4.14 UTILITIES, SERVICE SYSTEMS, AND ENERGY

This section evaluates the potential impacts on utilities, service systems, and energy resulting from implementation of the 2004 LRDP. This includes the potential for the 2004 LRDP to conflict with or obstruct current capacity and future implementation of utility and service systems or to result in a cumulatively considerable net increase of demand in services. Existing on-campus utility and service systems that would continue to serve the campus under the 2004 LRDP include water supply (potable, reclaimed, and chilled/heated piping), wastewater, solid waste, telecommunications, and energy (electricity, natural gas). Storm water and associated drainage facilities are addressed in Section 4.7, Hydrology and Water Quality.

This section is based on a variety of information obtained from existing studies and UCSD staff. In addition, the portions of this section pertaining to water supply rely partially on a water supply assessment report prepared for the 2004 LRDP (Appendix J) based on the California Water Code (PRC Section 10910), as amended in 2002 by Senate Bill 610.

4.14.1 ENVIRONMENTAL SETTING

4.14.1.1 WATER SUPPLY

UCSD is dependent upon water for drinking, sanitation, fire protection, heating, cooling, air conditioning, conducting research, and landscape irrigation. UCSD uses over one million gallons of water per day. The most recent data available detailing campus water demand relates to fiscal year 2002-03. Water consumption for the year 2002-03 was approximately 1,200 acre-feet for UCSD, as identified in Table 4.14-1. Of this total, approximately 1,101 acre-feet per year is attributable to potable/domestic water demand, while the remaining 99 acre-feet per year relates to the campus’ use of reclaimed water sources, primarily for landscaping irrigation uses. Table 4.14-1 also provides projected campus water demand for 2020-21, based on a 0.51 percent increase in total campus population between 2002-03 and 2020-21. Assuming the campus population increase would be proportionate to the increase in water demand, campus annual water consumption would increase from 1,200 acre-feet per year to 1,800 acre-feet per year. Domestic water supply also supports the campus fire water system. In accordance with the UCSD Fire Marshal’s instructions and a previous fire flow study for the campus, a fire flow of 4,000 gallons per minute (gpm) plus the daily maximum is required at fire hydrants at ground level at various locations throughout the campus. Where fire sprinklers are provided in a building, a fire flow of 1,250 gpm would be required at the upper floor elevation.

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Daily Demand (gpm)</th>
<th>Maximum Daily Demand (gpm)</th>
<th>Peak Hour Demand (gpm)</th>
<th>Annual Consumption (acre-feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-03 Actual</td>
<td>1,063</td>
<td>2,126</td>
<td>2,983</td>
<td>1,200</td>
</tr>
<tr>
<td>2020-21 Projected</td>
<td>1,604</td>
<td>3,208</td>
<td>4,501</td>
<td>1,800</td>
</tr>
</tbody>
</table>


The City of San Diego Water Utilities Service Department provides the water supply for UCSD. The City is a member agency of the San Diego County Water Authority (SDCWA) who purchases Colorado River water from the Metropolitan Water District of Southern California (MWD). SDCWA imports approximately 90 percent of its water from the MWD with the balance derived from local resources, including surface and groundwater. In addition to supplying more than 250,000 metered service connections within its own
incorporated boundaries, the City conveys and sells potable water to the City of Del Mar, the Santa Fe and San Dieguito Irrigation Districts, and the California American Water Company, which serves the Cities of Coronado and Imperial Beach and portions of south San Diego. The City also maintains several emergency connections to and from neighboring water agencies, including the Santa Fe Irrigation District, the Poway Municipal Water District, the Otay Water District, the California American Water Company, and the Sweetwater Authority.

Total water demand for the SDCWA service area is projected to reach 911,700 acre-feet per year by the year 2020. In response to this projected demand, SDCWA has begun and will continue developing new sources of water supply. Some new water sources include water from the Imperial Irrigation District, canal lining projects, and seawater desalination projects. Refer to Appendix J of this EIR, the water supply assessment report, for a detailed discussion of future sources of water. The SDCWA’s annual Capital Improvement Program (CIP) budget document also includes a description of each of the projects and programs being implemented to ensure existing and future facilities are adequate to deliver water supplies to the region. SDCWA goals for the CIP are to increase pipeline capacity to meet present and future demands, particularly during times of peak usage, eliminate bottle necks in the present pipeline system, increase reliability where water delivery is dependent on a single pipeline or source, and increase operational flexibility to facilitate pipeline maintenance. Potential contributions to the water supply from conservation and water reclamation have only recently entered the water supply picture, but even the most optimistic projections credit those contributions with no more than 20 to 25 percent of total demand. The SDWCA will, therefore, continue to rely heavily upon imported water for its water supply needs far into the foreseeable future.

