4.4 WATER SUPPLY

4.4.1 ENVIRONMENTAL SETTING

IN THIS SECTION:

- Regulatory Setting
- Water Service System & Water Supply
- Water Demand in City Water Service Area
- Water Supply Limitations
- Water Supply Planning & Adopted Plans

This section draws from the City of Santa Cruz *General Plan 2030* EIR (SCH#2009032007), which was certified on June 26, 2013, in particular regarding the City's water service area, water supplies, historic water production and demand, and water management planning efforts over the past 20+ years. The General Plan EIR related to water supply is incorporated by reference in accordance with section 15150 of the State CEQA Guidelines. Relevant discussions are summarized below and can be fully reviewed in the General Plan EIR on pages 4.5-1-4.5-26 in the Draft EIR volume (September 2001) and on pages 3-2-3-13 and 4-2-4-6 in the Final EIR volume (April 2013). The General Plan EIR is available for review at the City of Santa Cruz Planning and Community Development Department (located at 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/index.aspx?page=348.

The General Plan EIR summarizes and incorporates findings contained in the City's adopted *2010 Urban Water Management Plan*. Pursuant to State Water Code requirements, water suppliers providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet (approximately 980 million gallons) of water annually must prepare and adopt an urban water management plan (UWMP) and update it every five years. The Act requires water agencies to evaluate and describe their water resource supplies and projected needs over a 20-year planning horizon, and to address a number of related subjects including water conservation, water service reliability, water recycling, opportunities for water transfers, and contingency plans for drought events. The City adopted its *2005 Urban Water Management Plan* (UWMP) in February 2006, and adopted an updated 2010 UWMP on December 13, 2011. The 2010 UWMP is available for review online on the City's website at: http://www.cityofsantacruz.com/Modules/ShowDocument.aspx?documentid=24687.

REGULATORY SETTING

State Regulations

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 (for projects of 500 or more residential units, 500,000 square feet or more of retail commercial space, 250,000 square feet or more of office commercial space, 500 or more hotel rooms, specified industrial uses, or a project that would result in a water demand equal to or greater than the amount needed to serve a 500-unit residential project). These assessments, prepared by "public water systems" responsible for service, address whether there are adequate existing or projected water supplies available to serve proposed projects over a 20-year period, in addition to existing demand and other anticipated development in the service area. The proposed project does not meet the above size requirements that would trigger the preparation of a WSA.

City Regulations

The City of Santa Cruz has enacted several ordinances regarding water conservation. Title 16 of the City's Municipal Code addresses water, sewers, and other public services. Chapter 16.01 identifies regulations and restrictions during declared times of water shortages. Chapter 16.02 sets forth water conservation provisions to prevent the waste or unreasonable use or method of use of water. Chapter 16.03 requires that plumbing fixtures be retrofitted, when a property is sold, with "high efficiency plumbing fixtures"[1] in all residential, commercial, and industrial buildings served by the City of Santa Cruz Water Department that use water in showers, toilets, and urinals. 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.

Pursuant to Section 16.04 of the Municipal Code, the City currently imposes a "System Development Charge" (SDC) on all new connections or upsizing of existing meters, based on meter size. The charge is to pay for the new connection or additional demand's proportional share of the system expansion costs essential to provide water to the new or additional service. The fee is assessed at the time of connection to the water system, and is placed in a separate account that is used exclusively for:

(1) Payment for the City's future construction of specified facilities, or

(2) Reimbursement to developers who have been required or permitted to install such listed facilities which are oversized beyond that needed for the particular development and are subject to the terms of a reimbursement agreement with the City, or

(3) Payment for water conservation programs approved by the City Council which have the net effect of increasing the amount of water supply available for allocation to new connections.

[1] Section 16.03.030 defines "low consumption plumbing fixtures" as any showerhead rated to use a maximum of 2.0-5 gallons of water per minute, any toilet rated to use a maximum of 1.28 gallons per flush, and any urinal and associated flush valve rated to use a maximum of 0.5 gallon per flush.

CITY WATER SERVICE SYSTEM & WATER SUPPLIES

City Water Service Area

The City of Santa Cruz Water Department provides water service to an approximately 20-square-mile area that includes lands within existing City limits, the portion of UCSC that is within City limits, adjoining unincorporated areas of Santa Cruz County (including Live Oak and residential subdivisions along Graham Hill road), a small part of the City of Capitola, and coastal agricultural lands outside City limits. The City currently serves nearly 21,600 residential accounts; approximately 2,200 commercial, industrial, institutional, and municipal accounts; and 450 irrigation accounts. The Water Department serves an estimated population of nearly 93,300 people who reside in the service area, of whom nearly 60,000 (or about two-thirds of the service population) live inside Santa Cruz city limits.

Water Supply Sources

The City of Santa Cruz water system is comprised of four main sources of water supply that are summarized below from the *General Plan 2030* EIR (pages 4.5-4 to 4.5-6) unless otherwise noted.

NORTH COAST SOURCES

The North Coast sources consist of surface diversions from three coastal streams and a natural spring located approximately six to eight miles northwest of downtown Santa Cruz. These sources are Liddell Spring, Laguna Creek, Reggiardo Creek, and Majors Creek. The North Coast system has been in operation since the 1880s. The City has pre-1914 appropriative rights for surface diversion from Liddell Spring, Laguna Creek, Reggiardo Creek, and Majors Creek.

SAN LORENZO RIVER DIVERSIONS

The San Lorenzo River is the City's largest water supply source, and the City diverts water from the San Lorenzo River at two locations: the Tait Street Diversion (near the City limits just north of Highway 1), and the Felton Diversion (located about six miles upstream from the Tait Street Diversion). The City is the largest single user of water from the San Lorenzo River basin; however, three other water districts, several private water companies, and numerous individual property owners share the San Lorenzo River watershed as their primary source for drinking water supply.

The Tait Street diversion is supplemented by two shallow, auxiliary wells located on the east side of the river, which are hydraulically connected to the river and tied to the City's appropriative rights for surface diversion. The City has rights to divert up to 12.2 cubic feet per second (cfs) year-round from the San Lorenzo River at the Tait Street Diversion and adjacent wells.

The other San Lorenzo River diversion is the Felton Diversion Station, which is an inflatable dam and intake structure built in 1974. Water is pumped from this diversion through the Felton Booster Station to Loch Lomond Reservoir. The facility is used to augment storage in the

reservoir during dry years when natural inflow from Newell Creek is low. Pursuant to current permits, this water must be diverted to the Loch Lomond Reservoir and cannot be sent directly to the Graham Hill water treatment plant. Thus, the City's ability to utilize water from the Felton Diversion is dependent on the volume of available storage in Loch Lomond Reservoir and, as a result, the Felton Diversion is operated only intermittently, as needed, to augment storage in Loch Lomond Reservoir when natural inflow from Newell Creek to the reservoir is low.

