps and access points near Soquel Avenue and Laurel Street. All of these access points for viewing and experiencing the river can be improved and enhanced by requiring new adjacent development to improve these connections. The river itself cannot be seen from Front Street. Only the levee can be seen from the pedestrian eye level west of the river, therefore, no new buildings will obstruct the views to the river. In addition to the opportunities to improve the four existing access points, the plan includes requirement to improve a fifth connection (near the streets of Soquel, Cathcart, Elm, Maple and Laurel). The enhanced access opportunities could be provided and improved under the plan requirements as indicated in Chapter 4, E. Front Street/Riverfront Corridor Development Standards and Guidelines, paragraph 5, "Access to the Riverwalk". See also Response to Comments B4-2 and B4-3 regarding impacts to views.
- B4-7 Impacts to Visual Character and Scenic Views. The comment claims that the DEIR analysis regarding visual character of the project area is unsubstantiated when evaluated with existing City plans and Figure 4.1-3a-3c to which Public Resource Codes apply, and the proposed amendments would impact the value of the San Lorenzo River's existing visual character to which the CEQA Thresholds of Significance guidelines 1a-1d apply. See Response to Comments B4-1, B4-2, B4-3, B4-4, and B4-5 regarding visual impacts related to the river.

9711.0003

The comment also states that the conclusion that no mitigation measures are required for Impact 4.1.1 is not substantiated and the City's General Plan 2030 chapters 9-11 are not mentioned or incorporated into the conclusion. Existing City General Plan and LCP consideration of scenic views are described on pages 4.1-6 and 4.1-7 in the DEIR. As discussed in the impact analysis of scenic views on pages 4.1-9 to 4.1-10, the proposed plan amendments and resulting potential buildings with increased heights would not block or substantially affect scenic views, which City plans consider to be views that are oriented toward the Monterey Bay and Pacific Ocean or toward the Santa Cruz Mountains that frame the northern boundary of the City. The analysis also indicates that future development would not block views of the river. Future development would be in the same location as existing buildings and would not block existing views of the river along the river levees. See also Response to Comment B4-6.

- B4-8 San Lorenzo River Habitat. The comment claims that the DEIR analysis is incomplete because it fails to integrate the Transitional Reach in which the project is located to the entire San Lorenzo River habitat. The DEIR does note that the project area is within the "Transitional Reach" of the river as defined and described in City adopted San Lorenzo Urban River Plan (SLURP), but the DEIR addresses biological resources to the extent that such resources would be affected by the project. As discussed in the DEIR, the project and future development would not result in removal of or direct impacts to riparian habitat. Except for one small area, the project area is located outside of the riparian management area of the river as identified in the adopted City-wide Creeks and Wetlands Management Plan, which is also part of the City's Local Coastal Program (LCP). Future development accommodated by the proposed plan amendments would meet required riparian setbacks as discussed on page 4.3-15 of the DEIR. The DEIR goes on to evaluate potential indirect impacts to habitat and wildlife using the river corridor due to shading effects, windows and lighting associated with taller buildings that could be developed as a result of the proposed plan amendments. Thus, the DEIR is not incomplete in its analyses.
- B4-9 <u>Biological Studies</u>. The comment indicates that the DEIR findings are unsubstantiated due to lack of sufficient data to analyze the impact of the proposed amendments on San Lorenzo River habitat because findings were not derived from an up-to-date, yearlong, scientific, comprehensive data base, including nesting survey, and that a seasonal bird survey is insufficient to adequately assess the San Lorenzo River bird population. See Response to Comment B3-4.
- B4-10 Solar Heat, Shading and Wind. The comment states that the DEIR is incomplete and requires further information regarding: 1) solar heat gain from windows (diffuse radiation is the solar radiation that is absorbed, stored and scattered in the atmosphere); winter shade cooling long-range effect on vegetation & water temperature; and 3) increased wind flow impact on birds & vegetation. See DEIR pages 4.2-18-19 regarding discussion of urban heat effect (no impact) and DEIR pages 4.3-17-

18 regarding effects of shading on San Lorenzo River riparian and aquatic habitats (less-than-significant impact). Future development would be of heights similar to other buildings that exist in the downtown area and would have no effect on weather or wind patterns.

- B4-11 <u>Bird Studies</u>. The comment indicates that there are more extensive and up-dated studies on bird collision with glass available and should be included in the analysis of impacts. The comment cites the following: 1) to Birds Collisions with Windows American Bird Conservancy; 2) Klem (March 2009); and 3) Hager et al. (September 2008). See Response to Comment B3-5.
- B4-12 <u>Bird Studies</u>. The comment references a statement from a bird study cited in the comment letter, which states that "The most dangerous building in this study was not a high-rise, but instead was a 6-story office building adjacent to densely vegetated open space," which substantiates the SLURP recommendation of a maximum 50-foot building height adjacent to densely vegetated open space. The comment also states other reasons to support the SLURP 50-foot height recommendation. The comment is acknowledged, but does not address analyses in the DEIR. No response is necessary, but the comment is referred to City staff and decision makers for further consideration. It is noted that the claim that the City's General Plan goals, policies and actions (NRC1.2.1 NRC1.3) reinforces the 50-foot height limit refers to policies that call for evaluation of potential impacts near riparian areas, working with agencies to mitigate impacts, and encouraging restoration of riparian corridors. The EIR has fully evaluated the potential impacts of the proposed project.
- B4-13 <u>Height Increase</u>. The comment states that the DEIR fails to substantiate its findings for proposed height increase. Findings for the proposed height increase are not required as part of CEQA review. However, City staff will provide a review of the proposed amendments with all legally required findings as part of the staff report for the project that will be presented to the City Planning Commission and City Council.
- B4-14 Impacts Related to Exposure to Floods and Sea Level Rise. The comment states that construction allowed by the plan amendments would locate development in the San Lorenzo River 100-year floodplain, which is a significant impact with consideration of sea level rise, and claims that the DEIR expresses a belief that adaptation strategies can prevent significant loss. The comment quotes correspondence with local geologist, Gary Griggs and co-author of the City's Climate Change Vulnerability Study, but does not provide the cited correspondence. The DEIR summarizes the conclusions of The Griggs study, including the following:

As sea level continues to rise, and as summer river discharge declines, the result will be seawater extending farther upstream in the flood control channel more frequently, and rising gradually to higher elevations. This

9711.0003

would lead to a rise in the water table beneath downtown. This area of the city has always been vulnerable to an elevated water table but this will become a more significant issue in the future. The higher the water table rises, the greater will be the impact, and the more pumping and other adaptation that will be required.

The Vulnerability Study also indicates that there are significant flood risks that will increase with a rising sea level and that the city needs to continue to work with state and federal agencies to regarding the ability of the river levees to contain a 100-year flood event. The City's Climate Adaptation Plan identifies the priorities and actions to address risks and hazards associated with climate change, including sea level rise.

The DEIR does acknowledge that flood hazards in the downtown area could be more significant in the future. Expanded text has been added to this discussion; see Chapter 3, Changes to Draft EIR, of this document. The proposed project is a "program" under CEQA, and no specific development is proposed as part of the project. At a program level, the DEIR discloses the other studies, plans and actions that the City has and continues to undertake to address issues of climate change and sea level rise.

- B4-15 <u>Flood Construction Requirements</u>. The comment urges that a mitigation for the project include restoration of flood construction requirements that are no longer mandated by FEMA as a result of increasing the height of the river levy in 2002. FEMA establishes flood construction requirements. The comment is acknowledged, but does not address analyses in the DEIR, and no further response is necessary.
- B4-16 Consistency with City Plans. The comment states that the project needs to be consistent with adopted City plans, and identifies General Plan goals and policies related to climate change. The referenced goals (NRC 4.3, 4.5, and 4.6) are directives to the City, and are not applicable to proposed project. The comment also notes two priority actions identified in the City's Climate Adaptation Plan, one of which is identified in the DEIR "protect downtown and the beach area from San Lorenzo River flooding," which is a very high priority. The comment also identifies a high priority action (B-13) that states "Restrict development in flood plains." As discussed in the DEIR (pages 4.5-6 to 4.5-7), the levee improvements completed in 2002 removed certain development restrictions for structures located in the 100-year floodplain. Such restrictions typically have included raised elevations and/or prohibiting residential development on ground floors.
- B4-17 <u>Public Services Parks</u>. The comment states that the DEIR indicates that the City is currently underserved for neighborhood and community parks, yet finds no significant impact from the project on parks and recreation. The comment further asserts that the EIR's conclusion that the Park User fee will be a sufficient mitigation is not substantiated, since there is little land left to acquire and city has a budget shortfall.

The comment states that given the current inadequate park space for current residents, the project is more likely to have a significant and negative impact due to the lack of additional designated park space for the project.

New development that may occur under the Downtown Plan will be located within a half-mile (the service radius for neighborhood-serving parks) to several existing neighborhood and community parks, which will provide a variety of recreational opportunities to new residents. Some of the larger parks include San Lorenzo Park, Riverside Gardens Park, Mike Fox Park, Laurel Park, and Depot Park. Mimi De Marta Park is limited to off-leash dog use; however, it is located within close proximity to Mike Fox Park and Riverside Gardens Park and serves a specific role in a broader mix of available uses. Similarly, some of the parks are located along the Santa Cruz Riverwalk, including a multi-use trail along the San Lorenzo River, which, when considered together, form a larger park corridor that provides access to a wide range of natural and developed recreational areas.

Additionally, the existing Downtown Recovery Plan identifies opportunities to improve connections to existing parkland. The plan envisions a riverfront park along the levee promenade between Soquel and Laurel Streets. The plan also calls for strengthening the linkage between the river and downtown along Cooper Street through the Galleria to the existing pedestrian bridge leading to San Lorenzo Park. It also recommends establishing stronger pedestrian linkages to the river at the northeast corner of Soquel Avenue and Front Street, at or near the extensions of Cathcart, Elm, and Maple streets, and leading to a significantly expanded pedestrian/bicycle bridge with retailing uses alongside, as well as a more active linkage to San Lorenzo Park.

The City's General Plan established a long-term goal to "strive" for 4.5 acres of neighborhood and community parkland per 1,000 residents. To help meet the goal, the General Plan includes an action to require park land dedications of suitable recreational land at a ratio or 4.5 acres/1,000 population generated by a development project, or payment of a corresponding in-lieu fees. The City's Municipal Code requires new residential subdivisions to dedicate land, or pay an in-lieu fee, for parks and open space as authorized by the Quimby Act. Additionally, the City has adopted a Park and Recreation Facilities Tax on residential construction, and fees are collected on various forms of residential development. Park-In Lieu fees and Park and Recreation Facilities Tax (see DEIR page 4.6-5) revenues are placed into separate accounts from the General Fund and mitigate for the impact of growth. The fees are collected incrementally as development occurs, which can help the Parks and Recreation Department pool a larger sum of money to be used for park improvements. The funds can be used to purchase parkland and/or to rehabilitate existing facilities that will receive more use as a result of new development. Acquiring new parkland can be challenging but does occur. For example, Riverside Gardens Park was constructed in 2014 and is near downtown.

Downtown Plan Amendments Final EIR

9711.0003

Therefore, the existing and planned facilities would serve the downtown area and future residents, and the impact on parks and recreational facilities is not considered significant. Additional text has been added to the DEIR discussion; see Chapter 3, Changes to Draft EIR, of this document.

B4-18 Traffic and Transportation. The comment states that the DEIR underestimates the impact on the listed intersections as compared with the EIR for the 2030 General Plan, and the DEIR should be amended to be consistent with the General Plan with the addition of the impacts of the project. The traffic analysis was based on updated traffic counts taken in 2014 and 2015 and updated traffic analyses to assess project and cumulative traffic impacts. Daily fluctuations in traffic can account for some differences in existing conditions for intersections evaluated in both the DEIR and General Plan EIR. See Responses to Comments B1-2, B1-5 and B1-6 regarding traffic analysis methods and comparisons to the General Plan EIR. As discussed in Response to Comment B1-6, project traffic estimates are not underestimated compared to General Plan EIR findings.

Ron Powers

From: Shawn Arnold <shawn_arnold@apple.com>

Sent: Monday, August 07, 2017 4:24 PM **To:** Ron Powers; Martin Bernal; Alex Khoury

Subject: Supporter of proposed riverfront development

Hi Ron, Martin and Alex,

1 Contrary to a few noisy neighbors, many of us are firmly in agreement with the high density growth proposed downtown. There is no doubt that the city needs additional reasonably priced housing (subjective I know) and this location serves two main purposes; students and downtown businesses.

These noisy neighbors offer no solutions and persist in zero growth (the way it used to be) and not in my back yard mentalities. These noisy neighbors do not speak for the bulk of us homeowners that understand that measured growth is the best way to move Santa Cruz forward over the next decade and beyond.

A mix of students and young couples and families directly in downtown would offer the sense of community that is missing when compared to other college towns. If you travel around the country, you see vibrant college downtown communities serving both of these demographics. The younger crowd prefers the close camaraderie of this living situation and I feel it benefits all parties. The current challenge with downtown is that it basically rolls up the carpets at 8-9PM each night with the only action towards the Catalyst. Businesses could take further advantage of this influx with later hours and it's obvious employee fiscal benefits.

As currently envisaged by these noisy neighbors, the downtown area remains stagnant. Please rise above the few and elevate the downtown area to an energetic neighborhood.

Regards, Shawn Arnold

LETTER C1 – Shawn Arnold

C1-1 <u>Support of Proposed Project</u>. The letter indicates support of growth proposed downtown. Comment is acknowledged and referred to City staff decision makers; no response is necessary.

Downtown Plan Amendments Final EIR

September 8, 2017

Ron Powers, Principle Planner
City of Santa Cruz Planning and Community Development Department
809 Center Street, Room 107
Santa Cruz, CA 95060

Email: Ron Powers - rpowers@cityofsantacruz.com

RE: Comments on Draft EIR - Downtown Plan Amendments

Dear Mr. Powers.

Here are some considerations that may not have been covered by others:

1. Figure 4.1-3A and Figure 4.1-3B - The pencilled in dotted lines show the sky, trees and granularity of the existing Downtown area and so does not reflect the proposed Zoning adequately.

Shouldn't this picture be in the EIR instead?



Proposed building massing and public access requirements along Front Street and the riverfront.

2. **Zoning - Linear Feet Frontage versus Granularity and impact on Community vibrancy?** Here is a picture of two scenarios and as you can see, a picture is important to show the significance of the mass of a building. The one on the left also has granularity that attracts the Community and on the right it does not:





The rezoning will allow massive buildings of 250 feet. The imposing nature of those buildings so close to the RiverWalk could make that area less inviting and therefore encourage more issues along the River.

Image source: Older Smaller Better - May 2014 report

http://forum.savingplaces.org/act/pgl/older-smaller-better?_ga=2.31398591.1638040152.1504919371-266602711.1504919371

3. Housing Formula - Market Rate vs. Affordable Housing:

Please consider the Affordable Housing Inclusionary Formula per the San Francisco study:

Originally the Residential Nexus study was referenced in Gillian's article - Challenging Housing Assumptions http://brattononline.com/january-10-16-2017/

Article about why market rate housing makes the affordable housing crisis worse..! http://48hills.org/2015/06/14/why-market-rate-housing-makes-the-crisis-worse/

Actual study...

http://sf-planning.org/sites/default/files/FileCenter/Documents/8380-FINAL%20Resid%20Nexus 04-4-07.pdf

From the 48hills.org article:

So according to the study, by Keyser Marston Associates, every time the city allows 100 new high-end housing units, it needs to build between 20 and 43 new affordable units – *just to keep the housing balance the way it is now.* Put the affordable units in the main complex and the impact is lower (because fewer millionaires move in). Built them, as is common, somewhere else and the impact is greater.

In summary, for every 100 market rate condominium units there are 25.0 lower income households generated through the direct impact of the consumption of the condominium buyers and a total of 43.31 households if total direct, indirect, and induced impacts are counted in the analysis.

If the city demands 15 percent affordable set-asides, then every market-rate building adds more demand for affordable housing than it supplies. That means every new building makes the housing crisis worse.

