
4.2 WASTEWATER SERVICE

ENVIRONMENTAL SETTING

IN THIS SECTION:

- Regulatory Setting
- Wastewater Treatment
- Wastewater Collection
- UCSC Service

REGULATORY SETTING

Federal and State Regulations/Requirements

The Clean Water Act (CWA) regulates the discharge of pollutants to waters of the United States from any point source, enacted in 1972. The California State Water Resources Control Board (State Board) and the nine Regional Water Quality Control Boards (RWQCB) have the authority in California to protect and enhance water quality, including administration of the National Pollutant Discharge Elimination System (NPDES) permit program for discharges, storm water and construction site runoff. The discharge of treated wastewater is included in the NPDES program. Wastewater systems are closely regulated both for health and environmental concerns. The RWQCB regulates operations and discharges from sewage systems through the NPDES permit.

Federal, state and local regulations are enforced by the City of Santa Cruz through permitting, monitoring and inspections of Significant Industrial Users (SIU). SIUs are defined in accordance with the Code of Federal Regulations 40 CFR 403.3 (t) as:

- ❑ All industrial users subject to Categorical Pretreatment Standards, or
- ❑ Any other user that has any one or more of the following characteristics:
 - An average discharge flow of equal to or greater than 25,000 gallons per day of process wastewater to the wastewater treatment facility (WWTF),
 - Contributes a process wastestream which is 5% or more of the average dry weather hydraulic or organic capacity of the WWTF,
 - Has a reasonable potential to adversely affect WWTF operations, or
 - Violates any pretreatment standard or requirement (in accordance with 40 CFR 403.8 (f) (6)) (City of Santa Cruz website: "Industrial Waste Discharge Program").

Pursuant to State law (Government Code section 56430), the Local Agency Formation Commission (LAFCO) is required to review all municipal services in the county once every five years. The Santa Cruz LAFCO completed and accepted its report in August 2005. LAFCO's findings and conclusions are presented in the LAND USE (Chapter 4.3) section of this EIR.

Local Regulations/Requirements

Chapter 16.08 ("Sewer System Ordinance") of the City of Santa Cruz Municipal Code regulates discharge to sanitary sewer and storm drains and requires that all wastewater be discharged to public sewers. Septic tanks and cesspools are not allowed within city boundaries except as specified for limited conditions in Chapter 6.20 of the Municipal Code.

The Monterey Bay Unified Air Pollution Control District's Rule 216 requires any entity seeking to obtain an Authority to Construct or a Permit to Operate for a Wastewater or Sewage Treatment facility to obtain a permit from the District. The purpose of this Rule is to ensure that the projected served population of a Wastewater or Sewage Treatment facility is consistent with the Air Quality Plan as approved by the Monterey Bay Unified Air Pollution Control District for addressing the current State Implementation Plan requirements for attaining and maintaining federal ambient air quality standards and consistent with the Plan to attain and maintain the State Ambient Air Quality Standard. As explained further below, the proposed project does not include or require new or expanded construction of the City's existing wastewater treatment plant or facilities. Thus, this Rule does not apply to the proposed project (Getchell, Monterey Bay Unified Air Pollution Control District, personal communication, August 2009).

WASTEWATER TREATMENT – EXITING SETTING

Overview

The City of Santa Cruz owns and operates a regional wastewater treatment facility (WWTF), located on California Street adjacent to Neary Lagoon, that provides secondary level of treatment. The City treats sewage from domestic and industrial sources and discharges the treated effluent into the Pacific Ocean under the provisions of a waste discharge permit (NPDES No. CA0048194) issued by the California RWQCB, Central Coast Region (Order No. R3 - 2005 - 0003). Monterey Bay, into which the region's treated wastewater is disposed, was designated in 1992 as a National Marine Sanctuary. Wastewater influent and effluent characteristics are carefully monitored for compliance with state water quality requirements. The City also participates in a regional receiving water monitoring program with other dischargers in the Monterey Bay area (City of Santa Cruz Water Department, February 2006).