Under the City's current permits from the State Water Resources Board, the City may divert up to 977 million gallons per year (MGY) of water from the San Lorenzo River at the Felton Diversion, between September and May. The City's permits for the Felton Diversion also restrict diversions based on minimum instream flow requirements. In order to protect fish habitat in the San Lorenzo River, diversions at Felton may occur only when instream flow exceeds prescribed flows. These minimum average daily flow requirements for instream flow are 10 cfs in September, 25 cfs in October, and 20 cfs from November to May. After fish flow requirements are met, the City has rights to divert 7.8 cfs during September, and 20 cfs from October to May.

NEWELL CREEK AND LOCH LOMOND RESERVOIR

Loch Lomond Reservoir (also referred to as Newell Creek Reservoir in the City's operating permit) is located near the town of Ben Lomond in the Santa Cruz Mountains. Constructed in 1960, the reservoir collects water from the Newell Creek watershed and has a maximum capacity of 2,810 million gallons. Like the City of Santa Cruz, the San Lorenzo Valley Water District is entitled to receive a portion of the water stored in Loch Lomond. The City and the San Lorenzo Valley Water District both have rights to the water stored in the reservoir; the City's annual withdrawal limit is 1,042 million gallons.

LIVE OAK WELLS

The groundwater supplies, which comprise four percent of the City's water supply production on an annual basis, has been a critical component of the water system for meeting peak season demands and maintaining pressure in the eastern portion of the distribution system (City of Santa Cruz Water Department, December 2011). The system currently consists of three groundwater production wells, which are located within the "West Santa Cruz Terrace Groundwater Basin," as defined by the California Department of Water Resources. The water produced from the Live Oak Well system is derived from the Purisima Formation, which is the primary source of groundwater in the mid-Santa Cruz County region. Groundwater from the Purisima Formation is used by the City of Santa Cruz, the Soquel Creek Water District, Central Water District, and numerous private wells. The City's adopted 2010 UWMP indicates that there is a potential for saltwater intrusion to jeopardize the safe production of groundwater from the Purisima aquifer as the basin has long been recognized locally as being threatened by overpumping (Ibid.). However, at this time, the State Department of Water Resources has not identified the basin as overdrafted or projected to be overdrafted.

Water System Production and Operations

In general, the City's water supply system is managed to take advantage of the better quality and least expensive water sources as a first priority, and to retain the maximum amount of

water possible in Loch Lomond Reservoir to safeguard against future droughts. In addition to considerations for cost, water quality, and storage, there are legal constraints on the diversion of surface waters contained in the City's water rights that govern the operation of the water system.

Water supplies generally are dispatched to meet daily demands in the following order: North Coast, San Lorenzo River, Live Oak Wells, Loch Lomond Reservoir. The North Coast sources are used to the greatest extent possible due to excellent water quality and the lowest production cost; and, as previously indicated, these diversions are least affected by water rights limitations. Additional water needed to meet daily demands is pumped from the San Lorenzo River at Tait Street. During the summer and fall, when the City's flowing sources are inadequate to meet peak season daily demands, supplemental water is brought in from the Live Oak Wells and Loch Lomond Reservoir. The City's 2010 Urban Water Management Plan (UWMP) reported that, on average, about 84 percent of the City's annual water supply needs are met by surface diversions from the coastal streams (30 percent) and San Lorenzo River (54 percent), while approximately 12 percent is supplied by Loch Lomond Reservoir and four percent of the supply is derived from the Live Oak Well system.

Water production has fluctuated over the past 10 years; annual production has ranged from a high of nearly 4,400 MGY in 2000 to a low of approximately 3,200 MGY in 2009 and 2010 (City of Santa Cruz Water Department, December 2011). Gross water production between 2006 and 2010 averaged approximately 3,500 MGY. Gross water production was 3,077 MGY in 2011 and 3,302 MGY in 2012. Net water production is the amount of treated water produced at the City's two treatment plants, and averages about four percent less than gross production (Ibid.).

The City's adopted 2010 UWMP estimates water supplies in the year 2030 as 4,160 MGY, depending on the outcome of negotiations between the City and regulatory agencies regarding releases for fish habitat and the outcome of other water rights decisions, which are discussed further below. The water supply estimates were developed using the City's water supply operations model and best available information about future operations beginning in 2015 (under a yet-to-be-approved Habitat Conservation Plan [HCP]) that were known at the time the UWMP was prepared. Since adoption of the 2010 UWMP, the City Water Department has undertaken additional modeling as part of the preparation of the EIR for the proposed Regional Seawater Desalination Project and, in part, due to responses from agencies regarding the City's proposed strategies for aquatic habitat protection, which also is discussed further below.

Water System Facilities and Infrastructure

Major facilities include two water treatment plants, several pump stations and 16 distribution reservoirs storing approximately 15 million gallons of treated water. There are also about 300 miles of water pipelines throughout the service area. The City operates two water treatment facilities. All surface water is treated at the Graham Hill Water Treatment Plant, which currently has a capacity of approximately 18 million gallons per day (mgd). The 2-mgd Live Oak Water Treatment Plant treats groundwater to remove iron and manganese. Treated water from the Graham Hill plant flows to the Bay Street Reservoir and into the distribution system. Treated water from Live Oak is pumped directly into the distribution system.

The City has 16 treated water storage reservoirs throughout the service area, with Bay Street Reservoir being the largest. In 2007, the City removed the former 35-million-gallon reservoir due to age, deterioration, and safety issues. Two permanent 6-million-gallon tanks will replace the former reservoir, constructed in two phases; the first tank has been installed and is in service, and construction of the second tank will commence in 2014.

The City's water system also includes the 16-mile Coastal Transmission Main that carries North Coast raw water to the Graham Hill treatment facility, and the nine-mile Newell Creek Pipeline that carries water from Loch Lomond to the Graham Hill treatment plant. Additionally, the Felton Booster Pump Station is used to move water into and out of the Loch Lomond Reservoir. The Coast pump station, located next to the Tait Street Diversion, pumps raw water from the North Coast and San Lorenzo River sources to the Graham Hill Treatment Plant.

WATER DEMAND IN CITY WATER SERVICE AREA

Existing and Historical Water Use

Over the past 25 years, water use has fluctuated, in part due to imposition of water use restrictions and rationing (e.g., from 1987 to 1991) and closure of major businesses (e.g., Texas Instruments). Water demand also declined after 2005, concurrent with the introduction of a modified rate structure affecting single-family and two-unit residential customers. Another downturn in overall water consumption occurred in 2009, mostly attributable to mandatory water restrictions as a result of a City-declared "Stage 2" water shortage following a third consecutive year of below-normal rainfall. Other factors influencing a downturn in demand include ongoing water conservation efforts and effects of economic recession and housing market collapse.