Water is distributed from the Miramar reservoir and filtration plant via 16- and 18-inch water mains to the local distribution system. Service to the west campus and the east campus is taken from two metered connection points, the “North Vault” and the “East Vault.” The North Vault is located north of the intersection of North Torrey Pines Road and Northpoint Drive through an 18-inch transmission main servicing the west campus. The East Vault is located near the intersection of Genesee Avenue and Campus Point Drive through a 16-inch transmission main in Old Miramar Road and Voigt Drive to service the east campus. An 8-inch standby connection for emergency use is located at the intersection of La Jolla Shores Drive and North Torrey Pines Road. Water supply for the Coast Apartments is provided by a separate metered connection to the City of San Diego system located on the west side of the apartment complex. Mesa Apartments and the developing Science Research Park receive water from a separate metered connection to the City main located at the intersection of Miramar Street and Regents Road. Water for SIO is provided from two metered connections to a 30-inch City main, known as the Upper Vault and Lower Vault. Water consumption for SIO is incorporated with the campus total usage. The Upper Vault is located southwest of the Coast Apartments and the Lower Vault is located east of La Jolla Shores Drive and North Torrey Pines Road. The pressure provided through these vaults is reduced before serving SIO.

The campus water system is divided into two separate systems, a City pressure system and a high pressure system. The east campus and the portion of the west campus that is east of the Geisel Library (excluding the School of Medicine Basic Science Facility) are served at pressures provided by the City pressure system. The portion of the west campus, west of the Geisel Library and the School of Medicine Basic Science Facility, is served at higher pressures (the high pressure system) provided by the Muir College booster pump station. This high pressure system booster pump station is required due to higher ground elevations and to provide adequate pressure to the upper floors of several multistory buildings. The Muir College high pressure system/booster pump station provides higher water pressure for the central portion of the west campus utilizing six pumps (with 1,060 gallons per minute [gpm] capacity), which can meet the peak-hour water demands of the pressure system. These pumps also have a sufficient combined capacity to deliver 4,000-gpm fire flow in addition to the maximum daily demands. If power is lost to the booster pump station, there is a backup generator to provide water at the normal high pressure. In addition, water can be provided from the City pressure system to the area served by the high pressure system in the event of power loss to the booster
Both the City pressure system and the high pressure system have a network with large, looped pipelines. The pipe size is more than adequate to meet current and future demands without high velocities or head loss.

UCSD also utilizes recycled water for irrigation on campus via City recycled water lines. The recycled water that UCSD receives is the end product of a tertiary treatment process where municipal wastewater is settled, biologically oxidized, chemically coagulated, filtered, and disinfected. The disinfected tertiary recycled water is clear, colorless, odorless water that is indistinguishable to the human senses from potable water. This tertiary treatment process reduces the concentration of coliform bacteria to a statistical probability of equal to or less than 2.2 counts per 100 ml. This concentration is lower than the level that is typically found in natural surface waters used for recreational purposes and meets all applicable regulatory requirements for approved recycled water uses. The North City Water Reclamation Plan, managed by the City’s Metropolitan Wastewater Department (MWWD), continuously monitors the water quality at the plant and does not send water through the pipeline if it does not meet the regulatory requirements. If such a case occurred, potable water would be substituted for the recycled water by MWWD. UCSD receives monthly water quality monitoring reports for both potable and reclaimed water from the City.

Approximately 4,000,000 liters of seawater is supplied daily to various SIO facilities. Seawater is pumped from inlets at the end of the SIO Pier (330 meters long) and then flows by gravity through a prestrainer into a large settling tank. It is filtered through several large capacity sand filters and further pumped up to a series of 227,000 liter holding tanks. The filtered seawater is then gravity fed to labs and aquaria at SIO, the Birch Aquarium, and Southwest Fisheries Science Center. After use, seawater is discharged to the oceans along the beach pursuant to an individual waste discharge permit administered by the Regional Water Quality Control Board.

**4.14.1.2 WASTEWATER**

The UCSD wastewater system provides sewage disposal for the campus via a gravity flow system, with some minor exceptions. Smaller sewer pumps are located on campus to serve the Institute of the Americas, the UCSD Extension Center, and the Shore Processes Building at SIO. In addition, a large wastewater lift station has just been installed with the ERC Housing Project along North Torrey Pines Road. Wastewater from the west campus typically flows from north to south in the UCSD collection system into four major trunk sewer lines that connect to a City main line in La Jolla Village Drive. The four trunk sewer lines are identified as the Gilman Drive Trunk, Villa La Jolla Drive Trunk, Matthews Lane/I-5 Trunk, and the Mesa Housing Trunk. Table 4.14-2 summarizes the tributary areas for each of the four trunk lines.

There are no upstream or northerly connections to the sewer before serving the campus. The sewer lines are constructed with either vitrified clay pipe or plastic, ranging from six to 15 inches in diameter. An estimated 60 percent of the water flow to the campus is discharged to the sewers with 40 percent for irrigation and other uses. Wastewater flow is determined to be 70 percent of water demands (Gerry White, personal communication, October 20, 2003). Table 4.14-3 summarizes the campus wastewater demand for 2002-03 and 2020-21. The 2002-03 demand calculations are based on actual UCSD campus demand while the 2020-21 demand calculations are based on a 0.51 percent increase in total campus population between 2002-03 and 2020-21. Values for 2020-21 assume that the proposed campus population increase during the 2004 LRDP planning horizon would be proportionate to the increase in wastewater demand over the same period. As shown in this table, the average daily demand for 2002-03 and 2020-21 on the UCSD campus is approximately one half of the maximum daily demand and one third of the peak hour demand.
Table 4.14-2. UCSD Trunk Sewer Lines and Associated Tributary Areas