4. Section 6 - References - Gary Griggs Climate Change Vulnerability Study Considerations?

I am very surprised to find no reference to Gary Grigg's Vulnerability Study in reference to Downtown. To what extent is the EIR considering these Downtown Vulnerability risks and the impact on the Downtown Update Zoning changes?

https://seymourcenter.ucsc.edu/OOB/SCClimateChangeVulnerabilityAssessment.pdf

		Probability / Likelihood of Occurrence					
		Low	Moderate	High	Very High		
Magnitude of Consequence	Low			Heat Wave			
	Moderate	Shoreline Inundation		Coastal Cliff Erosion			
	High	Wildfires	Downtown Flooding	Water Table Rise Downtown	Water Shortages		

Risk = Probability x Consequence

Figure 30a. Short to Intermediate Term Risk Ranking 2010 – 2050

		Probability / Likelihood of Occurrence					
		Low	Moderate	High	Very High		
Magnitude of Consequence	Low				Heat Wave		
	Moderate		Shoreline Inundation		Coastal Cliff Erosion		
	High		Wildfires	Downtown Flooding	Water Shortages Water Table Rise Downtown		

Risk = Probability x Consequence

Figure 30b. Intermediate to Long-Term Risk Ranking 2050 - 2100

5. Traffic impacts - Level of Service "F" at key intersections along Laurel: While the General Plan allows for LOS of F at some regional intersections, these are the main exit routes for the Downtown Metro System. What would be the impact of LOS F for the Santa Cruz Metro Bus System? I don't see that the Metro Agency was referenced as contacted in Chapter 6.1 - Agencies and Persons Contacted. There is no mention of the Metro personnel as being contacted.

TABLE 5-2: Intersection Weekday Cumulative PM Peak Hour Levels of Service with Project

#	Intersection	Control Tuno	LOS	Cumulative Plus Project Conditions ² PM Peak Hour		
			Threshold ¹			
			Tillesholu	Movement	Delay ³	LOS
1	Front Street / Laurel Street	Signal	D	Overall	100.2	F
2	Pacific Avenue / Laurel Street	Signal	D	Overall	105.9	F
3	Front Street / Cathcart Street	Signal	D	Overall	23.5	С
4	Front Street / Metro Station Driveway	Signal	D	Overall	6.4	А
	Pacific Avenue / Metro Station Driveway	SSSC	D	Overall	1.7	Α
5		Worst Approach	D	WB	10.5	В
6	Pacific Avenue / Maple Street	AWSC	D	Overall	7.7	A
7	Pacific Avenue / Front Street / Mission-Water Street	Signal	D	Overall	32.3	С
8	Front Street / Soquel Avenue	Signal	D	Overall	59.9	E
9	Pacific Avenue / Cathcart Street	AWSC	D	Overall	8.3	А
	Soquel Avenue / Pacific Avenue	SSSC	D	Overall	4.3	Α
10		Worst Approach	D	WB	9.5	A
11	Ocean Street / Water Street	Signal	D	Overall	228.1	F
12	Highway 1 / Highway 9	Signal	C-D	Overall	269.2	F
13	Chestnut Street / Mission Street / Highway 1	Signal	C-D	Overall	344.0	F

Source: Kimley-Horn, May 2017.

Notes:

- The City of Santa Cruz has established LOS D as the minimum acceptable LOS for overall intersection operations during the AM and PM peak hours. However, under the existing General Plan, the City accepts a lower LOS (F) at some major regional intersections per existing Circulation Policy 5.1.2.
- Analysis performed using HCM 2010 methodologies, except for Intersection 7 where HCM 2000 methodology was applied as explained above.
- 3. Delay is shown in seconds/vehicle.
- 4. Intersections that fall below the LOS threshold are shown in bold.

Sincerely, Candace Brown - Santa Cruz, CA

9711.0003

LETTER C2 – Candace Brown

- C2-1 <u>DEIR Figures 4.1-3A and 3B</u>. The comment questions whether Figure E-2 from the proposed Downtown Plan should be included to adequately depict the proposed project. During the NOP process for this EIR, public comments were received by the City that requested that the EIR include visual simulations that would illustrate eyelevel perspectives to represent the true perspective of any potential visual impacts. All of the photographic simulations were prepared using eye-level actual photographs as the basis for realistic analysis and more accurate representation of potential building heights. Figure E-2 is from an oblique, birds-eye view, which does not accurately reflect eye-level visual impacts.
- C2-2 <u>Building Mass</u>. The comment presents photos of buildings from other locations to show building mass and states that the rezoning will allow massive buildings of 250 feet that due to their imposing nature could make the area less inviting and result in more issues along the river. The comment is acknowledged, but does not address analyses in the DEIR. City staff notes that the existing downtown is composed of both 'granular' architecture and less granular architecture. The lot pattern and development pattern contribute to variation of architectural details. The proposed Downtown Plan standards recognize that development in the future will likely occur on both small lots, as well as larger aggregated parcels. The draft Downtown Plan development standards include a requirement for both vertical and horizontal variation in order to create opportunities for more granular design. People experience the street from a pedestrian, ground-level perspective and therefore, the attention to storefronts is a very critical component of the regulations which are not proposed to be modified from the successful existing Downtown Recovery Plan language.
- C2-3 Affordable Housing. The comment asks that the San Francisco Affordable Inclusionary Formula be considered. The comment is acknowledged but does not address analyses in the DEIR. Affordable housing and the Inclusionary housing ordinance are not part of the Downtown Plan, but are adopted as separate City ordinances. Development in the downtown area must comply with State and City-adopted affordable housing standards. No further response is necessary, but the comment is referred to City staff and decision makers for further consideration.
- C2-4 <u>Climate Change Vulnerability Study</u>. The commenter is surprised to find no reference to Gary Grigg's Vulnerability Study and asks whether the DEIR considers risks and impacts of the project. The referenced study was utilized in the DEIR analyses and is included in the DEIR's cited references; see DEIR pages 4.5-9, 4.5-10, 4.5-13, and 6-5. The DEIR text has also been expanded; see Chapter 3, Changes to Draft EIR, of this document.

C2-5 Traffic Impacts to Santa Cruz Metro Bus System. The comment asks what the impact of LOS F along Laurel Street would be to the Santa Cruz Metro bus system, and states there is no reference to contacting Metro (Santa Cruz Metropolitan Transit District) staff. The level of service calculated along transit corridors is a measure of delay to all vehicles using the corridor. The average delay identified for vehicles at each of the study intersections would also be applicable to the delay to transit vehicles.

Downtown Plan Amendments Final EIR

Ron Powers

From: Ted Burke <tedburke@shadowbrook-capitola.com>

Sent: Friday, August 04, 2017 11:10 AM

To: Alex Khoury

Subject: Support the Santa Cruz Downtown Recovery Plan

Dear Assistant Director Khoury,

As a city resident and an employer of 135 local residents and a business owner for nearly 40-years who has contributed significant amounts of property, Admission and sales tax to Santa Cruz city government I have come to understand that the Santa Cruz downtown is vitally important to our community. It is also very important to my 135 employees and their families. Thus, the updated Downtown Recovery Plan (DRP) represents a major opportunity for achieving a mix of housing options in the planning area with a walkable and thriving downtown experience.

I agree with the DRP's revisions as part of an overall effort to reconfirm the City objective to maintain a compact and efficient urban form with public greenbelt to limit suburban-type sprawl, and to provide some appropriate development incentives to activate the river connections, a longstanding objective of the City's vision. The Downtown Recovery Plan should be adopted as soon as possible.

The City should actively pursue the following elements that are already included in the DRP:

- 1) Create significant new housing opportunities targeted throughout the downtown, including Pacific Avenue, the San Lorenzo riverfront and south of Laurel. Housing should be comprised of a mix of apartments and condominiums.
- 2) Encourage residential development as a second-floor use throughout the downtown area.
- 3) Develop a comprehensive housing implementation strategy and establish a feasible program for the creation of market-rate and affordable housing, including developer incentives, public participation in financing, parking reductions, etc.

I further support the City's efforts to update its Inclusionary Housing Ordinance as one of many tools to meet the needs of our residents. As recently as 2014, the Santa Cruz area was named the least affordable metropolitan area in the country factoring in the cost of housing. As of February 2017, the average rent for a two bedroom unit was \$2,569 and the median home price was \$795,500.

Please take action on the DRP and Inclusionary Housing as soon as possible.

Sincerely,

Ted Burke
PO Box 65
Capitola, CA 95010
tedburke@shadowbrook-capitola.com

LETTER C3 – Ted Burke

C3-1 <u>Support of Proposed Project</u>. The letter indicates support of the proposed Downtown Plan amendments and City's efforts to update its Inclusionary Housing Ordinance with suggestion of actively pursuing elements that are already in the Downtown Recovery Plan regarding new residential development. Comment is acknowledged and referred to City staff decision makers; no response is necessary.

Downtown Plan Amendments Final EIR

Ron Powers

From: will cassilly <willcassilly1@comcast.net>
Sent: Tuesday, August 01, 2017 10:47 AM

To: Ron Powers

Subject: EIR downtown santa cruz

1 Please do not raise the height limits on buildings downtown or in the corridors of Santa Cruz. They are already hight enough. Any higher building heights and you lose the feel of small town Santa Cruz.

And the traffic situation is already bad, so larger buildings would only mean an increase in traffic.

Thank you, Will Cassilly

LETTER C4 – Will Cassily

C4-1 <u>Building Heights</u>. The commenter asks that downtown building heights not be raised, and there would be an increase in traffic. The comment is acknowledged, but does not address specific analyses in the DEIR. No response is necessary, but the comment is referred to City staff and decision makers for further consideration.

Downtown Plan Amendments Final EIR

Ron Powers

From: Tyler Derheim <tyler@derheim.org>
Sent: Friday, August 04, 2017 1:35 PM

To: Ron Powers

Subject: Resident comment on Downtown Plan Amendments Draft EIR

Hello Mr. Powers,

My name is Tyler Derheim. I reside at 118 Cayuga St in Seabright.

I would like to express my ardent opposition to the code and zoning changes illustrated in this EIR. As evidenced by the PAMF monstrosity on Mission St, allowing modern tall buildings on our corridors results in profound, irreversible, damaging loss to city identity and aesthetics. Let suburbia be suburbia and keep Santa Cruz weird. I must insist.

Thank you for your time, Tyler Derheim

LETTER C5 – Tyler Derheim

C5-1 Oppose Project. The commenter states opposition to the proposed plan changes. The comment is acknowledged, but does not address analyses in the DEIR. No response is necessary, but the comment is referred to City staff and decision makers for further consideration.

Downtown Plan Amendments Final EIR

4-63

Ron Powers

From: Eric McGrew <eric@envisionhousing.us>
Sent: Friday, August 04, 2017 11:11 AM

To: Alex Khoury

Subject: Support the Santa Cruz Downtown Recovery Plan

Dear Assistant Director Khoury,

The Santa Cruz downtown is vitally important to our community. The updated Downtown Recovery Plan (DRP) represents a major opportunity for achieving a mix of housing options in the planning area with a walkable and thriving downtown experience.

I agree with the DRP's revisions as part of an overall effort to reconfirm the City objective to maintain a compact and efficient urban form with public greenbelt to limit suburban-type sprawl, and to provide some appropriate development incentives to activate the river connections, a longstanding objective of the City's vision. The Downtown Recovery Plan should be adopted as soon as possible.

The City should actively pursue the following elements that are already included in the DRP:

- 1) Create significant new housing opportunities targeted throughout the downtown, including Pacific Avenue, the San Lorenzo riverfront and south of Laurel. Housing should be comprised of a mix of apartments and condominiums.
- 2) Encourage residential development as a second-floor use throughout the downtown area.
- 3) Develop a comprehensive housing implementation strategy and establish a feasible program for the creation of market-rate and affordable housing, including developer incentives, public participation in financing, parking reductions, etc.

I further support the City's efforts to update its Inclusionary Housing Ordinance as one of many tools to meet the needs of our residents. As recently as 2014, the Santa Cruz area was named the least affordable metropolitan area in the country factoring in the cost of housing. As of February 2017, the average rent for a two bedroom unit was \$2,569 and the median home price was \$795,500.

Please take action on the DRP and Inclusionary Housing as soon as possible.

Sincerely,

Eric McGrew 4705 Jewel St Capitola, CA 95010 eric@envisionhousing.us

LETTER C6 – Eric McGrew

C6-1 <u>Support of Proposed Project</u>. The letter indicates support of the proposed Downtown Plan amendments, encourages the City to create strong housing opportunities throughout downtown, and supports the City's efforts to update its Inclusionary Housing Ordinance with suggestion of actively pursuing elements that are already in the Downtown Recovery Plan regarding new residential development. Comment is acknowledged and referred to City staff decision makers for consideration; no response is necessary.

Downtown Plan Amendments Final EIR

Ron Powers

From:

Jane Mio <jmio@earthlink.net>

Sent:

Thursday, September 07, 2017 8:11 PM

To: Cc: Ron Powers

C. 1. .

City Council

Subject:

CAUTION: Verify Sender Before Opening! Submitting DEIR comments for DRP

Attachments:

A DEIR comments for DRP 9-7-2017.doc; B DEIR comments for DRP 9-7-2017.doc

Hi Ron,

I am sending you my documents w/the DEIR comments for the Downtown Recovery Plan. Thank you so much for confirmation that they arrived on your screen. Kind regards, jane mio

Comments for the DPR DEIR 4.1 AESTHETICS

The DEIR does not address these codes in the California Public Resources Code section 21099, 21099(4), (2)(A), (2)(e)

https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=13.&title=&part=&chapter=2.7.&article=Codes Display Text

Since January 2014 the SB 743 has received various guidelines revisions with the potential of raising legal difficulties. Jan. 2016 CEQA guideline on evaluating Transportation impacts in CEQA states: "The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data."

SB 743 doesn't address/include developments areas that are adjacent to City's Open Spaces area, watershed, riparian corridors with a detailed aesthetic definition. Consequently local public lead agencies have responsibility to fulfill the City's Plans such as "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." (City's 2030 General Plan Park & Rec. Open Spaces)

Codes 21099 (4), (2)(A) & (2)(e) codes validate the City's local Plans. The codes demonstrates that the aesthetic assessment of the SB 743/21099 codes is defined by public lead agencies, other agencies & local Plans for which the San Lorenzo River qualifies.

The DEIR Aesthetics SB 743 findings are incomplete and unsubstantiated, because not all CPRC codes pertaining to proposed amendments were addressed nor were all current CEQA guidelines considered. The omission of the San Lorenzo River as an Open Space, riparian corridor in the Regional Setting section (pg. 4.1-5) affected the DEIR analysis for SB 743 in regard to City plans.

Scenic Resources: 4.1-7

With respect to the proposed new widened alleys connecting to the river, currently the SLR is accessible from various river paths. The reasoning that 3 pathways through high building mass areas will create superior connections to the San Lorenzo River lacks proof. The DEIR states that the project will, "Enhance opportunities to view and interact with the San Lorenzo River as a coastal resource." This statement is invalidated as demonstrated by Figure 4.1-3a-3c, which show that views are not enhanced by high buildings & building mass. The impact on views is not fully explored in the DEIR.

The Visual Character of the Project Area DEIR statement (*6) is acknowledging the value of the SLR's existing visual character to which the CEQA Thresholds of Significance guidelines 1a-1d apply. The proposed amendments would impact 1a-1d when evaluated with existing City guiding Plans & Figure

- 4.1-3a-3c, consequently Codes 21099 (e) & (b) (4) would apply, consequently not substantiating DEIR analysis.
- 3 Scenic Views: The conclusion for Impact 4.1.1: Mitigation Measures(MM) is not substantiated by incorporating/addressing 4.1.2 CEQA thresholds of significance adequately with valid proof. (Analytical Method 4.1-8, 1st paragraph) The City's 2030 General Plan Chapters (9-11) are not mentioned nor incorporated for this MM conclusion. The DEIR MM reasoning is not substantiated with the SLR environmental policies/recommendations from adopted City's Plans and is incomplete.
 - The DEIR does not address if the lead agency presented alternative plans for the project site for public input.
- The DEIR does not mention that lead agency conducted a Santa Cruz Community survey/poll to gauge the public's opinion of the proposed height impact impeding a community vista from the riparian corridor/watershed to mountain sky line for decades to come.