Based on water demand between 2006 and 2010, 64 percent of water demand is for residential uses, followed by 19 percent for business uses, eight percent for irrigation, seven percent for industry and University of California Santa Cruz (UCSC) uses, and two percent for municipal uses. The 2010 UWMP reports that water consumption in the service area ranged between approximately 3,800 MGY in 2000 to approximately 2,900 MGY 2010 (City of Santa Cruz Water Department, December 2011-Table 4-2). Average annual water demand was approximately 3,900 MGY from 2000 through 2004. Water demand decreased after 2005 to an average demand of slightly less than 3,500 MGY between the years 2005 and 2008. Water demand (metered consumption) was 2,759 MGY in 2011 and 2,928 MGY in 2012.

The UWMP notes that over a recent 10-year period, per capita water use within the City of Santa Cruz water service area declined from about 126 gallons per capita per day (gpcd) in 2001 to 93 gpcd in 2010. Water use within the City's water service area is substantially lower than the state average of 192 gpcd, as well as the Central coast region average of 152 gpcd. The 2010 UWMP also notes that between 2000 and 2010 "there has been a larger reduction in water use from water conservation programs than there has been an increase in water use by new connections, with a net decrease over the last ten years of almost 80 million gallons per year."

Future Water Demand Projections

Based on actual use, the City's adopted *2010* UWMP estimates a water demand of between 4,046 and 4,537 MGY in the year 2030 within the entire water service area. This is based on two scenarios: the higher demand reflects water use between 1999 and 2004, while the lower demand reflects more recent water use trends experienced in 2007-08. The 2010 UWMP indicates that the lower demand scenario is more reasonable, given recent trends and state mandates for water conservation. Given the recent decline in water consumption and relatively low rate of growth in the service area experienced over the last decade, the UWMP indicates that water demand may stabilize at about 3,500 MGY in the foreseeable future (City of Santa Cruz Water Department, December 2011). The UWMP also includes a 2020 per capita water use target of 110 gallons per capita per day (gpcd), established in accordance with state law. The City's 10-year baseline (ending 2010), determined in accordance with the state's technical methodologies, is 113 gpcd. This per capita water target also is consistent with the lower water demand scenario in the UWMP.

According to the 2010 UWMP, the total water supply estimated to be available to the City in normal years is approximately 4,100 MG. Available supply during single dry years (e.g., 1994) is 3,900 MG. However, during an extreme two-year drought similar to the 1976-77 event, the estimated water supply available to the City in the second year of that event is 2,800 MG, with a resulting deficit of approximately 1,200 MG. The peak water demand season is between April and October, and this is the period that would be most affected by a supply shortage. The future supplies estimated in the UWMP account for some reduced diversions to support aquatic habitat. However, this consideration and other conditions that may affect the City's overall water supply are discussed in the next section.

WATER SUPPLY LIMITATIONS

According to the 2010 UWMP, the City of Santa Cruz faces two major challenges in meeting its present and future water supply needs. The primary water management problem is the lack of adequate water supply during periods of drought. The second key issue – "and one that is not yet fully understood at this time due to pending negotiations with applicable regulatory agencies and to the inherent complexity of the subject" – involves ensuring that surface water diversions are operated in a manner that protects the aquatic habitat of threatened and endangered species (City of Santa Cruz Water Department, December 2011). These two challenges are inter-related in that reducing surface water diversions for protection of aquatic habitat increases the potential for water supply shortages. In addition, neither is fully understood, because dry years cannot be predicted either temporally or in terms of magnitude, and negotiations are still underway with regulatory agencies regarding species issues (URS Corporation, May 2013).

A basic assumption of the City's adopted *Integrated Water Plan* and UWMP is that the City will continue to use its existing water supply sources in the future without change in current production levels. However, in addition to the two major challenges--lack of water in dry and critically dry years, and endangered species-related issues--other uncertainties also have the potential to reduce or otherwise impair the City's water supply: pending water rights and

entitlements, the reliability of the Live Oak well system due to potential seawater intrusion, and global climate change. At this time, which supplies might be affected and to what extent are unknown, and it would be speculative to say at this time. A brief discussion of each is provided below.

Vulnerability to Water Shortages

As indicated above, the City water system draws almost exclusively on local surface water sources, whose yield varies from year to year depending on the amount of rainfall received and runoff generated during the winter season. According to the 2010 UWMP, in normal and wet years, when rainfall and runoff are abundant, the water system is capable of meeting the community's current total annual water requirements. However, the system is highly vulnerable to shortage in extended dry periods or critically dry years, when the flow in local streams and river sources runs low. Additionally, the Santa Cruz water system is physically and geographically isolated, and there are no interconnections with other water suppliers in place to transfer water among adjacent water districts or import emergency supplies from outside the region. Ultimately, the only water available to the City is that which originates from rain that falls on the ocean side of the Santa Cruz Mountains (City of Santa Cruz Water Department, December 2011).

Water stored in Loch Lomond Reservoir primarily serves as a backup supply to meet summer demands. Some amount of storage is used each year, mainly in the summer and fall months when the flows in the coast and river sources decline and additional supply is needed to meet higher daily water demands during the peak season. In normal and wet years, when rainfall and runoff are abundant, base flows in the coast watershed and associated river sources are restored by winter rains, and Loch Lomond Reservoir typically is replenished to full capacity with runoff from the Newell Creek watershed. However, the water system is vulnerable to shortage in drought years when the San Lorenzo River and North Coast creeks and springs run low.

In single dry years, the system relies more heavily on water stored in Loch Lomond to satisfy demand, which draws down the reservoir level lower than usual and depletes available storage. 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 in case another dry year follows (City of Santa Cruz Water Department, December 2011).

Endangered Species Act Compliance

All of the streams from which the City diverts water currently provide habitat for special status species, including but not limited to, steelhead trout; the San Lorenzo River potentially may support coho salmon. Both species are in the anadromous salmonids family, and both are listed under federal Endangered Species Acts (ESA) as either "threatened" or "endangered." Coho salmon is listed as endangered under both the federal and California ESA. Steelhead is listed only under the federal ESA as threatened. Any activity that may have the potential to result in a "take" of a federally listed species requires a federal Section 10(a) "Incidental Take" Permit. 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. Under federal regulations, "take" is further defined to include habitat modification or degradation that results, or is reasonably expected to result, in death or injury to fish or wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. For the past 12 years, the City has been working with regulatory agencies in development of a Habitat Conservation Plan (HCP)[2] that will accompany the Section 10 permit application. Continued access to the same amount of North Coast and San Lorenzo River water supply sources will depend on the outcome of this permit application and HCP process. The permit and plan must be approved by the U.S. Fish and Wildlife Service and NOAA National Marine Fisheries Service (NMFS). The City has been working with these agencies, as well as with the California Department of Fish and Wildlife (CDFW) pursuant to the California ESA, in preparing an HCP with the goal to minimize and mitigate to the maximum extent practicable the effects of City activities on listed and other sensitive species.