<table>
<thead>
<tr>
<th>Trunk Sewer Line</th>
<th>Tributary Area(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gilman Drive Trunk</td>
<td>Revelle College</td>
</tr>
<tr>
<td></td>
<td>Muir College</td>
</tr>
<tr>
<td></td>
<td>Thurgood Marshall College west of Scholars Drive</td>
</tr>
<tr>
<td>Villa La Jolla Drive Trunk</td>
<td>School of Medicine</td>
</tr>
<tr>
<td></td>
<td>Veterans Administration Hospital</td>
</tr>
<tr>
<td>Matthews Lane/I-5 Trunk</td>
<td>Thurgood Marshall College east of Scholars Drive</td>
</tr>
<tr>
<td></td>
<td>Warren College</td>
</tr>
<tr>
<td></td>
<td>Warren Housing</td>
</tr>
<tr>
<td></td>
<td>Matthews Administration and Academic Complex</td>
</tr>
<tr>
<td></td>
<td>Eleanor Roosevelt College</td>
</tr>
<tr>
<td></td>
<td>East Campus</td>
</tr>
<tr>
<td></td>
<td>North Campus</td>
</tr>
<tr>
<td>Mesa Housing Trunk</td>
<td>Mesa Housing</td>
</tr>
</tbody>
</table>


Table 4.14-3. Summary of Campus Wastewater Demand for 2002-03 and 2020-21

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Daily Demand (gpm)</th>
<th>Maximum Daily Demand (gpm)</th>
<th>Peak Hour Demand (gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-03 Actual</td>
<td>744.1</td>
<td>1,488.2</td>
<td>2,088.1</td>
</tr>
<tr>
<td>2020-21 Projected</td>
<td>1,123</td>
<td>2,246</td>
<td>3,151</td>
</tr>
</tbody>
</table>


The SIO wastewater system consists of an 8-inch vitrified clay pipe main line, with 6 and 8-inch branch lines and individual building sewer lines. An exception to this is at Discovery Way, where the 8-inch clay pipe has been replaced with an 8-inch PVC pipe. Prior to reaching SIO, the 8-inch mainline sewer serves residential users to the north (upstream) from SIO, thus the total flow in the sewer line through SIO is unknown. The Coast housing area has a separate connection to the City sewer system. A gravity sewer exists south of the complex, which transports sewage to the City system. The complex is served by 6 and 8-inch mains, with an 8-inch outlet sewer.

Municipal wastewater in the San Diego region consists primarily of domestic sewage and minor quantities of industrial wastes. Facilities used to control municipal wastewater include wastewater collection systems, pumping stations, transport pipelines, treatment plants, storage ponds, and ocean outfalls. Municipal wastewater treatment in the San Diego region is generally at the secondary treatment level, which results in the removal of more than 85 percent of the biochemical oxygen demand and suspended solids found in municipal wastewater. Tertiary wastewater treatments are used at some treatment plants for additional removal of pollutants to reclaim wastewater for beneficial reuse. Effluent from the wastewater treatment plants is disposed of by various means including discharge to the ocean through long deep ocean outfalls, percolation into the soil, and reclamation/reuse. Sludge disposal at most major municipal wastewater treatment plants consists of aerobic and anaerobic digestion and land disposal. Dried sludge is either disposed of at landfills or made available to the public as a soil conditioner.
The metropolitan sewerage system is operated by the MWWD and serves the greater San Diego population of 2.0 million from 16 cities and districts generating approximately 190 million gallons of wastewater per day. Planned improvements will increase wastewater treatment capacity to serve an estimated population of 2.9 million through the year 2050. Nearly 340 million gallons of wastewater will be generated each day by that year. The MWWD treats the wastewater generated in a 450-square-mile area stretching from Del Mar and Poway to the north, Alpine and Lakeside to the east, the Pacific Ocean to the west, and south to the Mexican border.

The UCSD wastewater system connects to the MWWD sewer system with an ultimate disposal to the Point Loma sewage treatment plant. All wastewater generated on the campus flows south towards the Rose Canyon Trunk Sewer through three sewer connections, one at Gilman Drive and two at La Jolla Village Drive (Gerry White, personal communication, October 20, 2003). The current level of treatment at Point Loma is advanced primary, which involves a combination of primary and secondary treatment methods to achieve approximately 70 percent solids removal. The Point Loma Wastewater Treatment Plant (PLWTP) treats approximately 180 million gallons of wastewater per day (mgd) from a 450 square mile area. Located on a 40-acre site, the plant has a treatment capacity of 240 mgd. The PLWTP is energy self-sufficient, using the methane produced at the plant during the wastewater treatment process to generate electricity at the plant's Gas Utilization Facility. In the past, this facility has been able to sell the excess energy it produces to the local electricity grid.

Primary treatment utilizes physical means to remove solids (e.g., screening and settling), while secondary treatment uses a biological process to remove additional organic material. At this point, approximately 80 percent of the total suspended solids in the wastewater have been removed. The treated wastewater, called effluent, is discharged to the ocean through the ocean outfall. The organic solids that have been removed from the wastewater are pumped into one of eight digesters on site where they are reduced in volume through a heat and bacterial process similar to human digestion. After about two weeks, this raw "sludge" is pumped from the PLWTP through a 17-mile pipeline to the Metro Biosolids Center.