4.3 BIOLOGICAL RESOURCES

- 5 4.3.1 Environmental Setting
 - The DEIR is required to examine in depth the relationship/impacts of proposed amendments on the environment features of the San Lorenzo River, a riparian corridor, an Open Space, a watershed, a Natural Resource (Chapter 10: '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.' This requires that the DEIR findings rely on/include the environment policies/recommendations/directions/actions/goals of the various City's adopted, guiding plans such as SLURP, which resulted from a grounded assessment on a scientific, meticulously detailed study/report. Lower San Lorenzo River & Lagoon Management Plan.

 The DEIR is incomplete due to insufficient references/inclusion of City Plans environmental policies/recommendations/directions/actions/goals.
- 6 Throughout this section the DEIR is addressing the Transitional Stretch as an isolated part of the diverse SLR riparian corridor ecosystem. Each stretch of the SLR has its own microclimate ecosystem, which interacts with each other. (3c,3d)
 - The DEIR analysis is incomplete, because it fails to integrate its Transitional Stretch findings to the entire SLR riparian corridor and City plans environment sections.
- The DEIR 'San Lorenzo River Habitats' findings were not derived from an up-to-date, year long scientific data base of a comprehensive San Lorenzo River wildlife & plant inventory that includes nesting inventory of local and migratory birds, specifies bird species and wildlife that depend in various ways on SLR corridor habitat as a food source.
 - The DEIR needs to base its Tidewater goby MM on a thorough goby survey.
- The DEIR fails to address the environmental value of the SLR mature trees, which create an ecosystem to provide habitat/food/shelter for birds and wildlife. Loss of mature trees creates habitat loss for birds, causing increase for an already steep decline of the bird population. One large **tree** can supply a day's supply of oxygen for four people.

DEIR is incomplete, because bird habitat loss, due to mature tree removal, was omitted for MM assessment.

9 The DEIR statement is missing supporting data for this assessment:

'The proposed LCP and Zoning Code amendments would not result in changes that could indirectly lead to intensified development.'

The sentence 'or alter sensitive habitat (3b, 3g)' is omitting study/data to support that statement.

- pg 15 The DEIR incorrectly states that SLURP's primary goal is improved access to the SLR. SLURP's priority is 'the Restoration of the River.' & 'recognize that the River is first a habitat area for fish and wildlife and second a passive recreational area for enjoyment by the community.'

 The DEIR finding is invalid due to mis-representating SLURP's priority.
- pg. 18 These statements require further data to gauge additional effects on ecosystems:
 - 1. The Solar Heat Gain from windows (diffuse radiation is the solar radiation that is absorbed, stored and scattered in the atmosphere.)
 - 2. The winter shade cooling long-range effect on vegetation & water temperature
 - 3. Increased wind flow impact on birds & vegetation.

The DEIR's findings are incomplete and require further information.

4.3.2 Up-dated studies on bird collision with glass is available and should be included in the analysis of impacts] **Bird Collisions** | **American Bird Conservancy**

Bird Collisions with Windows - American Bird Conservancy

Note the quote that: "The most dangerous building in this study was not a high-rise, but instead was a 6-story office building adjacent to densely vegetated open space, which is above 50'.

This statement substantiates the SLURP recommendation of 50' height maximum adjacent to densely vegetated open space.

The SLURP recommendation of 50' height is also supported with these findings:

- 1. The San Lorenzo River is an important riparian habitat, which is in the Pacific Flyway of winter & summer migrating birds, protected under Migratory Bird Treaty Act.
- 2. Migrating birds are known to rest, fed, take refuge from storms in water bodies & natural spaces, either to recuperate, refuel for the remaining migratory journey or stay for a season.
- 3. Neo-tropical migrants & local birds are known to nest in riparian & open-space ecosystems.
- 4. Riparian corridors are receiving increased Fed.& State agencies conservation efforts due to steep bird habitat loss caused by development.

14 5. The City's 2030 General Plan Natural Resources Goals, policies, actions reinforces the 50' height limit with NRC1.2.1-NRC1.3.

The DEIR fails to substantiate its findings for proposed height increase.

The DEIR findings do not reference/include SLURP's 50' height development/environment findings(pg. 63). This omission eliminates a discussion of why Area X, adjacent to a riparian corridor, is slated from 0 to 321 residential units and a 29,467 sf commercial & office space increase on 3.35 acres while Area Y receives a 113 residential units increase and a 43,969 sf commercial & office space reduction on 5.10 acres. The omission eliminates exploration of alternative plans for proposed amendments and curtails any discussion how to appropriate integrate environment and City's housing/economic needs.

The 50' height is supported by the City 2007-2014 RHNA statement: 'Given the dissolution of redevelopment during this period as well as the recession, which strongly affected housing constructions the later years of this planning period, the City did very well toward meeting its RHNA.' & 'is almost 20% ahead of total RHNA allocation.' This data does not include 2015-2017 data.

The DEIR findings are incomplete due to excluded information.

Jane Mio, Santa Cruz, Calif. Sept 7th, 2017

Comments submitted for the DRP DEIR

Land Use:

Zoning Code:

The DEIR fails to acknowledge/recognize that the City's 2030 General Plan and SLURP aim to enhance, protect, restore Open Spaces, Natural Resources, riparian corridor with their clear directions. Neither Plan states anywhere that development takes priority over environmental concerns/considerations. Unless the proposed amendment site and the riparian corridor are addressed of equal importance as the other directions the DEIR loses the opportunity to "reconcile" or "harmonize" seemingly disparate general plan policies to the extent reasonably possible (No Oil, supra, 196 Cal.App.3d at p. 244).

The DEIR is incomplete, because it does not give sufficient City Plans environment information to 'reconcile' and 'harmonize' project site with SLR.

Impacts of the to- be -revised LCP and soon-to-be- published Habitat Conservation Plan on proposed amendments qualify for further information.

- Further details are required to rectify NPDES ratio of proposed amendments with regard to Santa Cruz low land inventory.
- 17 The table does not include NRC1.2.1-NRC1.3-NRC1.2.2, which apply to San Lorenzo River & have to be addressed.
- The DEIR doesn't address the issues of the proposed fill-in of the levee ditch such as: the importance of open slope for levee structure inspections/repairs, the loss of land toe availability for levee/property measurements nor the flooding risks for coastal cities due to heavy coastal storms.

 How Houston's unregulated growth contributed to Harvey's flooding disaster Washington Post

https://www.washingtonpost.com/news/energy-environment/wp/2017/08/29/hurricane-harvey-shows-how-we-underestimate-flooding-risks-in-coastal-cities-scientists-say/?hpid=hp_hp-top-table-main flood-risk540am%3Ahomepage%2Fstory&utm term=.c845ea354931

- 19 SRFA 10 and SRFA 11 are not substantiated according to Aesthetic figures 3a-3c
- 20 The DEIR does not mention that the project site qualifies for the new Fed. mandated boring standards. http://www.geoengineers.com/blog/new-usace-permitting-standards-boring-near-federally-regulated-levees
- The DEIR is not addressing section 4. **0 Watercourse Development Permit Procedures** of the Creek & Wetland plan adequately to gain an in-depth analysis for its findings.

Hydrology:

22 The DEIR fails to mention: the 3 current pump stations, operating at full capacity in heavy storms or during lagoon conditions, are unable to prevent street and neighborhood flooding adjacent to the river. The DEIR omits to detail how well the current City's equipment is able to protect proposed project in view of increased storm water discharge and more severe coastal winter storms, causing the river water level to rise, Downtown ground water intrusion and a levee bank fill-in.

Public Services:

- 23 It is questionable that the proposed project wouldn't qualify as a new development. The demolished existing buildings will be replaced by new much higher density buildings, which will require City to supply updated water, sewage, electricity, storm drainage service.
 - <u>'</u>The proposed LCP and Zoning Code amendments would not result in changes that could indirectly lead to intensified development.' This sentence needs clarification since it implies that proposed amendments would not achieve the desired outcome.
- 24 The DEIR fails to acknowledge statistically that a 14,000 square feet decrease of commercial use cause less traffic then proposed residential units.

Air Quality & Green House Emission

25 The DEIR isn't including information and data how the proposed building heights and increased traffic effect the CO level.

Climate Change:

- 26 The DEIR fails to address the data that states recent California's Greenhouse Gas(GHG) emission has fallen less than 1%.
 - Further current data is needed to prove that the proposed project is not obstructing GHG emission attainment.
- The DEIR states that proposed project housing units were below AMBAG 2030 forecast, and concludes that with proposed project it would fulfill AMBAG forecasts for 2030 and 2035. This conclusion needs clarification. The AMBAG forecasts are a general housing outline and do not address any directions for where development should occur. To use the AMBAG forecast as a reason to put proposed project adjacent to riparian corridor is not valid.

Urban Heat Island Effect:

DEIR bases its findings on the adjacent current buildings to riparian corridor, which are mainly 1 story high and are not subject to Urban Heat Island Effect. DEIR fails to address the Urban Heat Island Effect of 70' to 85' building mass. The DEIR does not include the Urban Heat Island Effect on the riparian corridor ecosystem.

- 29 E. Front St. in Area X receives an increase of 321 (from 0) residential units and a 29,467 sf commercial & office space increase. DEIR is not including any quantifying data for traffic ratio from commercial & office space versus residential units. These items need more information to sustain DEIR finding.
- DEIR fails to state that the project's estimated GHG emissions, exceeding the significance threshold (about 4,053 MT/ CO₂E year), would not effect the adjacent riparian corridor. The DEIR is not addressing how building height increase and building mass traps GHG emissions and its acculmative effect on the riparian corridor.
- Cities, that are in the vicinity of where a river joins the ocean, are more subject to flooding due to Climate Change. The DEIR is not including this Climate Change impact information. new study https://www.washingtonpost.com/news/energy-environment/wp/2017/08/29/hurricane-harvey-shows-how-we-underestimate-flooding-risks-in-coastal-cities-scientists-say/?utm term=.dddcb4698bbd

Jane Mio, Santa Cruz, Calif. Sept 7th, 2017

LETTER C7 – Jane Mio

- C7-1 Aesthetics and SB 743. The comment indicates the "Aesthetics SB 743 findings are incomplete and unsubstantiated". The comment suggests that omission of the San Lorenzo River as an open space, riparian corridor affected the DEIR analysis for SB 743 regarding City plans. The provisions of SB 743 are not applicable to the adoption of the Downtown Plan amendments, and there is no requirement for the City to make any findings pursuant to SB 743. See Response to Comment B4-1 for further discussion.
- C7-2 Impacts on Views. The comment says that the DEIR states that the project will "Enhance opportunities to view and interact with the San Lorenzo River as a coastal resource," which, according to the commenter, is invalid as demonstrated by Figure 4.1-3a-3c, which the commenter believes shows that views are not enhanced by high buildings & building mass. The comment asserts that the impact on views is not fully explored in the DEIR, and that the statement acknowledges the San Lorenzo River's existing visual character to which CEQA thresholds of significance apply. See Response to Comment B4-6 and Response to Comments B4-2 and B4-3 regarding visual impacts associated with the San Lorenzo River and thresholds of significance.
- C7-3 Impacts to Visual Character and Scenic Views. The comment states that the DEIR's conclusion that no mitigation measures are required for Impact 4.1.1 is not substantiated and the City's General Plan 2030 chapters 9-11 are not mentioned or incorporated into the conclusion. See Response to Comment B4-7. The comment also states that the DEIR does not address if the lead agency presented alternative plans for the project site for public input. The proposed project does not include specific development or site plans for a particular site. See DEIR pages 3-13 and 3-14 regarding buildout assumptions used for the EIR analyses, and see DEIR pages 5-14 to 5-29 for a discussion of project alternatives. It is also noted that the proposed plan amendments were developed through series of meetings with the City's Planning Commission, which were open to the public.
- C7-4 Community Survey. The comment says that the DEIR does not mention that the lead agency conducted a Santa Cruz Community survey/poll to gauge the public's opinion of the proposed height impact impeding a community vista from the riparian corridor/watershed to mountain sky line for decades to come. The comment is acknowledged, but does not address analyses in the DEIR. City staff is not aware of the community survey/poll identified in the comment. The DEIR analysis addresses impacts to distant mountain views and along the river; see pages 4.1-9 and 4.1-10.
- C7-5 <u>Riparian Impacts</u>. The comment indicates that the DEIR is required to examine the impacts of the proposed amendments on the environmental features of the San Lorenzo River and references the City's General Plan Chapter 10. Potential conflicts with General Plan policies are addressed on pages 4.9-5 to .9-4.9-8 of the DEIR and on

the table on pages 4.9-9 and 4.9-10. This table has been revised; see Chapter 3, Changes to Draft EIR, of this document. Other relevant plans were reviewed and summarized where relevant, including the SLURP and Lower San Lorenzo River and Lagoon Management Plan that are cited in the comment. The Lower San Lorenzo River and Lagoon Management Plan is an appendix in the SLURP. Additional discussion on the SLURP has been added; see Chapter 3, Changes to Draft EIR, of this document.

- C7-6 <u>San Lorenzo River Habitat</u>. The comment claims that the DEIR analysis is incomplete because it fails to integrate the Transitional Reach in which the project is located to the entire San Lorenzo River habitat. See Response to Comment B4-8.
- C7-7 <u>Biological Studies</u>. The comment states that the DEIR findings regarding San Lorenzo River habitats were not derived from an up-to-date, year-long, scientific, comprehensive data base, including nesting surveys, and that the DEIR needs to base its tidewater goby MM on a thorough goby survey. See Response to Comment B4-9 regarding biological studies. The project would not result in direct or indirect adverse impacts to San Lorenzo River aquatic habitat or fish species as discussed in the DEIR.
- C7-8 Tree Removal. The comment states that the DEIR fails to address the environmental value of the San Lorenzo River mature trees, which create an ecosystem to provide habitat/food/shelter for birds and wildlife, and loss of mature trees creates habitat loss for birds that was omitted in the DEIR. San Lorenzo habitats and vegetation near the project area are described on pages 4.3-8 and 4.3-9 of the DEIR. Riparian vegetation in this area consists of riparian and other low-growing vegetation on the channel side of the river, and planted trees on the land side of the levee. Future development accommodated by the Plan amendments would occur on the landward side of the river levee and would not include removal of riparian vegetation, and thus, there would be no impact to mature trees along the river. The Aesthetics section indicates that the proposed project would not affect adjacent natural features of the San Lorenzo River (DEIR page 4.1-11).
- C7-9 LCP and Zoning Code Amendments. With regards to the Biological Resources section, the comment claims two sentences are missing supporting data or are unsubstantiated. The comment's first reference is to the statement on page 4.3-17 that reads: "The proposed LCP and Zoning Code amendments would not result in changes that could indirectly lead to intensified development." The proposed LCP amendment is described in Chapter 3, Project Description, of the DEIR; see pages 3-12 and 3-13. The amendments delete some policies that are outdated or have been completed and which address structural design guidelines, views and public access. The new and modified policies also primarily address design guidelines. None of the new, amended or deleted policies have language that would indirectly facilitate intensified development. One deleted policy calls for maintaining building heights at 50 feet, and effects of increased building heights are addressed in the EIR, including

biological resources. The code amendments, also described in the DEIR Project Description, consist of minor text revisions regarding public use of outdoor areas along the river and creation of parklets, which already are allowed. See DEIR Appendix C for explanation of the City's proposed LCP amendment.

The comment indicates that the DEIR statement on page 4.13-17 that the project would not remove or alter sensitive habitat omits supporting data. All areas of potential future development are located within developed areas in downtown, none of which contain sensitive habitat as discussed on DEIR pages 4.3-9 and 4.3-10. The project area is located adjacent to sensitive riparian habitat; impacts are addressed in the DEIR.