The HCP is not yet complete, but numerous studies undertaken in support of the HCP have evaluated how much water flow is needed in streams, and during what times of the year, to protect the fisheries habitat during all freshwater life phases (migration, spawning, and rearing) over a range of hydrologic year types. These studies show that the City's operations are affecting special-status anadromous salmonid species and may result in potential "take" (URS Corporation, May 2013). The primary concern is with North Coast streams during the dry season and during dry water years, although potential adverse effects could occur during the wet season. Given this, the City is confronted with the requirement to provide adequate in-stream flows to support migration and spawning. Additionally, given renewed focus on the San Lorenzo River for coho salmon recovery, the HCP also must address diversions on the San Lorenzo River and on Newell Creek, as well (Ibid.).

The City developed a phased "Conservation Strategy" in 2011 based on extensive modeling. This strategy, which was incorporated into the water supply and demand forecasts included in the adopted 2010 UWMP, improves in-stream flow for steelhead and salmon by restricting water diversions, while recognizing that the limitations of the existing water supply system do not allow optimal fish flows to be achieved always or consistently. As a result of comments, including those from the California Department of Fish and Wildlife (CDFW) indicating that the agency is not in support of the City's strategy as it would not improve stream flows enough, the City submitted a revised strategy in 2012. Additional modeling subsequently was undertaken as part of the Regional Seawater Desalination Project EIR. Review and negotiations with the agencies are still in progress. According to the UWMP, the process to secure an Incidental Take Permit could require several more years to complete. While the outcome is not known, it is clear that compliance with both federal and state Endangered Species Acts will result in less water being available from the City's surface water supplies in the future, and that, in turn, will place greater reliance on Loch Lomond supplies, thus exacerbating the City's water shortage problem during dry and critically dry years.

[2] The species addressed include anadromous salmonids (coho and steelhead), Mount Hermon June Beetle (found at the Graham Hill Water Treatment Plant), California red-legged frog, and Pacific (formerly Western) pond turtle. Facilities include the City's water supply and facility sites, the Dimeo Lane landfill and Resource Recovery Facility, flood control and storm drainage maintenance projects and parks and recreational facilities. Many of the technical species' assessments are complete.

Pending Water Rights and Entitlements

WATER RIGHTS CONFORMANCE PROPOSAL

The City is in the process of developing and submitting filings to the State Water Resources Control Board (SWRCB) to rectify an historical technical deficiency in the water rights on Newell Creek. Based upon the original filings, which were thought to be adequate due to the anticipated use of Loch Lomond Reservoir, these water rights actually allow only for diversion to storage and not for direct diversion--i.e., into the City's water supply distribution system. This circumstance makes the water supply technically unavailable as a source for City use during times when, for example, the reservoir is receiving more inflow from Newell Creek than is released downstream. The water rights filings by the City are intended to correct this historical deficiency and bring the City's legal water rights and current operations into conformance with one another. The proposed direct diversion rights are limited to the same volume of water, purposes, and places of use as the existing rights, such that they match the existing rights to the extent possible while allowing direct diversion, consistent with historical practice (City of Santa Cruz Water Department, December 2011).

FELTON DIVERSION WATER RIGHTS EXTENSION PROJECT

Pursuant to the City's permits to divert water at Felton for storage in Loch Lomond Reservoir, the City was required to put all 3,000 AFY (approximately 980 million gallons) of its entitlement to full beneficial use by December 2006, in order to maintain its appropriative rights to the water. While the City has been diligent in putting water from the Felton Diversion to beneficial use over the years, to date the City has used just half the permitted amount on an annual basis. In the future, however, the City expects to need the full 3,000 AFY and, therefore, has filed petitions with the SWRCB to extend the time allowed for putting the full 3,000 AFY to beneficial use. The water supplied from the Felton Diversion is considered critical to meeting the City's projected future demand, in particular during operational outages, changes in operations in response to environmental concerns, and during dry years. The City has been granted two other such extensions of time – in the mid-1980s and again in the mid-1990s – after negotiations with California Department of Fish and Game (now the Department of Fish and Wildlife) and execution of a Memorandum of Agreement that modified the manner in which the City operated the facility. This petition is currently pending while the City works with the CDFW and NOAA Fisheries on completion of the HCP and a Section 10 permit (City of Santa Cruz Water Department, December 2011).

Reliability of Live Oak Wells System

The City's ability to produce water from the Live Oak wells, in drought years and potentially all years, may be compromised by continued deterioration of the groundwater basin conditions due to region-wide over-pumping of the Purisima Formation. According to the City's 2010 UWMP, the basin has long been recognized locally as being threatened by the problem of overpumping as evidenced by a decline in static water levels and a broad, persistent trough consistently below sea level surrounding the Soquel Creek Water District's production wells, signaling that cumulative groundwater production exceeds the long-term sustainable yield of the aquifer. At this time, no court or board has adjudicated the right to pump groundwater from the Purisima aquifer, nor has the California Department of Water Resources identified the basin from which the City pumps as overdrafted, or projected that the basin will be overdrafted if

present management practices continue (City of Santa Cruz Water Department, December 2011). There is an ongoing risk of seawater intrusion into productive units of the Purisima Formation due to coastal groundwater levels being below protective elevations that could jeopardize the future production of groundwater by the City (Ibid.).

Based on hydrogeologic reviews conducted for the City, the dry season pumping rate that can be sustained without causing seawater intrusion in average years appears to be about 170 MGY instead of 420 MGY (City of Santa Cruz Water Department, December 2011). As a result of this finding, the City identified sites for potential new wells further inland and is proceeding toward construction of a new inland well in order to maintain the ability to produce 215 MGY during drought conditions (Ibid.). (

Global Climate Change

Increasing attention has been paid to the issue of global climate change and its potential effects on existing water resources and supplies. Based on studies conducted by the State of California, the City's 2010 UWMP indicates that potential impacts and consequences of climate change on California's water resources include: reduction of the State's average annual snow pack; changes in the timing, intensity, location, amount, form and variability of precipitation; long-term changes in watershed vegetation that can change intensity and timing of runoff; sea level rise, increased water temperatures that can affect water quality; and changes in evapotranspiration rates that can result in increased water demands (City of Santa Cruz Water Department, December 2011).

The City's *General Plan 2030* EIR provides a full discussion about potential effects of global climate change on California water resources (see EIR pages 4.5-14 to 4.5-16. Generally, studies prepared by the State of California indicate that climate change may seriously affect the State's water resources as a result of temperature increases, changes in timing and amount of precipitation, and sea level rise that could adversely affect coastal areas. Simulations conducted by the State of California predict drier conditions in the future, although at the same time there is continued risk from intense rainfall events that can generate more frequent and/or more extensive runoff; some recent reports indicate that warming temperatures, combined with changes in rainfall and runoff patterns, will exacerbate the frequency and intensity of droughts. Although average annual precipitation may not change, more intense wet and dry periods also are anticipated. Regions that rely heavily upon surface water could be particularly affected as runoff becomes more variable.