The RWQCB regulates wastewater discharges from municipal wastewater treatment plants, such as the PLWTP, through the issuance of NPDES permits. Discharges of wastewater to surface water must meet the effluent limitations prescribed in the NPDES permit issued by the RWQCB. Effluent limitations are based on the following criteria:

- Secondary treatment effluent limitation defined by the Environmental Protection Agency (EPA) unless a waiver to the secondary treatment standards is obtained;
- Applicable water quality objectives and beneficial uses contained in the Basin Plan and State Board Water Quality Control Plans (including the Ocean Plan);
- Applicable public health protection standards for total and fecal coliform;
- Assimilative capacity of the receiving water;
- Terms and conditions of the federal and state antidegradation policies;
- Anti-backsliding provisions described in the Clean Water Act Section 404; and
- Land disposal or recycling of sludge as a soil amendment.

The City of San Diego received a modified permit, or waiver, from secondary treatment requirements of the Clean Water Act in November 1995. This modified permit was renewed in September 2002. Through a combination of factors, including industrial source control, advanced primary treatment of wastewater, a deep ocean outfall and comprehensive monitoring, the EPA and the RWQCB agreed that the PLWTP fully protects
the ocean. In order to continue complying with its permits and EPA and RWQCB requirements, discharges to the City’s sewer system from the campus are regulated under two permits:

- **UCSD Industrial User Discharge Permit** – This permit is for industrial process wastewater and includes discharges from a variety of activities, including biological and chemical research, film processing, area and equipment washdown, cooling tower bleed, boiler blowdown, metal finishing operations, radioactive and silver-berating waste treatment, vehicle washing, and sanitary usage.

- **SIO Industrial User Discharge Permit** – This permit is for industrial process wastewater and includes the discharges from laboratory glassware and equipment washing, film processing reject from water production, utility bleed water, and sanitary usage.

### 4.14.1.3 SOLID WASTE

UCSD Recycling and Waste Management Services support all campus departments in managing the UCSD waste stream; handles special departmental refuse problems; and advises on, and properly disposes of, excess refuse. Daily operations include the coordination of trash compactor services and maintenance, ensuring that all dumpsters and collection units are regularly maintained and emptied, monitoring loading docks for pallets, and providing mobile containers for emergencies and special events (on a recharge basis). Hazardous materials use and waste disposal are discussed in Section 4.6.

Solid waste is collected in dumpsters located throughout campus and removed by a private refuse collection service for off site disposal at the Miramar Landfill operated by the City of San Diego. This facility is the primary disposal site for solid waste in the City of San Diego. It has a current remaining capacity of approximately 23 million cubic yards. Citywide recycling efforts to comply with Assembly Bill 939 (1989) have contributed to a decrease in the amount of refuse buried. Assembly Bill 939 requires all cities and counties to reduce the amount of refuse land filled by 50 percent of the 1990 baseline total and Miramar is close to meeting this mandate. The Miramar Landfill is expected to operate and accept refuse through the year 2011.

Currently, approximately 360,000 tons of trash from 305,000 residences and small businesses are collected in San Diego. The reported annual refuse delivery total for 2002 at the Miramar Landfill was 1,353,570 tons. UCSD generated approximately 5,670 tons of solid non-hazardous waste in 2002, representing approximately 0.42 percent of the annual total at the Miramar Landfill. Special pickups are required for activities that generate large amounts of refuse, such as office move outs, cleanouts, and special events.

UCSD implements and promotes a comprehensive campus-wide waste prevention and recycling program. The UCSD Waste Prevention and Recycling Policy applies to all facilities under the jurisdiction of UCSD and sets forth the following standards and processes to:

- Reduce waste at the source;
- Encourage the purchase and use of durable and reusable products;
- Encourage the purchase of high post-consumer content recycled products;
- Increase the total volume of waste materials diverted from landfills to recycling processes;
- Ensure the long term viability of campus recycling operations through appropriate educational programs, coordination, management, and oversight, and
- Remain in compliance with federal and state mandates.
UCSD also follows the UC Green Building Policy which promotes the recycling of construction wastes in order to divert as much as 75 percent of wastes from sanitary landfills and on-site recycling of aluminum, plastics, and glass. UCSD recycles several materials at various campus locations. Recyclable materials include, but are not limited to, beverage containers, building materials, cardboard, green waste and grass, mixed metals, and mixed office paper. In 2002, UCSD recycled 1,641 tons of materials with an annual average of 73.62 pounds of recycled material per person (Krista Henkels, personal communication, October 20, 2003).

4.14.1.4 ENERGY AND RELATED UTILITIES

UCSD’s energy use includes electricity generated on campus at the Central Utilities Plant cogeneration facility, electricity purchased from SDG&E, and natural gas purchased from SDG&E. An important element of the campus’s energy use and energy-related infrastructure is its centralized cooling and heating systems and cogeneration operations for on-site electric power production, which contribute to a reduction in the campus’s overall usage of energy. In addition, UCSD employs numerous emergency generators for back up energy.