- C7-10 SLURP Goals. The comment states that reference to the SLURP's primary goal as improved access is incorrect and that SLURP's priority is restoration of the river. The referenced DEIR statement is taken from the SLURP, section 6.1 for the Front Street Riverfront Avenue. The SLURP states that the Plan's purpose is to articulate a community vision for the river corridor as both a wildlife area and community recreation and public open space amenity. It contains recommendations for habitat enhancement, public access and trail improvements, public art and community programs. Additional text on the SLURP has been added; see section 3.8 of Chapter 3, Changes to Draft EIR, of this document.
- C7-11 Solar Heat, Shading and Wind. The comment states that the DEIR is incomplete and requires further information regarding: 1) solar heat gain from windows (diffuse radiation is the solar radiation that is absorbed, stored and scattered in the atmosphere); winter shade cooling long-range effect on vegetation & water temperature; and 3) increased wind flow impact on birds & vegetation. See Response to Comment B4-10.
- C7-12 <u>Bird Studies</u>. The comment indicates that there are more extensive and up-dated studies on bird collision with glass available and should be included in the analysis of impacts. The comment cites the following: 1) to Birds Collisions with Windows American Bird Conservancy; 2) Klem (March 2009); and 3) Hager et al. (September 2008). See Response to Comment B3-5.
- C7-13 <u>Bird Studies</u>. The comment references a bird study cited in the letter, which states that "The most dangerous building in this study was not a high-rise, but instead was a 6-story office building adjacent to densely vegetated open space," which the commenter asserts substantiates the SLURP recommendation of a maximum 50-foot building height adjacent to densely vegetated open space. The comment also states other reasons to support the SLURP 50-foot height recommendation. See Response to Comment B4-12.

- C7-14 Height Increase. The comment states that the DEIR fails to substantiate its findings for proposed height increase and does not reference/include the SLURP'S 50-foot height development findings, and asks questions regarding buildout assumptions. Findings for the proposed height increase are not required as part of CEQA review. However, City staff will provide a review of the proposed amendments with all legally required findings as part of the staff report for the project that will be presented to the City Planning Commission and City Council. Regarding the buildout assumptions, the subareas contain uses that are considered reasonable worst-case scenarios. Subarea X assumptions reflect the fact that this area contains properties that are not deep enough to support a public parking facility, while Subarea Y is large enough to potentially support a public parking garage, as well as the existing Santa Cruz Metropolitan Transit District downtown transit center, Pacific Station. This results in lower development potential of residential use for Subarea Y. The Draft EIR appropriately includes alternatives with varying heights and assumptions. The RHNA allocation numbers for housing as set by the Association of Monterey Bay Area Governments merely indicate a minimum amount of land 'suggested' to be zoned to accommodate housing. The City has the ability to zone more land to accommodate housing than the minimum allocated through the RHNA process.
- C7-15 General Plan and SLURP. The comment states that the DEIR is incomplete because "it does not give sufficient City Plans environment information to 'reconcile' and 'harmonize' project site with SLR." The comment is not clear; however, impacts to biological resources are addressed. Section 4.9 reviews City plans and policies. See DEIR pages 4.9-5 through 4.9-10. The comment also states that impacts of the "to-be-revised LCP" and HCP on the proposed amendments qualify for further information. These referenced documents are not complete nor is there a public review version to review. Release dates for both documents are not known, and thus, there is nothing with which to compare the proposed project with regards to these plans.
- C7-16 NPDES. The comment states that "Further details are required to rectify NPDES ratio of proposed amendment with regard to Santa Cruz low land inventory." The comment is not clear, and the City is unable to provide a response. However, the comment does not address analyses in the DEIR, and a response is not necessary. The proposed amendments do not conflict with the need for larger development projects to comply with NPDDES requirements, which would be analyzed at the time of development application.
- C7-17 <u>Land Use Policy Table</u>. The comment states that the table does not include NRC1.2.1, NRC1.3, NRC1.2.2, which apply to the San Lorenzo River and have to be addressed. The cited actions fall under General Plan Policy NRC1.2 that encourages low impact uses and practices in watershed lands upstream of the City' riverine, stream and riparian environment, and thus are addressing areas outside of the downtown area. NRC1.2.1

calls for evaluation of new uses for potential impacts to watershed, riverine, stream and riparian environments. The proposed amendments do not propose a change in land uses, and this policy is not directly applicable to the proposed project. Nonetheless, river, biological and riparian impacts are addressed in the DEIR. NC1.3 encourages restoration of existing riparian habitats and is not directly applicable to the proposed project. Furthermore, the SLURP and City-wide Creeks and Wetlands Management Plan address habitat management and restoration, which continue to serve as resource management documents for the City, and the proposed amendments are not in conflict with these documents.

- C7-18 River Levee. The comment states that the DEIR doesn't address issue of proposed filling in of the levee ditch, such as the importance of open slope for the levee structure inspections and the flood risks due to heavy storms. Filling adjacent to the levee and any associated drainage improvements require approval from the Army Corps of Engineers (USACE) and proposed modifications are reviewed on a case-by-case basis. The filling and drainage improvements adjacent to the levee have been approved in the past and any specific development plans will need to be fully engineered to comply with any USACE requirements. The proposed amendments do not alter this requirement.
- C7-19 Coastal Policies. The comment states that "SRFA-10 and SRFA-11 are not substantiated according to Aesthetic figures 3a-3c." The reference appears to be to LCP policies proposed for deletion (see Appendix C in DEIR for policy language). As identified in Appendix C, Policy SRFA-10 calls for maintaining views to the river from taller downtown buildings and from the river trail to the distant mountains and walls. The DEIR does address potential impacts to distant mountain views as seen along the river, and indicates some views would be obscured with the proposed project and would also be obscured under existing allowed heights; see DEIR page 4.1-10. Policy SRFA-11 calls for preservation of views along Front Street to and from Beach Hill, which is recommended for deletion as it is vague and not a resource-related policy. Views along Front Street are urban and do not include coastal scenic views or substantial distant mountain views.
- C7-20 Soils Work Near Levee. The comment states that the DEIR does not mention that the project site qualifies for the "new Fed. mandated boring standards" and provides a website link to a private engineering company that reports new USACE requirements for drilling near levees. The site indicates that the USACE clarified that soil borings within their defined 1:1 "depth distance" from the levee toe require their review and approval. The proposed project does not include any site-specific development. However, any future development would be required to comply with all applicable local, state and federal permit and regulatory requirements.

- C7-21 Watercourse Development Permit Procedures. The comment states that the DEIR did not adequately address section 4.0, Watercourse Development Permit Procedures, of the City-wide Creeks and Wetlands Management Plan to gain an in-depth analysis for its findings. A Watercourse Development Permit is required for specified projects and activities within the management area of creeks as defined in the City-wide Creeks and Wetlands Management Plan. As indicated on page 4.3-15, the eastern edges of some properties on the east side of Front Street are within the defined management area of the San Lorenzo River; however, all future development would be required to meet setbacks established in the Management Plan and SLURP.
- C7-22 San Lorenzo River Pump Stations. The comment states that the DEIR fails to mention that existing pump stations are operating at full capacity in heavy storms and are unable to prevent street and neighborhood flooding adjacent to the river and omits to detail how well the City's current equipment is able to protect the proposed project in view of increased storm water discharge and more severe coastal winter storms. The City's pump station #1 is located in the vicinity of Laurel Street and Front Street and is the closest public pump station to the project area. The pump station provides for some flood protection during storm events, but may operate at full capacity during high tides in combination with significant rainfall. A private pump system is also located in the study area north of Laurel Street near Front Street, which was installed in response to downtown flooding in 1955 and operates continuously during storm events. The City performs regular maintenance to the public pump station #1, which likely will need replacement in the future as more sea level rise information becomes available. The City will continue to monitor the latest projections of sea level rise and when there is a more specific projection at a specific decade level, designs will be prepared for the increasing the capacity of the levee pump system. Funding for the construction of the future improvements is unknown at this point in time. It is not known if system upgrades will be locally funded either on a Citywide or floodplain specific basis. There are no federal or state Funds available for anticipated improvements based for responding to sea level rise. However, the City's Capital Improvement Program (CIP) includes "Downtown SLR Drainage System Assessment" to assess drainage system tributary to Pump Station No. 1, which is locate at the southeast end of the Laurel Street Bridge. The assessment will include a detailed analysis of Pump Station No. 1's capacity to handle large storm events. A preliminary design of any recommended improvements will be included in the assessment. The budget of \$80,000 is carried over from FY17.
- C7-23 <u>Public Services</u>. The comment states that the demolished existing buildings will be replaced with new higher density buildings, which will require public services. The comment also states that the DEIR statement that "The proposed LCP and Zoning Code amendments would not result in changes that could indirectly lead to intensified development" needs clarification. The comment regarding public services is acknowledged, but does not address analyses in the DEIR. No response is necessary,

but it is noted that water, wastewater, electricity and storm drainage services are evaluated in the DEIR. See Response to Comment C7-9 regarding the statement for which the commenter requests clarification.

- C7-24 Decreased Commercial Use. The comment states that the DEIR fails to acknowledge that the decrease in commercial use causes less traffic than proposed residential uses. The traffic analysis does compare traffic with potential buildout under the proposed plan amendments with existing traffic and reports the estimated worst-case net increase in traffic-vehicle trips as a result of adoption and implementation of the proposed project.
- C7-25 Air Emissions. The comment states that the DEIR does not include information and data on how the proposed building heights and increased traffic affect the CO level. The DEIR includes an air quality analysis and modeling that accounts for increased traffic; see DEIR pages 4.2-15 through 4.2-24. As shown on Table 4.2-2, CO emissions would be substantially below Monterey Bay Air Resources District thresholds. See DEIR page 4.2-20 for further discussion of CO emissions.
- C7-26 Climate Change. The comment states that the DEIR fails to address data that California's GHG emissions have fallen less than 1%, and further data is needed to prove that the proposed project is not obstructing GHG emission attainment. California regulations and plans pertaining to GHG emissions are described on DEIR pages 4.2-11 through 4.2-14 based on the most current available plans and studies. The GHG emission analysis identifies project emissions, which would be less than accepted significance thresholds, and potential project conflicts with adopted climate plans are addressed on DEIR pages 4.2-17 and 4.2-18.
- C7-27 Housing Projections. With regards to the Air Quality Management Plan discussion, the comment claims that the project would fulfill AMBAG housing forecasts and expresses an opinion that using the AMBAG forecast as a reason to put the proposed project adjacent to a riparian corridor is not valid. The referenced discussion on DEIR page 4.2-17 addresses whether the project would conflict with the Air Quality Management Plan (AQMP). As explained in the text, the method to make this determination is provided by the Air District, and as explained in the DEIR, uses housing unit forecasts. Based on this methodology, it was found that the project is within adopted forecasts, and therefore, will not conflict with the AQMP. The DEIR does not use the AMBAG forecast to justify the project as suggested in the comment.
- C7-28 <u>Urban Heat Island Effect</u>. The comment states that the DEIR fails to address the Urban Heat Island Effect of building mass on the riparian corridor. The DEIR addresses this on pages 4.2-18 and 4.2-19.

- C7-29 <u>Buildout Assumptions</u>. The comment states that the DEIR did not include data for traffic from commercial and office uses. The traffic analysis prepared for the EIR does account for traffic from different uses both under existing and future conditions. See Table 4.7-4 on page 4.7-18 in the DEIR.
- C7-30 <u>GHG Emissions</u>. The comment claims that the DEIR fails to state that the project's estimated GHG emissions exceed significance thresholds and how the building height increases and GHG emissions affect the riparian corridor. Project GHG emissions do not exceed significance thresholds as discussed on pages 4.2-21 to 4.2-24. GHG emissions are an issue with regards to global climate change. The project's potential effects on and relationship to the riparian corridor, including hydrology and sea level rise, are addressed in the EIR at pages 4.3-17 to 4.3-23 and 4.5-11 to 4.5-13.
- C7-31 <u>Climate Change</u>. The comment states that the DEIR fails to address include new climate change impact information. See Response to Comment C7-26.

Ron Powers

From: Salina Nevarez <snevare1@ucsc.edu>
Sent: Friday, August 04, 2017 11:11 AM

To: Alex Khoury

Subject: Support the Santa Cruz Downtown Recovery Plan

Dear Assistant Director Khoury,

1 The Santa Cruz downtown is vitally important to our community. The updated Downtown Recovery Plan (DRP) represents a major opportunity for achieving a mix of housing options in the planning area with a walkable and thriving downtown experience.

I agree with the DRP's revisions as part of an overall effort to reconfirm the City objective to maintain a compact and efficient urban form with public greenbelt to limit suburban-type sprawl, and to provide some appropriate development incentives to activate the river connections, a longstanding objective of the City's vision. The Downtown Recovery Plan should be adopted as soon as possible.

The City should actively pursue the following elements that are already included in the DRP:

- 1) Create significant new housing opportunities targeted throughout the downtown, including Pacific Avenue, the San Lorenzo riverfront and south of Laurel. Housing should be comprised of a mix of apartments and condominiums.
- 2) Encourage residential development as a second-floor use throughout the downtown area.
- 3) Develop a comprehensive housing implementation strategy and establish a feasible program for the creation of market-rate and affordable housing, including developer incentives, public participation in financing, parking reductions, etc.

I further support the City's efforts to update its Inclusionary Housing Ordinance as one of many tools to meet the needs of our residents. As recently as 2014, the Santa Cruz area was named the least affordable metropolitan area in the country factoring in the cost of housing. As of February 2017, the average rent for a two bedroom unit was \$2,569 and the median home price was \$795,500.

Please take action on the DRP and Inclusionary Housing as soon as possible.

Sincerely,

Salina Nevarez 657 24th Ave Santa Cruz, CA 95062 snevare1@ucsc.edu

LETTER C8 – Salina Nevarez

C8-1 <u>Support of Proposed Project</u>. The letter indicates support of the proposed Downtown Plan amendments, encourages the City to create strong housing opportunities throughout downtown, and supports the City's efforts to update its Inclusionary Housing Ordinance with suggestion of actively pursuing elements that are already in the Downtown Recovery Plan regarding new residential development. Comment is acknowledged and referred to City staff decision makers for consideration; no response is necessary.

Downtown Plan Amendments Final EIR

Gary A. Patton, Attorney At Law

Post Office Box 1038, Santa Cruz, California 95061 Telephone: 831-332-8546 / Email: gapatton@mac.com

September 8, 2017

Ron Powers, Principal Planner City of Santa Cruz Planning and Community Development Department 809 Center Street, Room 107 Santa Cruz, CA 95060

RE: Comments on Draft EIR – Downtown Plan Amendments Sent By Email to: rpowers@cityofsantacruz.com

Dear Mr. Powers:

1

This letter is to submit comments on the Draft Environmental Impact Report (EIR) identified above. My comments are as follows:

- On Page 2-6, the Draft EIR is in error in stating that the impacts on the visual character of the surrounding area (i.e., the City downtown area, including the Front Street/Riverfront Corridor) would be less than significant. Buildout of the Downtown Plan, as proposed to be amended, would result in a complete transformation of downtown Santa Cruz, which would be extremely significant in terms of the visual impacts associated with the proposed buildout under the plan. Thus, the proposed project would completely change the character of the Downtown area, Front Street, and the Riverfront area. In order for the public and decision makers to be fully informed about these potential impacts, the Final EIR must provide much more information, including graphic representations of potential developments that would be allowed for under the plan as proposed, compared to the developments possible under the current plan. Only when such information is provided can the public and members of the City Council fully understand and judge the radical changes that would occur if the plan amendments were adopted as proposed, and the amended plan then implemented.
- 2 2. On Page 2-6, the Draft EIR is deficient in stating that the impact from Greenhouse Gas Emissions are less than significant. The global warming crisis facing us (and including those who live in Santa Cruz, California) requires us to admit that EVERY new release of greenhouse gases puts our world at peril, and that therefore EVERY project that would add to greenhouse gas emissions must be mitigated to eliminate every possible source of such emissions. The Final EIR must evaluate all "state of the art" energy-reduction technologies that could reduce energy consumption in the new buildings that would be permitted by the plan as proposed in

the contemplated amendments. This means requirements for full solar power for all such new buildings, to the greatest extent possible, and the use of techniques like a requirement that all electric lighting in the buildings to be governed by motion-sensitive switches, etc., to eliminate, to the greatest degree possible, unneeded energy use, and thus to help reduce to the greatest degree possible, an impact that everyone knows is highly significant.