It is possible that coastal watersheds such as the one above Santa Cruz could experience changes in frequency and amounts of precipitation, which could affect the amounts of water available for diversion and storage in the City's existing facilities. Generally, it is thought that there are two ways the Santa Cruz water supply system may be impacted: 1) sea level rise that would create greater likelihood of groundwater contamination from seawater intrusion; and 2) rainfall events that likely would be heavier and less frequent, thus affecting stream flow and storage in Newell Creek Reservoir. Even though the City is not connected to the major water storage and conveyance systems in California such as the State Water Project or the Central Valley Project, it benefits from the same winter weather systems that provide annual precipitation and is vulnerable to many of the same threats (City of Santa Cruz Water Department, December 2011).

In 2012, the U.S. Geological Survey published findings on how climate change may affect water resources in the San Francisco Bay area, including a case study in the Santa Cruz Mountains (U.S. Geological Survey, 2012). Results indicated large spatial variability in climate change and the hydrologic response across the region; hydrologic models predicted reduced early and late wet season runoff for the end of the century for both wetter and drier future climate projections, which could result in an extended dry season. Summers are projected to be longer and drier in the future than in the past regardless of precipitation trends. While water supply could be subject to increased variability (that is, reduced reliability) due to greater variability in precipitation, water demand is likely to steadily increase because of increased evapotranspiration rates and climatic water deficit during the extended summers.

The City has acknowledged that climate change may impact City water supplies that are largely dependent on surface water flows. To the extent that rain events are more intense but less frequent, the base flow in streams and rivers from which the City diverts could change. Predictions regarding the extent of climate change on water resources are dependent on many variables. In 2011, the "City of Santa Cruz City Climate Change Vulnerability Study" (Griggs and Haddock, January 2011) was prepared for the City, providing an assessment of potential effects of climate change on the City, including changes in precipitation and water availability. Over the next 40 years, the highest identified risks to the City are: 1) water shortages due to a combination of increasing temperatures and changes in precipitation patterns with more concentrated winter rainfall; and 2) rise in water table beneath buildings and infrastructure in the downtown portion of the City due to sea level rise (City of Santa Cruz Water Department, December 2011). Based on this study, the City prepared and adopted a "Climate Adaptation Plan", which is an update to the City's adopted "Local Hazard Mitigation Plan", indicates that changing precipitation patterns that m ay occur as a result of climate change could significantly alter both the quantity and quality of water available to the City. The Climate Adaptation Plan includes goals, objectives, and a range of potential actions to respond to these risks. Of over 40 identified action items, those relating to the Water Department's water supply include the following "very high priority actions": diversification of the water portfolio, monitoring watersheds, and conservation and curtailment of water use. "High priority actions" include: preparing for climate change-related short-term water shortages and protection of watershed lands (City of Santa Cruz Climate Adaptation Plan, December 2011).The City is working with other County water agencies to look at the models that are being developed, and will consider new information as it becomes available.

WATER SUPPLY PLANNING & ADOPTED PLANS

Water Supply Alternatives

The City of Santa Cruz has been actively considering possible new water supplies for the past 20± years due to chronic insufficiency of water supplies to meet existing demand during drought events. The City's 1989 *Water Master Plan* identified alternatives to increase the City's water supply based on water demand projections developed at that time. Subsequently, nine projects were evaluated in a 1994 study. Of the evaluated projects, the new wells at Thurber Lane and treatment of brackish groundwater in the Majors Creek area were selected as the highest ranking projects. The other alternatives include new reservoir projects in the San

Lorenzo River watershed and two on North Coast creeks; expansion of Loch Lomond; and new groundwater wells.

In 1997, the City initiated an "integrated water planning" approach to consider all practical options for decreasing demand and increasing supply, which included preparation of studies related to water demand, water conservation, water curtailment, alternative water supplies, and evaluation of regional water supply alternatives. An Integrated Water Plan (IWP) was prepared utilizing the results of these studies, and was adopted by the City Council in November 2005. As part of the IWP process, the following ten potential water supply alternatives were identified and evaluated:

- **Groundwater Options**
  1. Brackish groundwater supply from wells in the San Lorenzo River Alluvial Plain near the mouth of the river.
  2. Fresh groundwater supply from wells in the San Lorenzo Alluvial Plain.
  3. Groundwater supply from the Purisima Aquifer near the Beltz wells.
  4. Groundwater supply from the Santa Margarita Aquifer.
  5. Groundwater supply near the Wilder Ranch gravel quarry.
- **Other Supplemental Sources**
  6. Seawater desalination.
  7. Wastewater reclamation.
  8. Reservoir storage in the Olympia Quarry in the San Lorenzo Valley.
- **Other Options**
  9. Maximized use of existing sources and storage in Loch Lomond Reservoir. This alternative includes increased capture and/or storage of surface water from existing North Coast and San Lorenzo River supplies, in conjunction with optimized use of existing diversions.
  10. Conjunctive use with Soquel Creek Water District (SqCWD).

A screening of these alternatives and a conceptual engineering analysis were then completed for each of the potentially viable alternatives. As a result of this screening and evaluation process, three alternatives were recommended for further review: desalination, wastewater reclamation, and maximizing use of existing sources and storage in Loch Lomond Reservoir. A refined regional analysis of desalination and wastewater reclamation as a potential joint project with the Soquel Creek Water District was conducted in 2002. The IWP identified seawater desalination as the most feasible alternative for a backup supply of drinking water during a drought. These alternatives are summarized below. (See General Plan DEIR pages 4.5-17 to 4.5-22 and FEIR pages 3-8 to 3-10 for further discussion of these alternatives and screening conclusions.)

Desalination. The IWP identified seawater desalination as the most feasible alternative for a backup supply of drinking water in times of drought, with a plant capacity of 2.5 mgd. The plant would be for drought protection, and would be used by the City only intermittently during the dry seasons of dry and critically dry years when existing supplies fall short. The desalination facility could be expanded at a future time to provide additional supply in two

increments of 1 mgd, up to a total capacity of 4.5 mgd; the potential expansion also is intended for protection from drought conditions that could be exacerbated by future growth.

The City, in partnership with Soquel Creek Water District (SqCWD, has been planning to construct a seawater desalination facility as a backup water supply in times of drought. The proposed desalination facility is a joint partnership with the SqCWD, which also is looking for a long-term supplemental water source to reduce its reliance on well water and avert the threat of seawater intrusion in local groundwater aquifers. Currently, the SqCWD obtains all its water from groundwater sources and operates 16 active production wells. The projected annual water use of approximately 4,450 acre-feet per year (afy) for the SqCWD exceeds the targeted recovery pumping goal of 2,900 afy by approximately 35 percent, even during non-drought conditions (Soquel Creek Water District, September 2012). The SqCWD would use up to one mgd of the future plant's capacity when the City doesn't need it, and would share in the cost of building and operating the plant. In early 2006, the SqCWD adopted the Integrated Resources Plan (IRP) that identified a regional seawater desalination plant with the City of Santa Cruz as the preferred project to be investigated.