Electricity

Commissioned in June 2001, UCSD's cogeneration facility can generate up to 26.5 megawatts of electricity and 120,000 pounds per hour of steam at 250 psig. The cogeneration facility is an integral part of the Central Utilities Plant, which lies immediately west of the Gilman Drive at Osler Lane intersection. The facility consists of two natural gas turbines and two heat return steam generators. By running the cogeneration plant, UCSD produces nearly all of the energy required to satisfy its daily electrical needs and steam is produced for heating and cooling, which would otherwise be generated by boilers. Electricity produced at the cogeneration facility is fed to the Revelle Switch Station, located on the south side of Osler Lane, where it enters UCSD’s electrical distribution network.

To satisfy the electricity demands unfulfilled by on-site generation, UCSD receives electricity from a direct access provider utilizing the SDG&E transmission grid. Electricity is delivered to the campus in 69-kilovolt (kV) transmission lines, which connect to the east campus substation located to the west of the Preuss School between Genesse Avenue and Old Miramar Road. At this substation, the electricity is stepped down from 69 kV to 12 kV for distribution.

With the exception of the Mesa Housing complex, Torrey Pines Center, and the La Jolla del Sol complex, electrical power is distributed throughout the campus through a 12 kV distribution system that is operated and maintained by UCSD. The distribution system is located underground and consists of a dual radial pattern with each circuit entirely backed-up by a companion circuit in case of an emergency. Although the UCSD campus system is a 12 kV grounded system with 7.2 kV to ground, all cables on the campus are rated for 15 kV ungrounded service designed for a maximum of 15 kV to ground (Van Buuren, Kimper Engineering, undated). The three areas of the campus that are not served by this distribution system are serviced directly by the SDG&E distribution system.

Annual and projected campus electrical consumption is summarized in Table 4.14-4 for 2002-03 and 2020-21, respectively. Annual electricity consumption by the campus for 2002-03 was 20,804,564 kilowatts (kWh) purchased from SDG&E and 180,038,830 kWh generated on site by UCSD for a total of 200,843,394 kWh per year. Total projected electricity consumption by the campus in 2020-21 would be approximately 338,129,199 kWh per year. The projected campus consumption for 2020-21 was calculated based on a 3.0 percent annual rate of increase in consumption between 2002-03 and 2020-21. No improvements are planned for La Jolla Del Sol or Torrey Pines Center.
Table 4.14-4. Summary of Campus Electrical Consumption for 2002-03 and 2020-21

<table>
<thead>
<tr>
<th>Campus Location</th>
<th>2002-03 Consumption (kWh/year)</th>
<th>2020-21 Consumption (kWh/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Campus</td>
<td>200,843,394</td>
<td>331,963,528</td>
</tr>
<tr>
<td>East Campus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Torrey Pines Center</td>
<td>3,559,521</td>
<td>3,559,521</td>
</tr>
<tr>
<td>Mesa Housing</td>
<td>1,432,678</td>
<td>2,367,998</td>
</tr>
<tr>
<td>La Jolla del Sol</td>
<td>238,152</td>
<td>238,152</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>206,073,745</strong></td>
<td><strong>338,129,199</strong></td>
</tr>
</tbody>
</table>

Source: FD&C, UCSD, March 24, 2004

Natural Gas

Southern California Gas Company (SoCalGas) is the major gas supplier to SDG&E and both are owned by Sempra Energy Utilities. The San Diego region is geographically located at the end of an interstate transmission pipeline network that brings natural gas from the producing basins in North America. The final delivery into the SDG&E system is dependent on just one SoCalGas pipeline and is capable of delivering 600 million cubic feet per day (MMcf/d) of gas in the summer and 620 MMcf/d during the winter, with a reserve margin of 45 MMcf/d to account for various potential changes in deliverability from suction pressure or compressor outages.

Natural gas service, to the west and east campuses (except the Mesa Housing Complex), is provided by SDG&E through four service connections. The first connection is located off Gilman Drive. This connection is split into two separate connections at the metering station on the northwest corner of the Gilman Drive at Osler Lane intersection. One of the split connections is for the cogeneration plant supply and the second connection is for both the interruptible and firm gas service. The second gas main is a 12-inch high pressure steel main supplying gas to the Central Utilities Plant. A three-inch steel gas main located at Voigt Drive and Regents Road supplies gas to the campus service complex, biology field station greenhouse complex, Canyonview Pool, Pruess School, and Thornton Hospital. The fourth gas main on the west and east campuses is a two-inch steel main supplying the Theatre District.

Natural gas use for SIO is supplied by three SDG&E service connections and incorporated into the overall campus consumption. The first is a 6-inch main located at the southeast corner of Sverdup Hall. The second service connection is a 3-inch plastic main located at the northeast corner of the marine sciences library building. The third location is a 3-inch main located on La Jolla Shores Drive just north of Nierenberg Hall. Natural gas for the Coast Apartments is supplied by a 6-inch main located on Redwood Drive.