- 3. On Page 2-7, the Draft EIR appears to be deficient in its statement that there is a less than significant impact associated with stormwater drainage. In view of the impacts of inevitable sea-level rise, in connection with the proposed development, very significant adverse impacts can be expected from ANY increase in stormwater drainage. Thus, the Final EIR must propose methodologies that will eliminate ANY addition to stormwater runoff, since any new stormwater runoff will certainly cause significant impacts in downtown Santa Cruz.
- 4. On Page 2-7, it is unclear why the Draft EIR says that water quality degradation in the San Lorenzo River that will admittedly be associated with implementation of the Downtown Plan Amendments is "less-than-significant." Mitigation measures to eliminate any of the impacts identified on Page 2-7 must be included in the Final EIR.
- 5 On Page 2-8, with reference to the paragraph relating to "Energy Use," please see my Comment #2. Mitigations to reduce, to the greatest degree feasible, all energy use in the new building must be included in the Final EIR.
- 6. On Page 3-4, the Draft EIR says that it is an "overarching objective" of the City to "maintain a compact downtown with a dense urban core **in exchange for** retaining a greenbelt around the City (emphasis added)." I question the accuracy of this statement. I know of no official City policy that says that there is an "either/or" choice between maintaining a greenbelt around the City and maintaining a dense urban core. The Final EIR should either provide a citation to such a statement of policy, or should eliminate this statement. If no such policy statement exists, and to the degree that the proposed downtown amendments are based on or justified by this alleged policy, the Final EIR must evaluate the project without reliance on this statement.
- 7. On Page 3-14, the Draft EIR says that there are "no development applications currently pending before the City." This statement is disingenuous. The mixed-use transit, parking and residential project on the downtown Metro Station site that is mentioned in the Draft EIR has been extensively discussed with the City Planning and Community Development Department, and with other City officials, including members of the City Council. These discussions have taken place over the

last several years, and rather specific design concepts have been utilized in these discussions. The Final EIR must fully disclose this proposal, in its latest iteration, in order fully to inform the public and decision makers of the possible impacts of the proposed project. The fact that such a project is not "currently pending" is being used in this Draft EIR as an excuse for hiding the ball. In fact, as soon as Downtown Plan Amendments are adopted, the City anticipates an application for a development in the specific location referenced. It is not sufficient to say that, if that happens, there will then be a "project level" CEQA review. While that is true, CEQA requires relevant information to be presented for evaluation as early in the development process as is possible. Providing information about the proposal mentioned, information about which is not disclosed in this Draft EIR, will help inform decision makers about the possible impacts of the program level decision they are now being asked to make. Thus, that information must be revealed now. This is a clear requirement of CEQA. Furthermore, probably the new information required to be disclosed about potential project plans on the identified site will be so significant that it will be necessary to recirculate an amended EIR as a Draft, to allow the public an adequate opportunity to comment on the impacts that might occur from the proposed Downtown Plan Amendments project.

- 8. Figure 3-3 is not as informative as it should be, and the Final EIR should provide a direct comparison between what is proposed (as illustrated in Figure 3-3) and what currently exists, and what is permitted under current planning regulations. The purpose of an EIR, as this Draft recognizes, is fully to inform the public and decision makers about the possible impacts of the proposed project. Without the Draft EIR providing an easy comparison between the current situation, possible development under the current Downtown Plan regulations, and what would be permitted with the proposed amendments, this kind of "full" information is lacking. This is a "general" comment, relating to the entire Draft EIR, as well as to Figure 3-3 specifically.
 - 9. Please see Comment #8 as to the other Figures provided within the Draft EIR. In every place possible, the Final EIR must provide a "comparison," not merely a description of what the proposed amendments would do. If such a comparison is not provided, then the EIR will not "fully inform" the public and decision makers, as CEQA requires.
 - 9 10. On page 4.1-8, in its discussion of "Thresholds of Significance," the Draft EIR notes in paragraph 1c that a project impact would be considered significant if the project would "substantially degrade the existing visual character or quality of the surrounding area i.e., be incompatible with the scale of the surrounding area or substantially detract from the aesthetic character of the neighborhood." Please see my Comment #1. While the term "degrade" is subjective, the proposed Downtown Plan

Amendments would result in new construction that is "incompatible with the scale of the surrounding area." Thus, a full analysis of the impacts of the proposed project is required. Please note, as well, that CEQA requires an evaluation of proposed changes to be measured against a baseline of "existing conditions." Thus, in order fully to inform the public and the City Council of what the impacts of the proposed Downtown Plan Amendments would be, a graphic comparison of every change proposed is needed. The current Draft does not provide this kind of comparison, and thus is inadequate under CEQA. Please also note, as mentioned earlier, that once the current Draft EIR has been revised, to provide the required information, the new information provided will probably be significant enough to require the recirculation of the Draft EIR for further public review and comment.

- 11. On Pages 4.1-9 and 4.1-10, in the section of "Impacts and Mitigation Measures," the Draft EIR also fails to meet the requirements of CEQA, in that it fails fully to inform the public and decision makers about visual and scenic impacts that the Draft EIR indicate will result if the proposed amendments are adopted.
- 12. On Page 4.1-13, the purpose of Figures 4.1-3A through 4.1-3C is stated 11 as being to illustrate a "reasonable worst-case scenario...." The mentioned Figures, found on subsequent pages, are somewhat helpful in achieving this objective; however, they are, in fact, misleading. The mass of the buildings that would be allowed with the proposed Plan Amendments is not shown, only an outline of the possible new construction, which is presented by dotted lines. This means that the existing views along the River, and along Front Street, and along Pacific Avenue can continue to be seen "through" these dotted lines; this means that the actual impact of what is being proposed is not presented. Keeping the illustrations with the dotted lines is fine, but the current illustrations are not adequate, and must be supplemented. What is needed to comply with CEQA is to accompany the existing illustrations with a set of comparison photos. The current situation should be shown, and then immediately above or next to it the possible future construction should be shown, but "filled in," so that it becomes clear how radically the views along the River, and along Front Street, and along Pacific Avenue would be changed. Incidentally, the comment in the Draft EIR that suggests that the impacts of the project will not actually be experienced to the full extent of what the proposed amended plan would allow should be stricken in the Final EIR. The EIR must analyze and inform the public about the impacts that "might" be caused by the proposed project. Speculation that such impacts will not actually come to pass is out of place in an EIR.
- 13. On Page 4.8-15, commenting on the project's impacts on the City's water supply, the Draft EIR says "the additional project demand would not result in a substantial increase during dry years and would not be of a

magnitude to affect the level of curtailment that might be in effect." The Draft EIR thus concludes that water supply impacts are less than significant. This analysis is flawed, because the City already is in a water supply crisis during dry and extremely dry years, and data from the City's earlier analysis of the need for a proposed desalination plan should be revealed and used to determine whether the water supply impacts of the new development that would be allowed by enactment of the Downtown Plan Amendments will, in fact, be a cumulative impact of considerable impact. The Final EIR must also identify mitigation measures that will guarantee that the proposed development will not generate any new water demand (at least until the City's system is no longer unable to provide adequate water for existing residents).

- In conclusion, I believe that the current Draft EIR is inadequate, and that to make sure that the Council and the public fully understand the impacts of the measures being proposed, the current Draft EIR must be significantly augmented, and then (I believe) recirculated for further public review and comment. Fully informing the public and decision makers about possible impacts of proposed projects is the objective of the California Environmental Quality Act. I urge the City fully to comply with its requirements in this case.
- Let me also note, on the substance of what is being proposed, that the current City plan governing the Downtown is called the "Downtown *Recovery* Plan." This title reflects the fact that our current plans for the downtown area were adopted, after very significant public debate and involvement, after the 1989 Loma Prieta earthquake.

After the earthquake, some landowners and the development community were urging the City to adopt exactly the kind of planning for the downtown that the currently proposed Downtown Plan Amendments would accomplish. City decision makers rejected, at that time, an appeal for this kind of the transformation of our downtown into a "dense urban core," and there was a reason for that. Downtown Santa Cruz is known, nationally, for its appeal. The kind of massive developments that would be allowed if the proposed Downtown Plan Amendments were adopted would undermine that appeal. I hope, ultimately, that the City Council will reject the current development-generated clamor for overbuilding downtown, just as the former, post-earthquake Council did.

Very truly yours,

Gary A. Patton

LETTER C9 – Gary A. Patton

- C9-1 Impacts on Visual Character of Area. The commenter disagrees with the DEIR's conclusion that impacts on visual character of the downtown area will be less than significant. The commenter asserts that additional graphic simulations or representations must be provided in order to demonstrate the extent of visual change that could result from the project. Figures 4.1-3A, 4.1-3B, 4.1-3C from the Chapter 4.1-Aesthetics of the DEIR already provide visual representations/simulations enabling a comparison of the existing environment to that which could result from the changes proposed with the project. While such simulations are not expressly required by CEQA, the City agrees they are helpful to informing the public and the City's decision makers about the potential magnitude of change. By providing the simulations, the DEIR presents the hypothetical "worst-case" scenario that could result; although, as explained in the DEIR (see p. 4.1-13), for a variety of reasons, including the City's historic buildout patterns, it is unrealistic to assume that all of the eligible buildings in the plan area or along corridors of interest to the commenter would be redeveloped or replaced with maximum-height buildings under the amended plan. In practice, compliance with CEQA must often strike a balance between disclosing the "worst-case" scenario and explaining what actions or results the lead agency considers more realistic, based on substantial evidence. CEQA does not encourage or require entirely hypothetical analysis be provided to decision makers and the public. The DEIR has addressed that tension in CEQA by disclosing the potential "worst-case" buildout scenario via the visual simulations while also explaining, with substantial evidence, why City staff consider that worst-case scenario to likely overstate the visual effect that will result from the plan amendments.
- C9-2 Greenhouse Gas Emissions (GHG). The commenter asserts that every new release of GHGs and every new project results in a significant impact that must be mitigated to a net-zero level. The City disagrees with this assertion, both on policy and legal grounds. As a matter of policy, the City's Climate Action Plan is not premised on the assumption that any new GHG emissions are necessarily significant and must be mitigated to a net-zero level. The CAP's goals are to reduce community-wide greenhouse gas emissions 30% by 2020 and 80% by 2050 (compared to 1990 levels), based on General Plan 2030 Policy NRC4.1, which establishes this requirement. As a legal matter, CEQA does not mandate that the City find any certain amount of new emissions to be significant. CEQA Guidelines section 15064.4(b) suggests agencies should consider: the extent to which the project may increase or reduce GHG emissions compared to the existing environmental setting; whether the project emissions exceed a threshold of significance that the agency determines applies to the project; and the extent to which the project complies with regulations or requirements adopted to implement a statewide or local plan (such as the City's CAP) for the reduction or mitigation of GHG emissions. Section 4.2 of the DEIR complies with CEQA in this regard.

The comment also states that the Final EIR must evaluate all "state of the art" energyreduction technologies that could reduce energy consumption in the new buildings. This is not a requirement of CEQA. As discussed on DEIR pages 4.6-7 to 4.6-9, California's per capita electrical use has been the lowest or near lowest of any state in the nation, and additional local efforts toward energy reduction also are described in this section. Future development would be required to comply with all applicable state and local building energy standards and requirements.

- C9-3 Stormwater Drainage. The comment references the DEIR Summary and conclusion on stormwater drainage and asserts that any addition to stormwater runoff will cause significant impacts. Commenter's opinion is acknowledged. Existing stormwater and hydrological conditions and impact analysis are fully addressed in section 4.5 of the DEIR. The project area is currently developed or paved, and as a result, impervious surfaces and resulting runoff are not expected to substantially change. Future development would be required to comply with City policies and regulations, including General Plan Policy CC5.1.8 that requires new development to maintain predevelopment runoff levels and compliance with the City's stormwater management regulations. See DEIR pages 4.5-11 to 4.5-12.
- C9-4 Water Quality Degradation. The comment references the DEIR Summary and questions the EIR impact conclusion that water quality degradation in the San Lorenzo River will be less than significant and asks that mitigation measures be included in the Final EIR. The basis for the impact analysis and conclusion is provided on pages 4.5-12 and 4.5-13 in the DEIR and is based on the City's comprehensive stormwater management requirements that will be imposed on new development, and which have been required pursuant to federal and state regulations and reviewed and accepted by these agencies. The commenter provides no substantial evidence supporting a different significance conclusion for the EIR, so the conclusion is not changed in the FEIR.
- C9-5 Energy Use. Regarding energy use impacts cited on page 2.8 of the DEIR, the commenter refers to his previous Comment #2 and asks that additional mitigations that reduce energy use in new buildings be included in the Final EIR. See Response to Comment C9-2. The project involves amendments to existing City plans, and no specific buildings are proposed at this time. As the State continually adopts new efficiency requirements, future building proposals will be subject to the efficiency standards applicable to new buildings at that time.
- C9-6 Project Objectives. The commenter questions a statement on page 3-4 of the DEIR regarding project objectives. This comment is related to City policy and is not related to CEQA review. However, City staff notes that the City's General Plan includes numerous

9711.0003 October 2017 4-90

policies relating to maintaining a compact form and promoting higher densities in certain areas as well as preserving the greenbelt:

- GOAL LU2 A compact community with boundaries defined by the city's greenbelt and Monterey Bay.
- LU3.7 Encourage higher-intensity residential uses and maximum densities in accordance with the General Plan Land Use designations.
- 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 lower density.
- LU4.1 Encourage a transition to higher densities along the city's transit and commercial corridors.
- LU4.1.1 Support compact mixed-use development Downtown, along primary transportation corridors, and in employment centers.

While not explicitly stated in one policy phrased as an exchange between retaining greenbelt lands and promoting higher densities, the practical result for land use planning principles is that as long as the greenbelt is maintained, the remainder of available land in the city will need to support more housing. By default, the physical constraints of the city with the greenbelt will result in a need for higher densities in developed areas than without the greenbelt. It is not an exaggeration to connect preserving greenbelt lands with the need for higher densities elsewhere in the city. The General Plan policies promote both and there remains a clear cause and effect relationship and trade-off in supporting the greenbelt preservation. However, the commenter correctly notes that there is no single policy in the General Plan that uses the term exchange, so the Final EIR can be modified with the following language: "Increasing densities in the downtown is consistent with the overarching objectives of the City to maintain a dense urban core with a greenbelt around the City." See Chapter 3, Changes to Draft EIR, of this document.

C9-7 Future Development. The comment questions the statement in the DEIR on page 3-14 that "no development applications are currently pending before the City" and indicates that a mixed-use project on the Metro Station site has been discussed with City staff and officials, which must be fully disclosed. The comment also suggests that with addition of this information, recirculation of the EIR will be necessary. There are no development applications currently pending before the City for this site. According to City staff, there have been numerous development proposals discussed for a variety of projects within the study area over the past several years, including various versions of a project for the METRO property and adjacent properties. A preliminary application of a conceptual plan for a mixed use was reviewed by the City earlier in 2017 for areas north of Laurel Street between Pacific Avenue and Front Street, but a formal and complete application has yet to be submitted. For CEQA purposes, the City has included all reasonably foreseeable development within the study area and has included assumptions for these various concept plans in the Buildout Assumptions

found in Appendix D. The DEIR fully evaluated the potential impacts associated with these potential projects and assumed reasonable worst case scenarios for the entire study area.

No new information or new impacts have been identified in response to this comment that would require recirculation of the DEIR. See Response to Comment C9-13.