A pilot desalination plant was in operation between March 2008 and April 2009 to gather information to establish the optimal design and operating parameters for the future construction and operation of a 2.5-mgd seawater desalination plant. The 13 months of testing provided a full range of performance information that will be used to plan the full-scale seawater desalination facility. Additional technical studies were undertaken and conceptual designs were developed, and a Draft EIR on the "Regional Seawater Desalination Project" **(**scwd[2]) was prepared and distributed for public review on May 13, 2013; the review period ended On August 12, 2013. A Final EIR has not yet been prepared.

The City Council considered approaches to expand community involvement regarding the City's water issues, which were discussed recently at the Council's October 8, 2013 and November 26, 2013 meetings due to a growing public discussion over the future of the City's water supply. On November 26, 2013, Council passed a motion to accept the framework for an extensive community engagement effort for water supply, with the purpose of encouraging exploring options for long-term stable, secure, reliable, and environmentally sustainable water supply. A separate motion was passed to establish an Advisory Committee for the purpose of analyzing and formulating recommendations for the City Council regarding water supply options, with the Committee to achieve its work in twelve months. City staff also intends to further examine options for the desalination project's environmental review process, its scope, cost and duration in close coordination with the City's partner, the Soquel Creek Water District, and intend to bring this issue back to the Council early in 2014.

Section 16.10 of the City's Municipal Code was added by the City Council and requires that the City submit the question of the desalination plant's construction to voters at a regularly scheduled general municipal or statewide election before taking legislative action on whether to authorize or permit construction of a desalination plant in the City. The City Council would take such legislative action only if the desalination plant's construction is affirmed by a vote of the city's qualified electors at such election. On November 6, 2012, a voter initiative, "Measure P", was passed by City voters, which added section 1431 to the City Charter. This section, which is called "Voter Approval for Desalination Projects," also requires that the issue be brought

before City voters before the Council takes action to approve, permit or fund a desalination project.

Recycled Water. The City of Santa Cruz owns and operates a regional wastewater treatment facility which provides service to the cities of Santa Cruz and Capitola and parts of unincorporated Santa Cruz County. Recycled water is defined as wastewater treated to a specified quality in order to be used for a specified purpose. Currently, recycled water is not approved or permitted for discharge directly into a potable water distribution system, and the only allowed use would be for sewer system flushing, which totals less than 1 MGY (Ibid). The level of treatment is not sufficient for general irrigation or unrestricted use on playgrounds, parks, schoolyards, etc. Additional treatment above that currently provided would be needed to meet the state public health and safety requirements. In addition to the treatment upgrades, a distribution system--including pumps, meters, storage facilities, and separate piping--would be required to convey the recycled water to customers.

The potential for using recycled water as a supplemental water supply was examined in the City's Alternative Water Supply Study in 2000, in the Evaluation of Regional Water Supply Alternatives in 2002 during the IWP process, and more recently in 2010 as part of studies conducted for the desalination project EIR. The recycled water use project concepts that were evaluated included recycled water for groundwater recharge, direct use, and landscape or agricultural irrigation application. These alternatives are briefly summarized below. (See General Plan DEIR pages 4.5-20 to 4.5-22 and FEIR pages 3.8 to 3-9 for further discussion of recycled water options.)

Recycled water for in-City landscape irrigation and recycled water for North Coast agricultural application were reviewed in 2000 and 2002. The use of recycled water for landscape irrigation was subsequently eliminated from further review due to a number of reasons, including the limited yield and high cost. The evaluation of the option to exchange groundwater with recycled wastewater (for agricultural irrigation on State Park lands north of the City) ultimately proved to be infeasible for a number of reasons, including limited additional water supply availability given the estimated yield from the groundwater basin. Additionally, opposition by local organic growers and the disinclination of the California Department of Parks and Recreation (DPR) also emerged. Specifically, the DPR, which is a major landowner above the groundwater basin being used by coastal growers, expressed its opposition t the reclamation project (City of Santa Cruz Water Department, December 2011). Coupled with costs as high as those for desalination and concerns of North Coast growers, this option was not considered the superior option.

The use of recycled wastewater for groundwater recharge was also considered: advance-treated recycled water is injected into a groundwater basin for future extraction, followed by treatment and potable use. This concept was reviewed for its feasibility for both the City and Soquel Creek Water District, but was found not to be a practical approach for either agency due to numerous geological, financial, regulatory, and operational constraints, such as geological conditions that are not conducive to large, high-capacity injection wells, and the state requirement that recycled water be blended with up to 50 percent of another water source; these constraints put additional demand on already limited resources (City of Santa Cruz Water Department, December 2011).

Recycled water as an option for both the City and Soquel Creek Water District was investigated again in 2010 (Kennedy/Jenks Consultants, January 2010). Recycled water for the City and SqCWD potentially could provide irrigation water for parks, sports fields, and/or golf courses during a drought, but would require a new dedicated distribution system that would be prohibitively expensive when taking into account the relatively small volumes of water delivered for appropriate use (Ibid.). Importing recycled water from a nearby producer is an alternative to producing recycled water at the City of Santa Cruz wastewater plant. The Scotts Valley Water District (SVWD) and the City of Santa Cruz Water Department (SCWD) have been exploring a long-term recycled water and potable water exchange that involves Pasatiempo Golf Club and the Scotts Valley Water District, in which potable water would be provided by the City to the SVWD during the winter non-peak period when the City has some excess surface water available, in exchange for the District providing recycled water for irrigating the Pasatiempo golf course, one of the City's largest customers. Approximately 40 MGY of recycled water would be provided for irrigation of the golf course (City of Santa Cruz Water Department, December 2011). This arrangement would benefit the City by effectively shifting some of the peak summer demand to the winter season, when the City is not drawing from surface storage, and would benefit the District by lessening groundwater extraction (Ibid.). However, this solution does not significantly offset potable water needs for SCWD during drought periods.

Recycled water for landscape irrigation remains a potentially viable alternative that could be pursued in the future. However, currently it is not the City's preferred water supply strategy for the reasons outlined above. The 2010 UWMP indicates that the steps and actions to encourage and optimize recycled water will be defined in the future if and when recycling is selected, and will be pursued to diversify the City's water supply portfolio (City of Santa Cruz Water Department, December 2011).

City-Adopted Water Plans

INTEGRATED WATER PLAN (IWP)

The purpose of the IWP (Gary Fiske & Associates, June 2003) is:

> … to respond to the current drought-related crisis and plan for future growth. Specifically, it must help the City: 1) reduce near-term drought year shortages; and 2) provide a reliable supply that meets long-term needs while ensuring protection of public health and safety.

The IWP evaluated options for balancing water supply and demand that included conservation, curtailment, and new water supplies and infrastructure. Based on the water supply studies and evaluations conducted since the mid-1980s, in November 2005 the City Council adopted the IWP, which consisted of the following three components:

- **Conservation**. Implementation of water conservation programs to maximize the use of the existing water resources.