Service Area

The City of Santa Cruz WWTF serves a population of approximately 130,000 in the cities of Santa Cruz and Capitola and parts of unincorporated Santa Cruz County (see Figure 7¹). In addition to the City of Santa Cruz, the WWTF also serves the Santa Cruz County Sanitation District and Community Service Areas (CSA) 10 and 57 as further described below. The City also provides capacity for the City of Scotts Valley to discharge its treated wastewater into the Pacific Ocean via the City's discharge. The City of Santa Cruz accounts for its wastewater system as an enterprise activity, primarily relying on service charges for funding (Dudek & Associates, June 2005).

The Santa Cruz County Sanitation District provides wastewater collection service for the City of Capitola and the unincorporated communities of Aptos, Soquel and Live Oak (see Figure 8). The District receives periodic inquiries regarding sewer service in the La Selva Beach area due to septic problems in that area, but that area lies outside its current sphere of influence (Dudek & Associates, June 2005).

County Service Areas 10 and 57 (Rolling Woods and Graham Hill as shown on Figure 9) are also served by the City's WWTP. CSA 57 serves the Woods Cove subdivision off Graham Hill Road; the service area encompasses 0.1 square miles and has a current service population of 14 (7 connections). The area is expected to reach a population of 120 by 2015 as a result of buildout of the approved 60-lot Woods Cove subdivision.² CSA 10 serves a portion of the developed Rolling Woods subdivision also located off Graham Hill Road (Dudek & Associates, June 2005).

Treatment Levels and Plant Capacity

TREATMENT

The City's WWTF was upgraded in 1998 to provide secondary treatment in order to meet state and federal waste discharge requirements. The City's treatment plant currently produces wastewater of a quality that would be classified as Disinfected Secondary-23. The treatment process consists of a series of steps, including screening, aerated grit removal, primary

¹ All EIR figures are included in Chapter 8.0 at the end of the EIR (before appendices) for ease of reference as some figures are referenced in several sections.

² The Board of Supervisors approved the Tentative Map on November 27, 1996. Subsequent to that, the County did supplemental environmental review to consider the developer's request to change from onsite sewage treatment to a transmission main to the City of Santa Cruz. In September 1998, the County filed a negative declaration and the County approved the revised sewer option on October 20, 1998 (County Application Number 98-0121) (McCormick, Santa Cruz LAFCO, personal communication, October 2009).

sedimentation, trickling filter treatment, solids contact, secondary clarification, and ultraviolet disinfection.

The City's treated wastewater is potentially suitable for some agricultural applications and for limited public access irrigation. However, the level of treatment is not sufficient for general irrigation or unrestricted use on playgrounds, parks, schoolyards, etc. Additional treatment above that currently provided would be needed to meet the state public health and safety requirements for these uses. In addition to the treatment upgrades, a distribution system, including pumps, meters, storage facilities, and separate piping would be required to convey the recycled water to customers (City of Santa Cruz Water Department, February 2006).

CAPACITY

The WWTF has a permitted capacity of 17.0 million gallons per day (mgd). The current amount of wastewater treated at the WWTP is approximately 10.5 mgd (City of Santa Cruz, 2007 – Annual Report). With the closure of businesses within the city over the last 10 years (including, Lipton, Wrigley, Salz Tannery, and Texas Instruments), the amount of wastewater treated at the facility has decreased over that time period. Approximately 150 acre-feet per year (0.2 mgd) of treated water is retained for use at the treatment plant (Dudek & Associates, June 2008). The plant also treats excess dry weather flow of about 2 mgd from Neary Lagoon, typically from April through October.

The Santa Cruz County Sanitation District has treatment capacity rights of 8 mgd at the City of Santa Cruz WWTF. The City contributes approximately 5.0 mgd with a remaining capacity of 4.0 mgd. The Sanitation District contributes 5.5 mgd with a remaining capacity of 2.5 mgd. Approximately 50% of the wastewater treated at the plant is generated within the City of Santa Cruz.

The amount of wastewater treatment in the year 2020 is estimated at 10.78 mgd (Dudek & Associates, June 2008). At this time it is estimated that the 17 mgd capacity will be reached in approximately 30 years (City of Santa Cruz Planning and Community Development Department, April 2004).