- C9-8 Figure 3-3. The comment suggests that the Final EIR provide a direct comparison between what is proposed as illustrated in Figure 3-3 and what currently exists, and indicates that this is a "general" comment relating to the entire Draft EIR as well as Figure 3-3 specifically, but does not specify other DEIR figures. Figure 3-3 is included in the Project Description and is a graphic from the proposed Downtown Plan amendments. The photosimulations in section 4.1 of the DEIR show existing heights, existing height limits, and proposed additional height limits. See Response to Comment C9-1 for further discussion on graphic representation of building heights and requirements under CEQA.
- C9-9 Thresholds of Significance for Aesthetics. The commenter refers to his Comment #1 and states his belief that the proposed amendments will result in new construction that is incompatible with the scale of the surrounding area. The comment states that a full analysis of the impacts of the project is required and should be measured against baseline existing conditions, and that graphics should be provided to compare every change. The commenter further opines that provision of the requested new information would require recirculation of the Draft EIR. The analysis requested by the comment is already provided on pages 4.1-11 to 4.1-16, which evaluates changes to existing conditions based on potential building height, mass and scale, including implementation of design provisions contained in the existing and proposed Downtown Plan. With implementation of required development standards for massing, required percentage variation of heights, and upper-level skyline variation, future buildings would be of similar height and scale as the other taller buildings in the downtown area, which already contains several multi-story buildings of varied height. Therefore, the DEIR concluded that the proposed amendments would not result in development that would "substantially degrade" the visual character of the surrounding area. See Response to Comments C9-1 and C9-8 regarding EIR graphics.

No new information or new impacts have been identified in response to this comment that would require recirculation of the DEIR. See Response to Comment C9-13.

C9-10 <u>Aesthetics Impacts</u>. The comment states that the impact discussion on DEIR pages 4.1-9 and 4.1-10 fails to meet the requirements of CEQA, in that it fails fully to inform the public and decision makers about visual and scenic impacts that the Draft EIR indicate will result if the proposed amendments are adopted. However, the comment does not

9711.0003

specifically explain how the analyses fail to meet CEQA requirements, and thus, a specific response cannot be provided.

- C9-11 Figures 4.1-3A Through 4.1-3C. The comment claims that the photosimulations in the DEIR are not adequate and must be supplemented to show building mass. The comment states that the DEIR statement that suggests impacts may not be actually experienced should be stricken in the Final EIR. The photosimulations depict a building outline superimposed on a photo of existing development and are intended to show the potential massing of a future building, while also seeing existing building heights for comparison. CEQA does not specify or require any particular graphic representations. Both the photosimulations and impact analysis text provided evaluate potential impacts resulting from the proposed amendments with existing conditions adequately to inform the public and the city decision makers of the potential aesthetic changes that could result from the plan amendments. See also Response to Comment C9-1 and C9-8.
- Water Supply. The comment states that the water supply analysis in the DEIR is flawed because the City already is in a water supply crisis during dry and extremely dry years. The comments states that data from the City's earlier analysis of the need for a proposed desalination plan should be revealed and used to determine whether the water supply impacts of the new development would be a cumulative impact of considerable impact. The comment asserts that the Final EIR must identify mitigation measures that will guarantee that the proposed development will not generate any new water demand until the City's system is no longer unable to provide adequate water for existing residents.

The DEIR water supply analysis is based on the City's current Urban Water Management Plan and current plans. Review with the Water Department indicates that the water demand resulting from the proposed amendments represents less than one-hundredth of one percent of the total estimated future water demand within the City's service area, as reported in the DEIR, and the demand is within the amount of new multi-family dwellings considered in demand forecasts for the 2015 UWMP. Existing supplies are adequate to serve future development resulting from the proposed project, and the small additional demand over the service area would not lead to further water curtailments than would be otherwise be needed during dry periods. See DEIR pages 4.8-15 to 4.8-16 regarding project impacts and pages 5-10 to 5-11 regarding cumulative water supply impacts.

The City does not have a policy or requirement that a development not generate any new water demand. However, as indicated in the DEIR and the City's Urban Water Management Plan, the City has seen a trend of declining water demand since the year 2000 as a result of many factors, and total water demand within the City's water

October 2017 4-93

service area is projected to decline over the 20-year UWMP period due to continued implementation of conservation programs and other efficiency measures.

- EIR Recirculation. The comment states that the Draft EIR is inadequate and must be significantly augmented and recirculated for public review. The City disagrees with the claim that the Draft EIR is inadequate as explained in the preceding responses. CEQA Guidelines section 15088.5 requires a lead agency to recirculate an EIR when "significant new information" is added to an EIR after public review but before certification. New information is not significant unless the "EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect." "Significant new information" that would require circulation according to this section of the CEQA Guidelines include:
 - A new significant environmental effect resulting from the project or from a new mitigation measures.
 - A substantial increase in the severity of an environmental impact unless mitigation measures are adopted to reduce the impact to a level of insignificance.
 - A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impact of the project, but the project proponents decline to adopt it.
 - The DEIR was so fundamentally inadequate that meaningful public review and comment were precluded.

The responses and clarifications provided in this document do not result in any of the above conditions that would warrant recirculation. None of the DEIR text revisions result in or indicate a new significant impact or a substantial increase in the severity of an impact associated with the proposed project.

C9-14 <u>Project Opposition</u>. The commenter states opposition to the proposed plan amendments. The comment is acknowledged, but does not address specific analyses in the DEIR. No response is necessary, but the comment is referred to City staff and decision makers for further consideration.

Downtown Plan Amendments Final EIR

9/11.0003

Ron Powers

From: Henry Searle <hrsearle@sbcglobal.net>
Sent: Thursday, September 07, 2017 2:28 PM

To: Ron Powers

Subject: comment on draft EIR, downtown recovery plan amendments

1 The area affected by the proposed amendments is, i believe, entirely within a flood plain. The amendments would increase density in the planning area and hence quite probably increase the risk of flood damage. I believe the EIR should discuss this issue and describe what steps can or should be taken to minimize the increased risk. For example, I understand that the existing levees are not capable of holding major river surges resulting from increased rainfall.

Thanks for considering this issue.

Reed Searle 114 Swift St Santa Cruz, Ca. 95060 831-278-0626 hrsearle@sbcglobal.net

4-96

LETTER C10 - Reed Searle

C10-1 Flood Risks. The commenter believes that the EIR should discuss this issue of increased risk of flooding due to increased density and describe what steps can or should be taken to minimize the increased risk. The commenter also believes that the existing levees are not capable of holding major river surges resulting from increased rainfall. Potential impacts related to flooding are addressed in the DEIR; see pages 4.5-6 and 4.5-7. The levee improvements have been designed to accommodate a 100-year flood. The draft Downtown Plan does not allow residential uses as a principally permitted use on the ground floor within the project area. Development within the project area is governed by the City's existing standards in Section 24.14.500 of the Municipal Code, Standards for A-99 Flood Zone Area.

> "The A-99 flood hazard area has been designated by a Federal Emergency Management Agency Letter Map Revision dated June 26, 2002. These areas have received additional flood protection due to the construction of the new San Lorenzo River levee improvements by the U.S. Army Corps of Engineers. No base flood elevation has been designated for the A-99 flood hazard area. Standards for construction in the A-99 flood hazard area are set forth in this section." The ordinance section also includes the following statement. "The degree of flood protection required by this section is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This section does not imply that land in the A-99 special flood hazard area will be free from flooding or flood damages. This section shall not create liability on the part of the city, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this section or any administrative decision lawfully made thereunder."

9711.0003 October 2017

Ron Powers

From:

Veronica Tonay <vktonay@ucsc.edu>

Sent:

Thursday, September 07, 2017 7:52 PM

To:

City Council

Subject:

concern re Downtown Development Plan Enviro. Impact Report

Having read the downtown development plan's EIR, although I appreciate attention being paid to what could be a jewel—our river--I am greatly concerned about (1) the height of buildings to be allowed along the river, and (2) the adverse impact on birds on and around the river in a city which helps host the birding festival at Elkhorn Slough, the Audubon bird count, and thousands of birders. Birds are having a very tough time in our city (and the world...) as it is.

The height of the buildings leave the area looking like a culvert in an urban environment, rather than a wild, environmentally protected space within our city.

This puts me in mind of someone I spoke with last week from India. He recently had a relative visiting here, and took him for a walk along the river. "There is nothing like this in India, unless you travel far, to the mountains," he said. "There are just buildings." Having hailed from Southern California, and having watched the over-urbanization of those coastal areas across decades, I've seen the importance of very careful planning from an early stage.

Buildings, sure—shorter, with spaces between for community meeting places, courtyards, and porches (proven to increase a sense of community and neighborhood), and sight lines from the rest of the city, particularly around bridges, which residents will feel unsafe crossing if they can't see to both sides ahead when embarking.

Please forward my email to the appropriate party (or parties). Thank you.

Best,
Veronica Tonay, PhD
Licensed Clinical Psychologist PSY15379
550 Water St. Ste F4 Santa Cruz, CA 95060
Lecturer in Psychology
Psychology Faculty Services
University of California, Santa Cruz
1156 High Street
Santa Cruz, CA 95064

Veronica Tonay, PhD Lic. Psychologist PSY 15379

LETTER C11 – Veronica Tonay

C11-1 <u>Building Heights</u>. The commenter is concerned about the proposed building heights and adverse impact on birds. The comment is acknowledged, but does not address specific analyses in the DEIR. No response is necessary, but the comment is referred to City staff and decision makers for further consideration.

Downtown Plan Amendments Final EIR

Ron Powers

From: Alex Khoury

Sent: Tuesday, August 08, 2017 9:25 AM **To:** Ron Powers; Lee Butler; Eric Marlatt

Subject: FW: Comments on the Downtown Recovery Plan Update EIR

From: Bren Lehr On Behalf Of City Council Sent: Wednesday, August 02, 2017 11:57 AM

To: Chris Krohn; Chris Krohn; Cynthia Chase; Cynthia Mathews; David Terrazas; Martine Watkins; Richelle Noroyan;

Sandra Brown; Sandy Brown

Cc: Tina Shull; Martin Bernal; Scott Collins; Rosemary Balsley; Andrew Mills; Alex Khoury

Subject: FW: Comments on the Downtown Recovery Plan Update EIR

From: Russell Weisz [mailto:russweisz1@gmail.com]

Sent: Tuesday, August 01, 2017 7:59 PM

To: City Council

Subject: Comments on the Downtown Recovery Plan Update EIR

Dear Council,

- 1 I request that the city not allow increased building heights on the river side of Front St. I object to allowing taller buildings because of the following concerns:
 - negative impacts to birds and other wildlife along the river and riparian corridor
 - negative visual impacts due to river view obstruction and view interference
 - negative noise impacts on the river due sound echo from the taller buildings.

I think increased building heights along the river is exactly the wrong approach. The San Lorenzo river is a key city resource and the city is enhanced by maximal incorporation of the river into the city. The city should maximize the river view, river access and river awareness from the rest of downtown. It's really not all about getting more money or jamming more people into taller buildings. Let's not try to become another San Jose.

Sincerely, Russell Weisz 319 Laguna St. Santa Cruz 95060 831-246-1770

LETTER C12 – Russell Weisz

C12-1 Building Heights. The commenter requests that the City not allow increased building heights on the river side of Front Street and objects to allowing taller buildings because of negative impacts to birds and other wildlife along the river and riparian corridor; negative visual impacts due to river view obstruction and view interference; and negative noise impacts on the river due sound echo from the taller buildings. The comment is acknowledged, but does not address specific analyses in the DEIR. No response is necessary, but the DEIR did not conclude there would be any significant impacts related to scenic views, and potential impacts to birds can be mitigated to a less-than-significant level. There is no evidence that taller buildings along the river would create an echo.

9711.0003 September 2017 4-100

APPENDIX A Mitigation Monitoring and Reporting Program

INTENTIONALLY LEFT BLANK

Mitigation Measure	Implementation Actions	Monitoring / Reporting Responsibility	Timing Requirements	Reporting Requirements & Verification of Compliance
Biological Resources				
MITIGATION 4.3-2: Revise Downtown Plan to include standard for design guidance for bird-safe structures along the San Lorenzo River, including: Minimize the overall amount of glass on building exteriors facing the San Lorenzo River. Avoid mirrors and large areas of reflective glass. Avoid transparent glass skyways, walkways, or entryways, free- standing glass walls, and transparent building corners. Utilize glass/window treatments that create a visual signal or barrier to help alert birds to presence of glass. Avoid funneling open space to a building façade. Strategically place landscaping to reduce reflection and views of foliage inside or through glass. Avoid up-lighting and spotlights. Turn non-emergency lighting off (such as by automatic shutoff), or shield it, at night to minimize light from buildings that is visible to birds, especially during bird migration season (February-May and August- November).	Implementation actions are specified in measure.	City Planning and Community Development Department staff is responsible for drafting a new design standard for inclusion in the Downtown Plan.	Prior to Planning Commission action on the Downtown Plan Amendments.	

October 2017 Page 1

Mitigation Measure	Implementation Actions	Monitoring / Reporting Responsibility	Timing Requirements	Reporting Requirements & Verification of Compliance
MITIGATION 4.3-3: Require that a preconstruction nesting survey be conducted by a qualified wildlife biologist if construction, including tree removal, adjacent to the San Lorenzo River is scheduled to begin between March and late July to determine if nesting birds are in the vicinity of the construction sites. If nesting raptors or other nesting species protected under the MBTA are found, construction may need to be delayed until late-August or after the wildlife biologist has determined the nest is no longer in use or unless a suitable construction buffer zone can be identified by the biologist. (Citywide Creeks and Wetlands Management Plan Standard 12).	Implementation actions are outlined in the mitigation measure.	City Planning and Community Development Department staff is responsible for drafting a new development guideline for developments along the San Lorenzo River portion of the project area.	Prior to Planning Commission action on the Downtown Plan Amendments.	
Noise				
MITIGATION NOISE-1: Require preparation and implementation of acoustical studies for future residential development along Front Street to specify building design features that meet state interior sound levels.	Implementation actions are outlined in the mitigation measure.	City Planning and Community Development Department staff is responsible for requiring acoustical studies as part of future development applications and consistent with California Building Code and City Zoning Code requirements.	As part of future environmental and project review for submitted development applications.	

October 2017 Page 2

Mitigation Measure	Implementation Actions	Monitoring / Reporting Responsibility	Timing Requirements	Reporting Requirements & Verification of Compliance
Cumulative Traffic Impacts				
MITIGATION 5-1: Require future development projects within the downtown area to contribute fair-share payments for improvements at the following intersections: Front/Soquel (signal timing and lane modifications); Front/Laurel (westbound lane addition and north and south right-turn overlap); and Pacific/Laurel (southbound left-turn lane addition).	Implementation actions are specified in measure.	The City Public Works Department is responsible for establishing and/or updating fair-share program as needed to include the affected intersections within 12 months of this project approval to include total improvement costs and fee per residential and commercial trips generated by future individual projects.	Prior to approval of development within the area shown on Figure 2-1 in the EIR (DEIR volume).	

October 2017 Page 3

APPENDIX B

Review of Project Consistency with California Coastal Act Policies

INTENTIONALLY LEFT BLANK

APPENDIX B

REVIEW OF PROJECT CONSISTENCY WITH COASTAL ACT POLICIES

The proposed project includes amendments to the City's certified Local Coastal Plan (LCP) that will require California Coastal Commission approval. Chapter 4 of the Downtown Recovery Plan is incorporated by reference in the CBD zone district, and the district is part of the implementation section of the LCP. Thus, revisions to the DRP Chapter 4 require review and approval by the California Coastal Commission as part of an LCP amendment. In addition, several LCP policies related to the SLURP are proposed to be modified.

In accordance with the comments received from the California Coastal Commission staff, a review of project consistency with Coastal Act policies is provided below. The review does not reveal any conflicts with Coastal Act policies. The proposed amendments do not affect oceanfront lands or marine waters, and provide new public access connections to the San Lorenzo River as encouraged in the Coastal Act. The proposed amendment does not change existing certified LCP land uses within the downtown area.

Public Access

Section 30210 Access-Recreational Opportunities – This policy states that maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Consistent: The proposed amendments call for expansion of access to the San Lorenzo River.

Section 30211 Development Not to Interfere with Access - Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

Not Applicable: The proposed amendments are for portions of the coastal zone not located near the shoreline or sea and will not interfere with or have any effect on public access to the sea.

Section 30212 Public Access as Part of New Development – This policy requires that new development projects provide public access from the nearest public roadway to the shoreline and along the coast except where: (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or, (3) agriculture would be adversely affected.