- **Curtailment during a Drought.** The IWP calls for supplying 85 percent of normal demand in critical drought years (e.g., the 1976-77 event), with a corresponding reduction in peak season water use of up to 15 percent.

- **Desalination as a Supplemental Water Supply.** The IWP identified seawater desalination as the most feasible alternative for a backup supply of drinking water in times of drought; desalination would be provided by a 2.5 mgd seawater desalination facility that would be expandable in 1.0 mgd increments up to 4.5 mgd, if needed in future years. A full-scale desalination facility site was proposed to be located in the industrial area along Delaware Avenue. The certified IWP EIR evaluates impacts of the construction of a desalination facility and associated pipelines on a programmatic level for the initial construction of a 2.5 mgd facility for drought protection and two subsequent expansions (to total 3.5 mgd and 4.5 mgd, respectively).

URBAN WATER MANAGEMENT PLAN (UWMP)

In 2011, the City first updated the adopted the *2005 Urban Water Management Plan* (UWMP) that was prepared in accordance with state law, and adopted the updated 2010 UWMP in December 2011. The plan evaluates and describes water resource supplies and projected needs over a 20-year planning horizon, and addresses a number of related subjects, including water conservation, water service reliability, recycled water opportunities, water transfers, and contingency plans for drought events. Pursuant to state law, the City of Santa Cruz Water Department must prepare and adopt an urban water management plan and update it every five years. Thus, the City's water resource supplies and projected needs over a 20-year planning horizon will be assessed and updated every five years, which will enable the City to review water demand trends and review its water supply management and options.

The 2010 UWMP provides a description of the City's adopted "integrated water planning" approach identified in the IWP, which includes conservation, use curtailment during a dry periods, and development of a supplemental water supply (which was identified as desalination). Conservation programs include water survey programs, plumbing retrofits, water audits, leak detection and repair, large landscape conservation programs and incentives, high-efficiency clothes washer rebate program, and other public information programs. The 2010 UWMP indicates that a long-term water savings of approximately 251 MGY has been achieved over the last ten years. Furthermore, there has been a larger reduction in water use from water conservation programs than there has been an increase in water use by new connections over the last 10 years, with a net decrease of almost 80 MGY over the past 10 years.

The 2010 UWMP includes a "Water Shortage Contingency Plan" (Chapter 8) that was completed and adopted in March 2009. This plan was developed to fulfill two fundamental purposes:

- To establish the procedures and actions necessary to achieve the up-to-15 percent cutback in system-wide demand established in the City's Integrated Water Plan, and

- To describe how the City would respond if faced with much larger shortages in water supply, ranging as high as 50 percent.

The updated Water Shortage Contingency Plan uses a staged approach that classifies a shortage event into one of five levels, spanning a water shortage range from five percent to 50 percent. The overall concept is that water shortages of different magnitudes require different measures to overcome the deficiency. Because there is so little the City can do in the short run to increase the supply of water, the focus of this plan is primarily on measures that reduce demand. Each stage includes a set of demand reduction measures that become progressively more stringent as the shortage condition escalates. Normally, only one of these five stages would be put into effect early in the year, at the recommendation of the Water Director, and would remain in force for the entire dry season.

Other Water Planning Efforts

In 2013, the Water Conservation Office began development of a new Water Conservation Master Plan. The plan will address the next generation of water conservation activities and serve as a roadmap to help the Santa Cruz community achieve maximum, practical water use efficiency. The goals of the plan are to:

1. Become the top water conserver in the region and best among California communities of the same or similar size. The Central Coast is home to many of the elite water-smart communities in the state and country. Given the City's legacy of developing groundbreaking environmental stewardship programs and taking the lead on resource conservation actions, Santa Cruz aspires to be at the top and will strive to achieve that status.

2. Ensure that all sectors of the Santa Cruz community strengthen their water conservation. The City will promote a high participation rate in water conservation by providing programs and incentives that engage all types of water users (households, business, visitor serving, etc).

To achieve these goals, the Water Conservation Program will be threefold: 1) continuing and, as needed, enhancing existing water conservation programs; 2) finalizing the Water Conservation Master Plan (anticipated to be completed in early 2014); and 3) strengthening public outreach and incentives to activate all community members in helping us achieve an even higher rate of water savings.

4.4.2 RELEVANT PROJECT ELEMENTS

The proposed project consists of demolition of the existing 44-unit La Bahia apartment complex, except for a portion of the existing bell tower building, and construction of a 165-room hotel with the following amenities:

- Conference/banquet facilities totaling 4,350 square feet that could accommodate approximately 290 attendees[3]
- A 2,500-square-foot restaurant (150 seats)
- A 750-square-foot day spa
- Retail space totaling 2,500 square feet
- 1,000-square-foot outdoor pool with deck

Project plans include approximately 32,850 square feet of outdoor courtyards, patios, and landscaping. The proposed landscaping design is a collection of outdoor courtyards and patios, including a large north-south courtyard on the third level that supports the pool and surrounding pool deck. A bocce ball court is planned for the fifth level of the hotel. A shallow water feature is planned at the hotel entrance.

The landscaping includes entry plantings, street trees, decorative planters (that also serve as stormwater bio-planters), and internal landscaping, as well as use of permeable pavers. Irrigated landscape area totals approximately 7,900 square feet. Thirteen trees are planned for planting around the perimeter of the proposed hotel, including bay laurel, palm, and yucca trees, as well as four clusters of three Mexican fan palm trees. Additional yuccas and planter boxes are proposed for each floor. The project landscaping plan indicates that plant materials reflect Mediterranean, native, and low-maintenance species

4.4.3 IMPACTS AND MITIGATION MEASURES

CRITERIA FOR DETERMINING SIGNIFICANCE

In accordance with the California Environmental Quality Act (CEQA); State CEQA Guidelines (including Appendix G); City of Santa Cruz plans, policies, and/or guidelines; and agency and professional standards, a project impact would be considered significant if the project would:

4a 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;

4b 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

4c Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.

[3] The estimate of attendees is from the project traffic analysis, which estimates attendee based on 15 square feet per occupant, including tables and chairs, per provisions of the California Building Code.

IMPACT ANALYSIS

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 La Bahia hotel (5a). The City Water Department indicates that the proposed project will not result in the need to construct or expand its water treatment facility or other water infrastructure/facilities to accommodate future water demand resulting from the proposed project (5b) (Goddard, City of Santa Cruz Water Department, personal communication, December 2013). The project would be required to provide new and upgrading domestic, irrigation and fire service connections to serve the project.

As described in the Initial Study (see Appendix A), the project site is located within a developed area and would not affect groundwater supplies (5c). The project site and area does not receive groundwater from the City's groundwater sources, and there would be no effect on groundwater supplies.

Impact 4.4-1 Water Supply
The proposed hotel project will result in an increased demand for water supply in a system that, under existing conditions, has adequate supplies during normal years, but inadequate supplies during dry years. The additional demand during dry years would not be of a magnitude to affect the level of curtailment that might be in effect. Therefore, this is considered a *less-than-significant impact*.