The Mesa housing area has three SDG&E service connections. The first is a 5-inch main located at the corner of Old Miramar Road and Regents Road, supplying the North Mesa Apartment area. The second is a 2-inch plastic main located on Regents Road serving the Central Mesa Apartment area. The third location is a 3-inch main supplying the South Mesa Apartment area. Table 4.14-5 summarizes the natural gas consumption for the UCSD campus during 2002-03 and the projected natural gas consumption during 2020-21. The projected campus consumption for 2020-21 was calculated based on a 3.0 percent annual rate of increase in consumption between 2002-03 and 2020-21. This table does not provide a natural gas consumption projection for SIO because it is on a separate feed line than the rest of the main campus. No improvements are planned for La Jolla Del Sol or Torrey Pines Center.
Table 4.14-5. Summary of Campus Natural Gas Consumption for 2002-03 and 2020-21

<table>
<thead>
<tr>
<th>Campus Location</th>
<th>Consumption 2002-03 (thm)</th>
<th>Consumption 2020-21 (thm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Campus</td>
<td>28,494,931</td>
<td>47,097,779</td>
</tr>
<tr>
<td>East Campus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIO</td>
<td>N/A – separate feed</td>
<td>N/A – separate feed</td>
</tr>
<tr>
<td>Torrey Pines Center North (does not include Torrey Pines Center South)</td>
<td>42,464</td>
<td>42,464</td>
</tr>
<tr>
<td>Mesa Housing</td>
<td>116,527</td>
<td>192,601</td>
</tr>
<tr>
<td>La Jolla del Sol</td>
<td>12,856</td>
<td>12,856</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28,624,314</strong></td>
<td><strong>47,345,700</strong></td>
</tr>
</tbody>
</table>

Source: Gerry White, UCSD, March 24, 2004

The cogeneration plant at the Central Utilities Plant uses the largest amount of natural gas on campus since its operation began in July 2001.

**Cooling and Heating Systems**

The campus chilled water and heating systems produce and convey steam to provide heat and chilled water to cool several buildings on the central campus. Campus buildings that are not connected to the campus chilled water and steam systems use individual heat, ventilation, and air conditioning (HVAC) systems. Currently, UCSD operates the Central Utilities Plant to provide heat and chilled water to the west campus and the East Campus Utilities Plant (ECUP) is intended to provide central cooling and emergency power for non-hospital uses in east campus. There are no central cooling and heating plants for SIO as all the cooling and heating systems at SIO are provided by the building systems (several are networked together).

**Central Utilities Plant.** The Central Utilities Plant provides heat and chilled water to several buildings on campus. The campus system is divided into links, which serve the various colleges comprising the chilled water and heating hot water network. A study conducted in 2001 reported that the campus’ chilled water system had a total capacity of 15,818 tons and 442,538 mbh for the heating hot water system. The central plant at UCSD houses eight chillers for a total of 15,830 tons, a thermal energy storage tank with a capacity of 39,000 tons, and six cooling towers. The boiler capacity at the central plant is 350,000 mbh from the four boilers plus two heat recovery steam generators (HRSGs) with the cogeneration plant at the central plant. The heat exchangers have a total capacity of 368,800 mbh.

**East Campus Utilities Plant.** The East Campus Utilities Plant (ECUP) is intended to provide central cooling and emergency power for non-hospital uses in the East Campus Health Sciences (ECHS) Neighborhood. The ECUP is an unmanned facility. Initial development of the ECUP was designed to provide sufficient central plant building area and utilities generating capacity to support anticipated new construction in three main phases. The ECUP building program assumes that building modules would be added to the initial program to serve future projects. The ECUP is designed to allow expansion and modification in the future, resulting in a permanent and efficient central plant facility serving all non-hospital facilities within the ECHS Neighborhood, including the proposed Science Research Park. The construction of subsequent utility plant modules would be determined on an as-needed basis. Utilities systems supporting hospital spaces require additional review and permit procedures from the Office of the State Public Health Department and would be designed and built separately, while utilities service to non-hospital functions are subject to standard reviews and approvals.
Phase I of the ECUP was completed in 2003 and currently serves the Shiley Retina/Glaucoma Eye Center. The Cancer Center, also a part of Phase I, is scheduled for completion in 2004. Phase II is scheduled to occur sometime between 2005 and 2009 with the installation of chillers, pumps, and cooling towers, emergency power generators, and associated piping, and conduit and wiring to serve the Clinical Research, Medical Education, and North Canyon Clinical Research facilities. Phase III is scheduled to occur sometime after 2010 to serve the Ambulatory Care and Clinical Research facilities with distribution mains and the installation of an emergency power generator. At buildout, the ECUP would house a total of five 900-ton chillers and four 1,000 kWh/1,250 kVA generators.

West Campus Satellite Utilities Plant. The planned and approved west campus Satellite Utilities Plant (SUP) project will provide increased capacity of chilled water and emergency electrical power to the west campus to be installed in phases. The project will ultimately accomplish the following: (1) provide a Chilled Water Facility of approximately 7,700 gsf to include the electrical and control rooms and to accommodate four 2,000-ton electric driven centrifugal chillers (and associated exterior cooling towers); (2) provide an Emergency Electrical Facility of approximately 4,300 gsf to accommodate four 1500 kW diesel engine driven emergency generators; and (3) provide connection of utility services from the proposed SUP to the existing west campus utilities chilled water and emergency power distribution system. First phase construction is planned for late 2004.