Not Applicable: None of the proposed amendments to LCP policies affect requirements for new development to provide public access from the nearest public roadway to the coast. No development is proposed as part of the proposed LCP amendment

Section 30212.5 Public facilities and Distribution – This policy indicates that wherever appropriate and feasible, public facilities, including parking areas, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.

Not Applicable: The proposed project does not include amendments that change land uses or the location of public facilities.

Section 30213 Lower Cost Visitor and Recreational Facilities - Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. The commission shall not: (1) require that overnight room rentals be fixed at an amount certain for any privately owned and operated hotel, motel, or other similar visitor-serving facility located on either public or private lands; or (2) establish or approve any method for the identification of low or moderate income persons for the purpose of determining eligibility for overnight room rentals in any such facilities.

Not Applicable: The proposed project does not include amendments that change allowed uses in the downtown area of the coastal zone, other than to prohibit retail cannabis facilities within the Central Business District.

Section 30214 Implementation of Public Access Policies - The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following: (1) Topographic and geologic site characteristics. (2) The capacity of the site to sustain use and at what level of intensity. (3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses. (4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.

Consistent: The proposed amendments call for expansion of access to the San Lorenzo River. The proposed amendments will allow for license agreements to be approved by the City in conjunction with a Coastal Permit, which will include conditions to define management of the publicly accessible areas adjacent to the Riverwalk in a manner consistent with any adjacent proposed development and the protection of nearby natural resources.

Recreation

Section 30220 Protection of Certain Water-Oriented Activities - Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

Not Applicable: The proposed amendments are for areas that are not located adjacent to or near the coast and is an area not considered to be a coastal area.

Section 30221 Oceanfront Land-Protection for Recreational Use - Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and

foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.

Not Applicable: The proposed amendments are for areas that are not located adjacent to or near the coast and is an area not considered to be oceanfront land.

Section 30222 Private lands-Priority of Development - The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.

Consistent: The proposed amendments do not change allowed or permitted uses (other than to prohibit retail cannabis facilities), which currently allow for visitor-serving uses, including motels and hotels. These permitted uses are already part of the City's certified LCP.

Section 30222.5 Oceanfront lands-Aquaculture Facilities - Oceanfront land that is suitable for coastal dependent aquaculture shall be protected for that use, and proposals for aquaculture facilities located on those sites shall be given priority, except over other coastal dependent developments or uses.

Not Applicable: The proposed amendments do not cover oceanfront lands.

Section 30223 Upland areas - Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.

Not Applicable: The proposed amendments do not cover upland lands.

Section 30224 Recreational Boating Use - Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities, providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.

Not Applicable: The part of the downtown area covered by the proposed amendments is not adjacent to areas of recreational boating use.

Marine Resources

Section 30230 Marine Resources - Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Not Applicable: The proposed amendments cover the downtown area, which is not adjacent to or within marine waters and would have no effect on marine resources.

Section 30231 Biological productivity-Water Quality - The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of

marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Consistent: The proposed amendments do not result in changes to existing policies and the City-wide Creeks and Wetlands Management Plan (part of the City's certified LCP) that require protection of habitat, resources and water quality along the San Lorenzo River.

Section 30232 Oil and Hazardous Substance Spills - Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur

Not Applicable: The proposed amendments cover the downtown area, which is not adjacent to or within marine waters and would have no effect on marine resources.

Section 30233 Diking, Filling or Dredging - The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects.

Not Applicable: The proposed amendments cover the downtown area and would not result in diking, filling or dredging.

Section 30234 Commercial Fishing and Recreational Boating Facilities - Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded.

Not Applicable: The part of the downtown area covered by the proposed amendments is not adjacent to areas of commercial or recreational boating use.

Section 30235 Construction Altering Natural Shoreline - Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.

Not Applicable: The proposed amendments cover a portion of the downtown area that is not adjacent to the shoreline and do not include policies regarding construction of devices that would alter the natural shoreline.

Section 30236 Water supply and Flood Control - Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (I) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.

Not Applicable: The proposed amendments do not include water supply or flood control projects.

Land Development

Section 30240 Environmentally Sensitive Habitat Areas- (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Consistent: The proposed amendments do not result in changes to existing LCP policies or the City-wide Creeks and Wetlands Management Plan (part of the City's certified LCP) that require protection of habitat along the San Lorenzo River. Development resulting from the proposed amendments, as mitigated, would not result in significant impacts to adjacent San Lorenzo River riparian and aquatic habitats.

Section 30241 Prime Agricultural Land – The maximum amount of prime agricultural land shall be maintained in agricultural production to assure the protection of the areas' agricultural economy, and conflicts shall be minimized between agricultural and urban land uses through all of the following:

Not Applicable: The proposed amendments do not include prime or other agricultural lands.

Section 30241.5 Agricultural Land - If the viability of existing agricultural uses is an issue pursuant to subdivision (b) of Section 30241 as to any local coastal program or amendment to any certified local coastal program submitted for review and approval under this division, the determination of "viability" shall include, but not be limited to, consideration of an economic feasibility evaluation.

Not Applicable: The proposed amendments do not include prime or other agricultural lands.

Section 30242 Lands Suitable for Agricultural Use - All other lands suitable for agricultural use shall not be converted to nonagricultural uses unless (I) continued or renewed agricultural use is not feasible, or (2) such conversion would preserve prime agricultural land or concentrate development consistent with Section 30250. Any such permitted conversion shall be compatible with continued agricultural use on surrounding lands.

Not Applicable: The proposed amendments do not include prime or other agricultural lands.

Section 30243 Productivity of Soils and Timberlands - The long-term productivity of soils and timberlands shall be protected, and conversions of coastal commercial timberlands in units of commercial size to other uses or their division into units of noncommercial size shall be limited to providing for necessary timber processing and related facilities.

Not Applicable: The proposed amendments do not include timberlands.

Section 30244 Archaeological or Paleontological Resources - Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

Downtown Plan Amendments Final EIR

Consistent: The proposed amendments do not change existing requirements for review archaeological or paleontological resources at the time of site-specific development proposals, which require mitigation should resources be impacted.

Section 30250 Location-Existing Developed Area - (a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels. (b) Where feasible, new hazardous industrial development shall be located away from existing developed areas. (c) Visitor-serving facilities that cannot feasibly be located in existing developed areas shall be located in existing isolated developments or at selected points of attraction for visitors.

Consistent: Future development allowed by the proposed amendments would be located within the developed downtown area with available public services.

Section 30251 Scenic and Visual Qualities The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

Consistent: Future development allowed by the proposed amendments would not affect views along the ocean or in scenic coastal areas and was found to be visually compatible with the character of surrounding downtown areas.

Section 30252 Maintenance and Enhancement of Public Access - The location and amount of new development should maintain and enhance public access to the coast by (1) facilitating the provision or extension of transit service, (2) providing commercial facilities within or adjoining residential development or in other areas that will minimize the use of coastal access roads, (3) providing non-automobile circulation within the development, (4) providing adequate parking facilities or providing substitute means of serving the development with public transportation, (5) assuring the potential for public transit for high intensity uses such as high-rise office buildings, and by (6) assuring that the recreational needs of new residents will not overload nearby coastal recreation areas by correlating the amount of development with local park acquisition and development plans with the provision of onsite recreational facilities to serve the new development.

Consistent: The proposed amendments do not include site-specific development or change certified land uses in the project area.

Section 30253 Minimization of Adverse Impacts - New development shall do all of the following: (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard. (b) Assure stability

and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. (c) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development. (d) Minimize energy consumption and vehicle miles traveled. (e) Where appropriate, protect special communities and neighborhoods that, because of their unique characteristics, are popular visitor destination points for recreational uses.

Consistent: Future development allowed by the proposed amendments would be located within the developed downtown area and would not result in alteration of natural landforms. Location in proximity to the transit center and walking and bicycling facilities would minimize energy consumption and vehicle miles traveled.

Section 30254 Public Works Facilities - New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.

Not Applicable: The proposed amendments do not include public works facilities.

Section 30254.5 Terms on Sewage Treatment Plant Development - Notwithstanding any other provision of law, the commission may not impose any term or condition on the development of any sewage treatment plant which is applicable to any future development that the commission finds can be accommodated by that plant consistent with this division.

Not Applicable: The proposed amendments do not include a sewage treatment plant.

Section 30255 Priority of Coastal-Dependent Developments - Coastal-dependent developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland. When appropriate, coastal-related developments should be accommodated within reasonable proximity to the coastal-dependent uses they support.

Not Applicable: The area covered by the proposed amendments is not located on or near the shoreline.

Industrial Development

Section 30260 Location or Expansion - Coastal-dependent industrial facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with this division.

Not Applicable: The area covered by the proposed amendments is not located on or near the shoreline.

30261 Tanker Facilities - Use of existing and new tanker facilities shall be encouraged to the maximum extent feasible and legally permissible, except where to do so would result in increased tanker

operations and associated onshore development incompatible with the land use and environmental goals for the area.

Not Applicable: The area covered by the proposed amendments is not located on or near the shoreline or in marine waters and no tanker facilities exist or are proposed in the project area.

Section 30262 Oil and Gas Development - Oil and gas development shall be permitted in accordance with Section 30260 if specified conditions are met.

Not Applicable: The proposed amendments do not include oil and gas development.

Section 30263 Refineries or Petrochemical Facilities – This policy provides standards for new or expanded refineries or petrochemical facilities.

Not Applicable: The area covered by the proposed amendments is located within a developed urban area; no refineries or petrochemical facilities exist or are proposed in the project area.

Section 30264 Thermal Electric Generating Plants - Notwithstanding any other provision of this division, except subdivisions (b) and (c) of Section 30413, new or expanded thermal electric generating plants may be constructed in the coastal zone if the proposed coastal site has been determined by the State Energy Resources Conservation and Development.

Not Applicable: The area covered by the proposed amendments is located within a developed urban area; no thermal electric generating plants exist or are proposed in the project area.

CITY OF SANTA CRUZ Notice of Exemption

To: ☑	Clerk of the Board County of Santa Cruz Governmental Center 701 Ocean Street Santa Cruz, CA 95060		Office of Planning at 1400 Tenth Street, F Sacramento, CA 956	Room 12'	
From:	City of Santa Cruz, Planning Dept., 809 Co	enter	Street, Room 206, S	Santa Cru	ız, CA 95060
Project Ti	tle: Metro Transit Center				
	ddress: 333 & 423 Front Street 's Parcel No.: 005-152-30, -32				
Project Lo	ocation: City of Santa Cruz	C	county of: Santa Cru	IZ	
Coastal F redevelopr crosswalks downtown Local Coas Street/Rive	escription: The project consists of a No- Permit and Design Permit to demolisment of the Metro Transit Center includes, and solar array canopies. The 1.42 area. The property is designated CF (Comstal Plan and is zoned PF (Public Facilities erfront Corridor area of the Downtown Plan.	sh th ding acre nmun s). Th	ne existing Metro 22 bus bays, pede site is located withi ity Facilities) in the C ne project site is also	Transit estrian ci in a deve city's Gen located	Center, and reulation and eloped urban and eral Plan and with the Front
Name of P	ublic Agency Approving Project: City of	Sant	a Cruz		
Exempt St	atus: (check one)				
	Ministerial Project (Section 21080(b))(1); 1	15268).		
	Categorically Exempt (Section 15302	2).			
	Declared Emergency (Section 21080	0(b)(3); 15269(a)).		
	Emergency Project (Section 21080(b	b)(4);	15269(b)(c)).		
	Statutory Exemption (Code/Section _).		
	The project clearly will not hav (15061(b)(3)).	/e a	significant effect	on the	environment

Reasons why project is exempt: The project is categorically exempt from environmental review under Article 19 of the CEQA Guidelines, Section 15302 which allows for replacement or reconstruction of existing facilities. Class 2 consists of replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced, including but not limited to:

- (a) Replacement or reconstruction of existing schools and hospitals to provide earthquake resistant structures which do not increase capacity more than 50 percent.
- (b) Replacement of a commercial structure with a new structure of substantially the same size, purpose, and capacity.
- (c) Replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity.
- (d) Conversion of overhead electric utility distribution system facilities to underground including connection to existing overhead electric utility distribution lines where the surface is restored to the condition existing prior to the undergrounding.

The proposed redevelopment of the Metro Center meets the criteria of replacement or reconstruction of existing facilities on the same site, and will have substantially the same purpose and capacity as the structure replaced. Therefore, the project qualifies for the Categorical Exemption found in CEQA Guidelines Section 15302, Replacement and Reconstruction, and the Notice of Exemption is provided in Exhibit B of this report.

Lead Agency Contact Person: Ryan Bane Department: Planning & Community Development		Phone: (831) 420-5141			
		Address: 809 Center Street, Room Santa Cruz, CA 95060	•		
Signature: 2	3	Date:6-2-21			
Title: Senior Planner		☑ Signed by Lead Agency☐ Signed by Applicant			
If filed by applicant: 1. Attach certified docume 2. Has a notice of exemption		agency approving the project? □ Yes⊡ No	ı		
Date Received for filing at Count	y Clerk:				
Date Received for filing at OPR:					
	THIS NOTICE HA	AS BEEN POSTED AT THE CLERK			
Received		OF SUPERVISORS OFFICE FOR A			
CLERK OF THE BOARD	PERIOD COMMEN	$\frac{1000}{100}$			
JUN-03 2021					
POARD OF SUPERVISORS	AND ENDING_	07/02/202			

		Print	StartOver	Save
		RECEIPT NUME	BER:	LOSS
		44 — 0603		04
				BER (If applicable)
OFF INOTINITATIONS ON DELICEDOE. THE OR DRING OF FARM			10.10002 110111	ser (" approable)
SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY. LEAD AGENCY	LEADAGENCY EMAIL		DATE	
City of Santa Cruz	dmccormic@cityofsa	ntacruz.com	060321	
COUNTY/STATE AGENCY OF FILING			DOCUMENT NO	IMRED
Santa Cruz			091-21	JAIDEN .
PROJECT TITLE			00.2.	
Metro Transit Center PROJECT APPLICANT NAME	PROJECT APPLICANT EM	AlL	PHONE NUMBE	ER
Santa Cruz Metropolitan Transit District c/o City of Santa Cruz			(831) 420-5	5141
PROJECT APPLICANT ADDRESS	CITY	STATE	ZIP CODE	
809 Center Street, Room 100	Santa Cruz	CA	95060	
PROJECT APPLICANT (Check appropriate box)		1	1	
✓ Local Public Agency School District	Other Special District	State A	gency [Private Entity
CHECK APPLICABLE FEES: Environmental Impact Report (EIR)	\$	3,445.25 \$.		
☐ Mitigated/Negative Declaration (MND)(ND)	\$	2,480.25 \$ _.		
☐ Certified Regulatory Program (CRP) document - payment due d	irectly to CDFW \$	1,171.25 \$_		0.00
 □ Exempt from fee □ Notice of Exemption (attach) □ CDFW No Effect Determination (attach) □ Fee previously paid (attach previously issued cash receipt copy) 	, ,			
☐ Water Right Application or Petition Fee (State Water Resources	Control Board only)	\$850.00 \$		0.00
County documentary handling fee	Control Board Only)	\$		50.00
☐ Other		s s		
PAYMENT METHOD:		Ψ -	·	
☑ Cash ☐ Credit ☐ Check ☐ Other	TOTAL RE	CEIVED \$ _		50.00
6 1 THE BULL	CY OF FILING PRINTED NAI			



NOTICE

Each project applicant shall remit to the county clerk the environmental filing fee before or at the time of filing a Notice of Determination (Pub. Resources Code, § 21152; Fish & G. Code, § 711.4, subdivision (d); Cal. Code Regs., tit. 14, § 753.5). Without the appropriate fee, statutory or categorical exemption, or a valid No Effect Determination issued by the California Department of Fish and Wildlife (CDFW), the Notice of Determination is not operative, vested, or final, and shall not be accepted by the county clerk.

COUNTY DOCUMENTARY HANDLING FEE

The county clerk may charge a documentary handling fee of fifty dollars (\$50) per filing in addition to the environmental filing fee (Fish & G. Code, § 711.4, subd. (e); Cal. Code Regs., tit. 14, § 753.5, subd. (g)(1)). A county board of supervisors shall have the authority to increase or decrease the fee or charge, that is otherwise authorized to be levied by another provision of law, in the amount reasonably necessary to recover the cost of providing any product or service or the cost of enforcing any regulation for which the fee or charge is levied (Gov. Code, § 54985, subd. (a)).