WWTF MAINTENANCE & IMPROVEMENTS

The agreement between the Sanitation District and the City stipulates that the District shall pay 8/17 (47%) of the project costs for treatment modifications, while operational and maintenance costs are split in proportion to the total flow, Biological Oxygen Demand (BOD) and Suspended Solids (SS) actually discharged³ by each agency (Dudek & Associates, June 2008).

³ Flows are measured daily and monthly averages are prepared. SS are measured daily and BOD is measured weekly.

The WWTF has been upgraded several times since 1928 when the plant began operations (City of Santa Cruz, 2007-Annual Report). The WWTF was upgraded in 1998 to provide a secondary biological treatment system consisting of trickling filters/solids contact tanks to improve effluent quality and satisfy federal requirements and the California Ocean Plan.

As part of the approval for the secondary treatment improvements at the wastewater treatment plant, the City was required to mitigate the impacts to the adjacent Neary Lagoon. The City has budgeted \$741,429 through FY 2004-2005 from Wastewater Revenue for capital improvements to the Neary Lagoon Park based on the Neary Lagoon Management Plan (Dudek & Associates, June 2008).

According to the City's website⁴, other major accomplishments at the WWTF in the last 10 years include:

- ❑ \$60 million upgrade from advanced primary treatment to full secondary treatment.
- ❑ Completion of a photovoltaic system.
- ❑ Integration of a 1.3-megawatt cogeneration system into the facility power grid.
- ❑ Conversion of effluent purification from gas chlorine to UltraViolet Light treatment.
- ❑ Completion of an Odor Control System that reduces odors from the wastewater treatment plant by collecting exhaust air and sending it through a carbon absorption filter system.
- ❑ Implementation of staffing reorganization to optimize plant efficiency

Treated Effluent Disposal

The treated effluent is disposed into the Monterey Bay via a deep ocean outfall constructed in 1980. 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 2,100-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 Water Department, February 2006).

As previously indicated, the City of Scotts Valley discharges its treated effluent via the city's ocean outfall. The Scotts Valley Wastewater Treatment Plant has a permitted capacity of 1.5 million gpd and treats water to secondary and tertiary levels. Secondarily treated effluent that is not used for recycled water is transmitted via a main to Santa Cruz and discharged to the ocean through the outfall shared with the City of Santa Cruz.

⁴ <http://www.ci.santa-cruz.ca.us/pw/index.html>, "Wastewater Treatment Facility."

WASTEWATER COLLECTION

The City of Santa Cruz wastewater collection system serves approximately 15,000 connections. The collection system includes 23 lift stations with a total capacity of 10.6 million gallons per day (Dudek & Associates, June 2005). The City maintains over 160 miles of sewer pipeline ranging in size from 6 to 54 inches in diameter.

The City does not have a current Wastewater Master Plan; the City's last "Sewer System Master Plan" was prepared in 1984. The City is in the process of completing a new Sewer Master Plan.

The City addresses infrastructure needs during the annual budgeting process. The City's proposed 2005-2007 Capital Improvement Program includes a number of projects for improvements to the wastewater system. In addition to rehabilitation and replacement projects, the CIP includes a number of projects where closed circuit TV will be used to identify problem areas and improve maintenance and repairs. The CIP also includes funding for replacing worn and obsolete equipment, and improving automation at the wastewater treatment plant. The CIP is reviewed and adopted annually (Dudek & Associates, June 2005).

The City has several long-term debts related to its wastewater infrastructure. In 1994 the City issued a Sewer Revenue Bond of \$5,660,000. Annual installments are \$105,000 to \$380,000 through November 2023 with interest rates ranging from 5.0% to 5.7%. Annual debt service is paid from revenues of the City's sewer system. The City also has a note payable to the State of California for the construction of secondary treatment improvements at the treatment facility. Annual payments are set at \$3,427,009 and include interest of 2.8%. The debt will be paid off in August 2018 (Dudek & Associates, June 2008).