Energy Conservation

As discussed in Section 3.6, the Governor’s Executive Order D-16-00 establishes the sustainable building goal to: “…site, design, deconstruct, construct, renovate, operate, and maintain state buildings that are models of energy, water, and materials efficiency; while providing healthy, productive and comfortable indoor environments and long-term benefits to Californians.” This approach treats an entire building as one system, recognizing that individual building features, such as lighting, windows, heating and cooling systems, and control systems need to be designed as a coherent whole. While this Executive Order is only advisory with respect to the UC campuses, the UC Regents (Regents) has developed a similar policy of their own which all campuses are required to implement.

Sustainability is an important component of capital project design, construction, and operating practices that focuses on conservation of natural resources. Sustainability refers to the physical development and institutional operating practices that meet the needs of present users without compromising the ability of future generations to meet their own needs, particularly with regard to use and waste of natural resources. Sustainable practices support ecological, human, and economic health and vitality. Sustainability presumes that resources are finite, and should be used conservatively and wisely with a view to long-term priorities and consequences of the ways in which resources are used. The University of California already incorporates many aspects of these sustainable practices in its capital development projects and is in the process of adopting specific and comprehensive policy actions to:

- Promote principles of energy efficiency and sustainability in the planning, financing, design, construction, renewal, maintenance, operation, space management, facilities utilization, and decommissioning of facilities and infrastructure to the fullest extent possible, consistent with budgetary constraints, attainment of regulatory changes, and programmatic requirements;
- Implement programs to reduce consumption of non-renewable energy by creating a portfolio approach to energy use, including energy efficiency, local renewable power, and green power purchases from the electrical grid, with the intent of minimizing increased use of non-renewable energy for the UC’s built environment during this next decade of growth; and
- Provide an annual report to The Regents that examines impacts on energy utilization and building design, and the effects of this policy on capital and operating costs.
UCSD continues to incorporate programs and techniques that create buildings and systems that are environmentally friendly and help provide for a sustainable environment. The campus shall continue to incorporate design features, technological adaptations, and/or planning principles into future campus development to encourage or reinforce the concept of environmental sustainability and stewardship, including the conservation of resources and the minimization of waste. Specifically, UCSD implements energy-saving projects that conserve energy, improve efficiency, and reduce energy costs through a variety of programs, including the following:

- A Central Utilities Plant cogeneration facility generates most of UCSD's on-campus electricity needs at a very efficient level, enables beneficial use of waste heat, and frees up much-needed energy resources for use within California;
- UCSD's 69 kV electrical substation converts electricity from 69 kV to 12 kV, allowing UCSD to be charged at the lower 69 kV transmission rate;
- Thermal Energy Storage (TES) stores 39,000 ton-hours of chilled water, enabling water to be chilled at night during off-peak hours when electricity rates are lower and used during peak day periods;
- The Energy Management System (EMS) enables central operators to minimize energy consumption by monitoring and controlling heating, ventilating, and air-conditioning equipment in campus buildings; and
- Building efficiency has been increased through retrofitting with energy-efficient heating systems, ventilation systems, controls, and duct work.

In addition, improved and efficient fuel cells and solar cells may become available to supplement the distributed power.

**Green Building Policy.** Sustainable design or building “green” is an opportunity to use our resources efficiently while creating healthier buildings. It provides cost savings through improved human health and productivity, lower building operational costs, and resource efficiency. Specifically, by using less energy, water, and materials, sustainable buildings save California’s natural resources. They also provide a healthier work environment with more natural light and cleaner air, which contributes to employee well being and increased productivity. Sustainable buildings are also cost-effective, saving taxpayer money by reducing operations and maintenance costs and lowering utility bills.

The Presidential Implementation Policy for Green Building Design and Clean Energy Standards provided information and guidance to the UC campuses for implementing policies and standards for the design of green buildings and the use of clean energy as promulgated by The Regents on July 11, 2003. Renewable energy and energy-efficiency projects provide a system to stabilize campus budgets, increase environmental awareness and provide educational leadership. This policy incorporates the Leadership in Energy and Environmental Design (LEED) application guidelines and Green Building Rating System (Version 2.1) for projects in a multi-building setting such as corporate campuses, college campuses, and/or government installations. This application guide is intended for projects where several buildings are constructed at once or a single building is constructed in a setting of existing buildings with common ownership and the ability to share amenities or common design features. The LEED Campus Application Guide addresses the implementation of sustainable sites, water efficiency, energy and atmosphere, material resources, indoor environmental quality, and innovations in design. Thus, as a UC campus, UCSD adheres to the following policies and standards regarding green building design:

- The University of California will set a goal for all new building projects, other than acute-care facilities, to outperform the required provisions of the California Energy Code’s “Title 24” energy-efficiency standards by at least 20 percent. Standards for energy efficiency for acute care facilities will be developed in consultation with campuses and medical centers.
The University of California will design and build all new buildings, except for laboratory and acute care facilities, to a minimum standard equivalent to LEED™ 2.1 “Certified” rating. Deviation from this standard can be requested administratively on an exception basis prior to commencement of construction.

Campuses will strive to achieve a standard equivalent to LEED™ “Certified” rating or higher, whenever possible within the constraints of program needs and standard budget parameters.

The University of California will design and build all new laboratory buildings to a minimum standard equivalent to LEED™ 2.1 “Certified” rating and Laboratories for the 21st Century (Labs21) Environmental Performance Criteria (EPC) as appropriate. This will include attention to energy efficiency for systems not addressed by the California Energy Code (“Title 24”). Deviation from this standard can be requested administratively on an exception basis prior to commencement of construction.