Project Water Demand and Supply

Operation of the proposed hotel would result in an estimated water demand of nearly 6.6 MGY, as summarized on Table 4.4-1. However, when water use from the existing onsite apartments (approximately 1.6 MGY) is subtracted, the project would result in a net increase in water demand at the site of approximately 5.0 MGY. It should be noted that the water demand estimates account for 100% hotel room occupancy and daily full use of the restaurant, which results in a conservatively high estimate. With typical average annual hotel occupancy and restaurant use rates of approximately 70-80% each, net increased water demand due to the project would likely average about 3.5 to 4.0 MGY.

Based upon the projections in the City's adopted 2010 UWMP, the City's water supply for a normal hydrologic year is sufficient to meet the existing water demand (approximately 3,5 MGY) and the incremental water demand associated with the proposed development (5 MGY or less). In normal years, even without a future desalination plant, the City's water supplies are estimated to provide approximately 4,160 MGY of water, taking into account flow releases for fisheries that were proposed at the time the UWMP was prepared (City of Santa Cruz Water Department, December 2011). As previously indicated, the availability of North Coast surface water sources may be further limited to protect aquatic habitat, which may reduce the amount of available water supply. Updated modeling conducted for the Regional Seawater Desalination Project (scwd[2]) indicates that water shortages could increase and become more frequent.

Other water rights petitions that are pending may result in changes in available supply. Additionally, overall water consumption in the service area has continued to decline over the past five to six years. Additional demand reductions within the service area on the order of approximately 200 MGY by the year 2030 have been estimated in the Desalination Project EIR, based on current and continued conservation programs.

Given the above conditions, it is not currently known to what extent City water supplies may be affected by the HCP or other water rights petitions. However, based on existing conditions, the Water Department has indicated that adequate supplies are currently available to meet project water demand under normal conditions (Goddard, personal communication, November 2013). Additionally, as previously noted, the cumulative water demand from new development has been less than the cumulative savings achieved through the City's water conservation program since the year 2000 (City of Santa Cruz Water Department, December 2011).

TABLE 4.4-1: Project Water Demand

Type of Use	Amount	Water Demand Rate	Use Days per Year	Water Use (gallons/year)
Hotel Rooms	165	93 gpd/room[1]	365	5,600,925
Meeting/Banquet	290 people	10 gpd/Attendee[2]	127[2]	368,300
Restaurant/Bar	4,800 sf	66 gp/sf/year[1]	365	316,800
Retail Space	2,500 sf	66 gp/sf/year[1]		165,000
Day Spa	750	66 gp/sf/year[1]		49,500
Landscaping	7,700 sq. ft	0.02 times sf = billing units per year (100cf) times 100 x 7.48 = MGY[3]		115,200
Swimming Pool	1,000 sq. ft	Swimming Pool - Area in sf times 4 (ft) x 7.48 = Gallons Per Year[3]	365	29,920
Total Water Use				6,645,645
Existing Consumption				1,640,000[4]
Net Water Use				**5,005,645 ~ 5 MGY**

Note:
gpd = gallons per day
[1] Developed by City Water Department for *General Plan 2030* Water Supply Assessment and EIR.
[2] 2008 La Bahia EIR based on Coast Hotel
[3] City of Santa Cruz Water Department
[3] Average of annual consumption between 2006 and 2012

The City's water supplies are inadequate to meet current or future projected water demand during dry years. The 2010 UWMP reports that during a single dry year, the City currently has approximately 3,900 MGY available, and approximately 2,800 MGY available during the second year of a drought (City of Santa Cruz Water Department, December 2011). Based on the 2010 UWMP, an annual average water supply deficit of three percent during a single dry year could occur in the year 2030 and could occur sometime after the year 2015. Annual average deficits are greater for multiple-dry year periods. The annual average deficit between the City's water supply during a second dry year and existing demand is estimated to be nine to 20 percent, increasing to 30 to 38 percent by 2030 in a multiple-dry year with water demand in the entire service area as estimated in the 2010 UWMP. The UWMP estimates a peak seasonal demand deficit of 43 percent in 2030 during a multiple-year dry period under the low demand scenario.

As indicated above, updated modeling conducted by the Water Department, as part of the Desalination Project EIR, found that water shortages could be as high as 39 percent in the near term and up to 46 percent in the long term (URS Corporation, May 2013). The modeling includes some reduction in customer demand through new and ongoing conservation programs. Depending on the outcome of the HCP, however, shortages could be higher. As indicated in the City's Water Contingency Plan, water shortages above 35 percent are considered by the City to be a Stage 5 Critical Emergency that could threaten the health, safety, and security of the community (Ibid.).

Water supplies in multiple dry years are not sufficient to meet demand under existing or future conditions under either demand scenario. The estimated additional net increase in water demand from the proposed project would be approximately 4.0 to 5.0 MGY, which represents less than one-tenth of one percent of the existing demand in the service area. During dry years and drought periods, the project users would be subject to water curtailment as enacted by the City throughout the water service area. Even in the absence of a future desalination plant, the minimal increased water demand associated with the proposed project would not cause any noticeable effects on the level of curtailment that would be required of all water customers in a single or a multiple dry year scenario. Additionally, as indicated above, savings from implementation of the City's water conservation program has resulted in a decrease in water demand compared to the growth in new water connections. For these reasons, project water demand during dry periods is considered less than significant. Although project approval would exacerbate the City's problems in dry years, the amount of water at issue is too small to translate into any noticeable changes in the amount of water savings that the overall City water service area would have to achieve.

As part of the City's adopted IWP and 2010 UWMP, the City has pursued development of a supplemental water source (desalination) in addition to conservation and curtailment to address water supply deficiencies during dry periods. Since adoption of the UWMP, the Desalination Project Draft EIR was released. As indicated in this document, the need for the desalination project has expanded from just a supplemental water source during dry years to being needed as a result of potential restrictions on the use of surface water supplies for aquatic habitat protection. The "Cumulative Impacts" section of the CEQA CONSIDERATIONS (5.0) section of this EIR addresses cumulative impacts on the City's water supplies during normal and dry years.

Mitigation Measures

No mitigation measures are required, as a significant impact has not been identified. However, the following measures are recommended as Project Conditions of Approval to further reduce project water demand.

Recommended Condition of Approval: Require incorporation of high efficiency water and energy-saving plumbing fixtures and appliances (toilets, urinals, washing machines, etc.) that go beyond current plumbing codes to minimize indoor water use.

Recommended Condition of Approval: As part of the landscaping and irrigation plan, require that only weather-based (ET) controllers be used on automatic irrigation systems to insure that irrigation is at the highest rate of efficiency.

Recommended Condition of Approval: Require reuse of filter backwash water from the proposed swimming pool onsite as a way to further reduce demand, if feasible.