UCSC SERVICE

Wastewater generated by the UCSC campus is collected via the campus sewer system and conveyed to the City's wastewater treatment facility via City sewer trunklines. The University's sanitary sewer system collects and conveys flows from residential and nonresidential buildings on campus, as well as flows from the cooling tower and boiler blowdown (University of California Santa Cruz, September 2006, Volume I).

There are two major trunk sewers on the UCSC campus: a 10- to 12-inch diameter line along Heller Drive and Empire Grade Road and a 12- to 14-inch diameter line along Jordan Gulch. These combine into a single 21-inch diameter sewer line, which is fitted with a meter to monitor flow. South of the meter, a 15-inch line connects to the City's interceptor line at Bay Street and High Street. The 15-inch line runs down Bay Street to Meder Street, connecting with parallel 10- and 15-inch lines along Meder Street to the 12-inch Arroyo Seco line. The Arroyo

Seco line runs down the bottom of the Arroyo Seco canyon and connects with a 30-inch sewer line on Old Mission Street (University of California Santa Cruz, September 2006, Volume I).

The City regulates what the campus can discharge to make sure it properly treats it before discharging into Monterey Bay. Additionally, campus wastewater is routinely monitored by UCSC and the City of Santa Cruz to ensure that the campus complies with wastewater discharge limitations (University of California Santa Cruz, September 2006, Volume II).

In 2007, the UCSC campus generated a total of approximately 120 million gallons of wastewater (Fitch, UCSC, personal communication, September 2009) or approximately 330,000 gallons per day (gpd). It is noted that the campus' wastewater generation for 2007 represented approximately 60% of the on-campus water use for that year. The UCSC campus wastewater generation is included in the City's total contribution to the WWTF.

RELEVANT PROJECT ELEMENTS

The proposed project consists of a proposed amendment the City of Santa Cruz's Sphere of Influence (SOI for provision of extraterritorial water and sewer services for a 374-acre portion of the UCSC North Campus (shown on Figure 3) that would allow for the development of 3,175,000 gross square feet of additional building space as described in the UCSC 2005 LRDP. At this time, no annexation of land to the City's municipal boundaries is proposed, nor has the University proposed site-specific development in the North Campus area. As previously indicated, there are no site-specific plans to extend infrastructure into this area. However, a schematic for utility line extension is included in the UCSC's application to LAFCO based on conceptual routes identified in the 2005 LRDP and LRDP EIR that primarily follow planned new roads. Proposed utility extension is shown on Figure 13.

IMPACTS AND MITIGATION MEASURES

CRITERIA FOR DETERMINING SIGNIFICANCE

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

- ☐ 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
- ☐ Result in wastewater flows that exceed sewer line or treatment plant capacity or contribute substantial increases to flows in existing sewer lines that exceed capacity.

IMPACT ANALYSIS

Impact 2-1: The proposed project would result in provision of wastewater service to the North Campus portion of the UCSC campus that would support new planned development and growth to the year 2020. There is adequate treatment capacity to serve this area, and no expansion of the treatment plant or sewer lines will be required. This is considered a less-than-significant impact.

The 2005 LRDP EIR estimated that campus development would result in an increase of approximately 122,500 gpd of wastewater discharged into the sanitary sewer system, based on the projected campus population and space growth, resulting in a total discharge of 423,875 gpd (University of California Santa Cruz, September 2006, 2005 LRDP Draft EIR, Volume II).. Further engineering analyses were provided by UCSC as part of the LRDP Final EIR, which estimated average and peak wastewater flows (URS, July 2005). Based on this analysis, average daily flow in the year 2020 would be about 767,500 gpd which represents an increase of approximately 447,500 gpd (0.45 mgd). However, the analysis assumed a higher campus population than would result with the LRDP that was ultimately adopted The Regents of the University of California. Thus, the estimated increase in wastewater flows is conservatively high, but would also account for additional on-campus housing as stipulated in the Comprehensive Settlement Agreement. This estimate also includes areas of the campus outside the proposed project SOI amendment area.