COLLECTION PROCEDURES FOR COUNTY GOVERNMENTS

	COLLECTION PROCEDURES FOR COUNTY GOVERNMENTO
Fili	Determination signed by CDFW. An additional fee is required for each separate environmental document. An addendum is not considered a separate environmental document. Checks should be made payable to the county.) Issue cash receipt to project applicable, previously issued cash receipt, to NOD. Attach copy of cash receipt and, if applicable, previously issued cash receipt, to NOD.
lf	the project applicant presents a No Effect Determination signed by CDFW, also: Attach No Effect Determination to NOD <i>(no environmental filing fee is due)</i> .
Fili	ng Notice of Exemption (NOE) (Statutorily or categorically exempt project (Cal. Code Regs., tit. 14, §§ 15260-15285, 15300-15333)) I Issue cash receipt to project applicant. Attach copy of cash receipt to NOE (no environmental filing fee is due).

Within 30 days after the end of each month in which the environmental filing fees are collected, each county shall summarize and record the amount collected on the monthly State of California Form No. CA25 (TC31) and remit the amount collected to the State Treasurer. Identify the remittance on Form No. CA25 as "Environmental Document Filing Fees" per Fish and Game Code section 711.4.

The county clerk shall mail the following documents to CDFW on a monthly basis:

- ✓ A photocopy of the monthly State of California Form No. CA25 (TC31)
- ✓ CDFW/ASB copies of all cash receipts (including all voided receipts)
- ✓ A copy of all CDFW No Effect Determinations filed in lieu of fee payment
- ✓ A copy of all NODs filed with the county during the preceding month.
- ✓ A list of the name, address and telephone number of all project applicants for which an NOD has been filed. If this information is contained on the cash receipt filed with CDFW under California Code of Regulations, title 14, section 753.5, subdivision (e)(6), no additional information is required.

DOCUMENT RETENTION

The county shall retain two copies of the cash receipt (for lead agency and county clerk) and a copy of all documents described above for at least 12 months.

RECEIPT NUMBER

- # The first two digits automatically populate by making the appropriate selection in the County/State Agency of Filing drop down menu.
- # The next eight digits automatically populate when a date is entered.
- # The last three digits correspond with the sequential order of issuance for each calendar year. For example, the first receipt number issued on January 1 should end in 001. If a county issued 252 receipts for the year ending on December 31, the last receipt number should end in 252. CDFW recommends that counties and state agencies 1) save a local copy of this form, and 2) track receipt numbers on a spreadsheet tabbed by month to ensure accuracy.

DO NOT COMBINE THE ENVIRONMENTAL FEES WITH THE STATE SHARE OF FISH AND WILDLIFE FEES.

Mail to:

California Department of Fish and Wildlife Accounting Services Branch P.O. Box 944209 Sacramento, California 94244-2090

CITY OF SANTA CRUZ Notice of Exemption

To: ☑	Clerk of the Board County of Santa Cruz Governmental Center 701 Ocean Street Santa Cruz, CA 95060		Office of Planning and Research 1400 Tenth Street, Room 121 Sacramento, CA 95814
From;	City of Santa Cruz, Planning Dept., 809 (Cente	er Street, Room 206, Santa Cruz, CA 95060
Project T	itle: Pacific Station North		
	ddress: 902, 912, 920 Pacific Ave. 's Parcel No.: 005-152-05, -31, -33		
Project Le	ocation: City of Santa Cruz	(County of: Santa Cruz
construct affordable Center. O located w Commerci Business Downtown	a seven-story, mixed-use building with residential apartments. The property is ffice use is proposed on a portion of the ithin a developed urban downtown area ial (RVC) in the City's General Plan and District (CBD). The project site is also to Plan. Person or Agency Carrying Out Project:	ground current seconds. The Located City of Ci	
Name of F	Public Agency Approving Project: City or	f San	ta Cruz
Exempt S	tatus: (check one)		
	Ministerial Project (Section 21080(b)(1);	15268).
	Categorically Exempt (Section 1533	32).	
	Declared Emergency (Section 2108	30(b)(3); 15269(a)).
	Emergency Project (Section 21080)	(b)(4)	; 15269(b)(c)).
	Statutory Exemption (Code/Section).
	The project clearly will not ha (15061(b)(3)).	ve a	a significant effect on the environment
Reasons v	why project is exempt: CEQA provides " of projects and activities that the Natural	categ Resc	porical exemptions" which are applicable to ource Agency has determined generally do

not pose a risk of significant impacts on the environment. The Class 32 categorical exemption is for

"infill development" projects that meet the following criteria:

- (a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations;
- (b) The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses;
- (c) The project site has no value as habitat for endangered, rare or threatened species;
- (d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality; and
- (e) The site can be adequately served by all required utilities and public services.

The proposed project meets all of the foregoing criteria to claim the application of the infill exemption. The project is consistent with General Plan and zoning land use designations and density and all applicable General Plan policies and zoning regulations (a). The .7 acre site is located within city limits, is less than five acres in size, and is surrounded by urban residential and commercial development in the downtown area (b). The project site was fully developed within the last two years and is not within mapped areas of potential sensitive habitat as depicted on City plans, and there are no known endangered or threatened species due to the site's location within a developed urban area. Thus, the project has no value as habitat for endangered, rare, or threatened species (c). The project site is located in close proximity to the river and will be required to comply with the city regulations that require bird-safe development. The proposed project is not expected to result in significant effects relating to traffic or air emissions in that the project site is located directly adjacent to the Santa Cruz Metro Center, the main transit center for the City of Santa Cruz, and the residences will be within walking and biking distance to employment. commercial goods and services, and recreational opportunities. Parking for the commercial and office uses is located within shared parking facilities that serve the Downtown area and the project will be required to pay into the district for parking deficiencies that will fund future improvements and maintenance of these shared facilities. The project will be required to comply with City stormwater requirements and a noise study will be required prior to building permit issuance to ensure compliance with the city's noise ordinance. Thus, the project would not result in significant impacts related to traffic, noise, air quality or water quality (d). The site can be adequately served by all required utilities and public services, as existing utility infrastructure already serves the project area and is sized sufficiently to serve the proposed use (e).

The City has further considered whether the project is subject to any of the exceptions to the use of a categorical exemption found at CEQA Guidelines Section 15300.2. This section prohibits the use of categorical exemptions under the following circumstances:

- (a) for certain classes of projects (not the Class 32 infill exemption) due to location;
- (b) when the cumulative impact of successive projects of the same type in the same place, over time, is significant;
- (c) where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances;
- (d) where the project may result in damage to scenic resources, including but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway;
- (e) where the project is located on a state designated hazardous waste site; and
- (f) where the project may cause a substantial adverse change in the significance of a historical resource.

As noted above, section 15300.2(a) does not apply to this project because the Class 32 category of projects is not excluded on the basis of location. There is no evidence of a potential significant cumulative impact (b) because successive projects of the same type in the same place have not been approved and are not proposed. The project will not result in damage to scenic resources or a scenic highway (d) as the site is not adjacent to or visible from a designated scenic highway. The site is not a hazardous waste site (e). The site was fully developed within the last two years and would not affect a historical resource (f).

The project would not result in any significant effects on the environment due to unusual circumstances. The site is located within the coastal zone, but is within an urban area, surrounded by development. The site is located within an area mapped as potentially sensitive for archaeological resources; however, A Cultural Resources Consultation Memorandum was prepared by Page & Turnbull in March of 2021 and included a records search of the California Historical Resources Information System (CHRIS) at the Northwest Information Center (NWIC) at Sonoma State University. The NWIC conducted a records search for previously recorded resources and studies within the proposed project site and a one-quarter mile radius. No previously recorded archaeological or built environment resources are located within the proposed project site. A field inventory was not conducted due to the urbanized nature of the project site and lack of native soil exposures. No archaeological sites or resources within the project site are referenced in the 1971 California Coastline Preservation and Recreation Plan, and the one previously recorded site within a quarter mile radius of the proposed project is noted in the Cultural Resources Element of the 2003 version of the City of Santa Cruz General Plan and Local Coastal Program. In summary, the report indicated that no previously identified archaeological resources are located within the project site. and no project-specific mitigation measure are recommended. Standard conditions of approval are included that require compliance with Section 24.12.430(5) of the Zoning Ordinance regarding the discovery of artifacts during construction. No heritage trees are proposed to be removed. The immediate area has similar General Plan, LCP and zoning designations as the project property. There are no "unusual circumstances" that differentiates the project from the general class of similarly situated projects. For example, other properties in the surrounding area have or could develop high-density residential housing units within mixed use developments, and the area is characterized as being on flat terrain without sensitive resources present. Thus, the project would not result in any significant effects on the environment due to unusual circumstances (c).

Therefore, the City is able to document that the project qualifies for the Categorical Exemption found at CEQA Guidelines section 15332, the infill exemption, and that none of the potential exceptions to the use of a categorical exemption apply to this project or the project site.

Contact Person: Ryan Bane	Phone: (831) 420-5141
Department: Planning & Community Development	Address: 809 Center Street, Room 100 Santa Cruz, CA 95060
Signature: Py B	Date: 6-2-21
Title: Senior Planner	☑ Signed by Lead Agency☐ Signed by Applicant
 If filed by applicant: Attach certified document of exemption finding. Has a notice of exemption been filed by the public age 	ency approving the project? ☐ Yes☑ No

Date Received for filing at County Clerk:	
Date Received for filing at OPR:	

Received
CLERK OF THE BOARD

JUN-03 2021

BOARD OF SUPERVISORS COUNTY OF SANTA CRUZ THIS NOTICE HAS BEEN POSTED AT THE CLERK
OF THE BOARD OF SUPERVISORS OFFICE FOR A
PERIOD COMMENCING U6/63/2021
AND ENDING 07/02/2021

		Print	StartOver	Save
		RECEIPT NUMB		0.5
		44 — 0603		
		STATE CLEARIN	IGHOUSE NUME	BER (If applicable)
SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY.			In the	
	LEADAGENCY EMAIL		DATE	
City of Santa Cruz	dmccormic@cityofs	antacruz.com	060321	
COUNTY/STATE AGENCY OF FILING			DOCUMENT NU	IMBER
Santa Cruz			092-21	
PROJECT TITLE				
Pacific North Station				
PROJECT APPLICANT NAME	PROJECT APPLICANT E	MAIL	PHONE NUMBE	:R
City of Santa Cruz Planning & Development c/o Ryan Bane			(831) 420-5	3141
PROJECT APPLICANT ADDRESS	CITY	STATE	ZIP CODE	
809 Center Street, Room 100	Santa Cruz	CA	95060	
PROJECT APPLICANT (Check appropriate box)	1			
✓ Local Public Agency School District	Other Special District	State Ag	jency [Private Entity
7 .		7		
CHECK APPLICABLE FEES:				0.00
☐ Environmental Impact Report (EIR)				
☐ Mitigated/Negative Declaration (MND)(ND)		\$2,480.25 \$		
☐ Certified Regulatory Program (CRP) document - payment due di	irectly to CDFW	\$1,171.25 \$ _		0.00
C) Every the form to a				
☐ Exempt from fee☐ Notice of Exemption (attach)				
CDFW No Effect Determination (attach)				
Fee previously paid (attach previously issued cash receipt copy)				
- Tee previously baid (attach previously issued easifreecipt copy)				
☐ Water Right Application or Petition Fee (State Water Resources	Control Board only)	\$850.00 \$		0.00
County documentary handling fee	oona or board or ny)	\$		50.00
☐ Other		\$		
PAYMENT METHOD:		* -		
☑ Cash ☐ Credit ☐ Check ☐ Other	TOTAL F	RECEIVED \$ _		50.00
SIGNATURE	CY OF FILING PRINTED N	AME AND TITLE		
X Juliette Burke Julie	tte Burke, Adminis	strative Aide		



NOTICE

Each project applicant shall remit to the county clerk the environmental filing fee before or at the time of filing a Notice of Determination (Pub. Resources Code, § 21152; Fish & G. Code, § 711.4, subdivision (d); Cal. Code Regs., tit. 14, § 753.5). Without the appropriate fee, statutory or categorical exemption, or a valid No Effect Determination issued by the California Department of Fish and Wildlife (CDFW), the Notice of Determination is not operative, vested, or final, and shall not be accepted by the county clerk.

COUNTY DOCUMENTARY HANDLING FEE

The county clerk may charge a documentary handling fee of fifty dollars (\$50) per filing in addition to the environmental filing fee (Fish & G. Code, § 711.4, subd. (e); Cal. Code Regs., tit. 14, § 753.5, subd. (g)(1)). A county board of supervisors shall have the authority to increase or decrease the fee or charge, that is otherwise authorized to be levied by another provision of law, in the amount reasonably necessary to recover the cost of providing any product or service or the cost of enforcing any regulation for which the fee or charge is levied (Gov. Code, § 54985, subd. (a)).

COLLECTION PROCEDURES FOR COUNTY GOVERNMENTS

Filing	Notice of Determination (NOD):
	Collect environmental filing fee or copy of previously issued cash receipt. (Do not collect fee if project applicant presents a No Effect
	Determination signed by CDFW. An additional fee is required for each separate environmental document. An addendum is not considered
	separate environmental document. Checks should be made payable to the county.)
	Issue cash receint to project applicant

☐ Attach copy of cash receipt and, if applicable, previously issued cash receipt, to NOD.

Mail filing fees for CRP document to CDFW prior to filing the NOD or equivalent final approval (Cal. Code Regs. Tit. 14, § 753.5 (b)(5)). The CRP should request receipt from CDFW to show proof of payment for filing the NOD or equivalent approval. Please mail payment to address below made attention to the Cash Receipts Unit of the Accounting Services Branch.

If the project applicant presents a No Effect Determination signed by CDFW, also:

☐ Attach No Effect Determination to NOD (no environmental filing fee is due).

Filing Notice of Exemption (NOE) (Statutorily or categorically exempt project (Cal. Code Regs., tit. 14, §§ 15260-15285, 15300-15333))

☐ Issue cash receipt to project applicant.

☐ Attach copy of cash receipt to NOE (no environmental filing fee is due).

Within 30 days after the end of each month in which the environmental filing fees are collected, each county shall summarize and record the amount collected on the monthly State of California Form No. CA25 (TC31) and remit the amount collected to the State Treasurer. Identify the remittance on Form No. CA25 as "Environmental Document Filing Fees" per Fish and Game Code section 711.4.

The county clerk shall mail the following documents to CDFW on a monthly basis:

✓ A photocopy of the monthly State of California Form No. CA25 (TC31)

✓ CDFW/ASB copies of all cash receipts (including all voided receipts)

✓ A copy of all CDFW No Effect Determinations filed in lieu of fee payment

✓ A copy of all NODs filed with the county during the preceding month.

✓ A list of the name, address and telephone number of all project applicants for which an NOD has been filed. If this information is contained on the cash receipt filed with CDFW under California Code of Regulations, title 14, section 753.5, subdivision (e)(6), no additional information is required.

DOCUMENT RETENTION

The county shall retain two copies of the cash receipt (for lead agency and county clerk) and a copy of all documents described above for at least 12 months.

RECEIPT NUMBER

The first two digits automatically populate by making the appropriate selection in the County/State Agency of Filing drop down menu.

The next eight digits automatically populate when a date is entered.

The last three digits correspond with the sequential order of issuance for each calendar year. For example, the first receipt number issued on January 1 should end in 001. If a county issued 252 receipts for the year ending on December 31, the last receipt number should end in 252. CDFW recommends that counties and state agencies 1) save a local copy of this form, and 2) track receipt numbers on a spreadsheet tabbed by month to ensure accuracy.

DO NOT COMBINE THE ENVIRONMENTAL FEES WITH THE STATE SHARE OF FISH AND WILDLIFE FEES.

Mail to:

California Department of Fish and Wildlife Accounting Services Branch P.O. Box 944209 Sacramento, California 94244-2090 а