The estimated water demand for the proposed project is 100 MGY, some of which would be for irrigation. Campus irrigation demand has been estimated at approximately 30% of UCSC's total demand, although it appears that about 40% of the campus water use in the year 2007 was for irrigation or uses that did not enter the sanitary sewer system. Thus, approximately 60-70% of the project water demand is estimated to result in an equivalent amount of wastewater. This results in a potential increase of 60-70 MGY of wastewater or approximately 164,000 - 192,000 gpd. This estimate is higher than the estimate presented in the 2005 LRDP EIR, but lower than the amount estimated in the technical engineering review. Thus, project demand would be less than between 0.2 and 0.45 mgd.

Wastewater flows from campus development would be conveyed to the City's wastewater treatment plant, which has a design capacity of 17 million gpd and current average daily flow of approximately 10.5 mgd. The estimated 0.2 – 0.45 mgd of additional wastewater flows potentially resulting from the proposed project would be well within the City's remaining share (4 mgd) of the WWTP capacity and within the total remaining 6.5 mgd capacity of the plant. Therefore, there would be adequate capacity to serve the campus. Thus, project wastewater flow impacts upon the City's WWTP are less-than-significant, and would not result in the need to expand the treatment plant.

Mitigation Measures

None are required.

Impact 2-2: The proposed project would result in provision of wastewater service to the North Campus portion of the UCSC campus that would support new planned development and growth to the year 2020. New development would contribute flows to existing City-maintained sewer line segments that have adequate capacity to serve future development. This is considered a less-than-significant impact.

Analyses conducted for the UCSC LRDP EIR calculated peak dry and wet weather daily flows under 2020 conditions for each sewer trunkline and the 21-inch sewer main near the main entrance (URS, 2005). The analysis found that both campus mainlines, as well as the 21-inch main near the main entrance, would be adequate to handle the projected flows. The 2005 LRDP analysis concluded that the 15-inch City sewer into which the 21-inch main discharges would be at 100% capacity in 2020, and may need to be upgraded (University of California Santa Cruz, 2005 LRDP Final EIR, September 2006, Volume II). However, based on the City's hydraulic modeling conducted after the completion of the 2005 LRDP EIR, the City has concluded that this sewer line segment has adequate capacity for future UCSC development (Wolfman, City of Santa Cruz Public Works Department, personal communication, September 2009). The City's model included 1.6 mgd of peak dry weather flows and 2.9 mgd of wet weather flows from UCSC.

In addition, wastewater from the campus flows into a city sewer that runs down Bay Street for a short distance, runs to the west and then through the Arroyo Seco canyon. Improvements are currently being designed for a constrained downstream 10-inch sewer line segment (Wolfman, City of Santa Cruz Public Works Department, personal communication, September 2009). A portion of the Arroyo Seco line is considered to be undersized. The City installed a flow meter to determine what portion of the line, if any, will need to be upgraded. Review with the City of Santa Cruz Public Works Department during preparation of this EIR indicates that the Arroyo Seco line is subject to infiltration during rainy season and potential capacity constraints. Upgrades to the line are planned including lining and manhole cover improvements along approximately 6,000 linear feet of the line. The increased flows from the UCSC campus after buildout of the 2005 LRDP have been taken into consideration in this planning.

Thus, project wastewater flow would not exceed sewer line capacities, and increased wastewater generation to existing sewer lines is a less-than-significant impact.

Additionally, it is noted that as set forth in the Comprehensive Settlement Agreement (section 6.1), UCSC will continue to fund all warranted "University Assistance Measures" (UAMs) from the 1988 LRDP. These include UAM 5 (sewer line upgrades) and UAM 6 (water

treatment plant upgrades), and UCSC agrees to pay its proportional cost of upgrades necessary to serve the main campus, which will be negotiated once final cost estimates are developed.

Any new sanitary sewer construction on campus under the 2005 LRDP would be limited to repair, maintenance, and upgrade of existing facilities and extensions to serve new development in the North Campus. Since the 2005 LRDP envisions that many of these improvements would be placed in existing utility corridors or streets, they would be constructed in previously-disturbed areas where cultural and biological resources would likely not occur (University of California Santa Cruz, September 2006, Volume II).

Mitigation Measures

None are required.