Further study will be conducted before a similar policy for new acute-care facilities can be adopted.

Significant renovations of existing buildings will also apply sustainability principles to the systems, components and portions of the building being renovated.

In consultation with the campuses, Office of the President will develop an internal evaluation and certification standard based on the LEED™ and Labs21 measures as well as other sustainability measures and application guidelines.

The University of California certification process will be internal; however, campuses may choose external certification, through the LEED™ process, augmented with Labs21 criteria as appropriate for laboratory systems, in lieu of the internal process for a given project.

The universal measures required by this policy will be incorporated into all new building projects, other than acute care facilities, submitted for first formal scope and budget approval after the start of FY 2004-05.

To the extent feasible within approved funding, campuses are encouraged to apply sustainability principles to all projects currently in design.

The University of California will include explicit consideration of life-cycle cost along with other factors in the project planning and design process, recognizing the importance of long-term operations and maintenance in the performance of UC facilities. This may include metering and other accountability methods and best practices to encourage conservation by the campus population.

The University of California will explore the development of a standard methodology for sustainable policies and standards for facilities management of existing buildings, including assessing the LEED™ Existing Building (LEED™ EB) evaluation tool being developed for this purpose. These policies and standards address aspects of building cleaning, maintenance, and operation to include things such as chemical usage, indoor air quality, utilities, and recycling programs.

The University of California will work closely with the U.S. Green Building Council, Labs21, U.S. Department of Energy, U.S. Environmental Protection Agency, State government, and other organizations to facilitate the improvement of evaluation methodologies to better address University requirements. Additionally, the University of California will work with the U.S. Green Building Council to try to develop a self-certification tool for UC use.

The University of California will use its purchasing power to promote the availability of sustainable products by means that include pursuing system wide contracts for building materials, subsystems, components, equipment, and supplies that promote sustainability.

The University of California will work with regulatory agencies and other entities to speed the development, approval, and implementation of products and technologies that improve energy efficiency and support sustainable design, construction, and operating practices.
• The University of California will develop a program for sharing of best practices.
• The University of California will incorporate this policy into existing facilities-related training programs, with the aim of promoting and maintaining the goals of this policy.

4.14.1.5 TELECOMMUNICATIONS

Telecommunication service is a unit within the Department of Administrative Computing and Telecommunications (ACT) as a part of Business Affairs. Services provided include telephone lines, cable installation and maintenance, short wave radios, pagers, cellular telephones, cable television services, and data network transmission and connection services. All campus buildings are linked back to a “Node Room”, which is a hub point for cables and telecommunications cabling and equipment. Nearly all of the buildings are connected to the campus’s data backbone networks with fiber optic cable.

Telephone services are provided through an Ericsson MD110 PBX by the UCSD Telecommunications Department and distributed throughout the campus through the underground utility system. There are approximately 10,000 lines and 1,000 trunks with a daily call volume of 40,000 outgoing trunk calls, 60,000 incoming trunk calls, and 100,000 internal campus calls. The Ericsson MD110 PBX is capable of supporting 25,000 lines. Voicemail service is provided at UCSD to approximately 4,900 customers with the addition of approximately 40 new customers a month.

Broadband service at UCSD is supported by two separate networks, the Broadband Network and the Triton Cable, which are both connected to the UCSD main data backbone and allow certain channels to be carried on either network. The Broadband Network links together every academic and administrative building on campus. The Triton Cable (Satellite Master Antenna Television Network) provides television signals and traffic data for student residential facilities, housing and dining services, Thornton Hospital, and the San Diego Supercomputer Center. Between these two systems, UCSD transmits over 45 video channels and 35 channels of high-speed data.

In addition, UCSD data and voice network is being enhanced to support the growing needs of the campus community with sustainable technology provided by UCSD's Next Generation Network (NGN). NGN's enhancements include faster data connections (utilizing both fiber optic cables and a wireless data network) and increased Internet bandwidth, expanded help desk services, better network security, and reduced costs for communication services.

4.14.2 REGULATORY FRAMEWORK

4.14.2.1 FEDERAL

Because UCSD receives its water entirely from the City of San Diego, the City is responsible for meeting federal and state laws and regulations regarding water supply and water quality. Such regulations include water supply treatment system testing and monitoring, as specified in Title 23, Division 4, Chapter 1, Article 4 of the California Code of Regulations (CCR), and federal regulations promulgated by the Environmental Protection Agency.

With the exception of determining where disposal sites are located and operational standards, there are no applicable federal laws, regulations, or policies that pertain to solid waste.
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4.14.2.2 STATE

Urban Water Management Planning Act (California Water Code, Division 6, Part 2.6, Section 10610 et. seq.)

The Urban Water Management Planning Act was developed due to concerns for potential water supply shortages throughout California. It requires information on water supply reliability and water use efficiency measures. Urban water suppliers are required, as part of the Act, to develop and implement Urban Water Management Plans to describe their efforts to promote the efficient use and management of water resources.

Water Conservation Projects Act

The State of California’s requirements for water conservation are codified in the Water Conservation Projects Act of 1985 (Water Code Sections 11950-11954), which encourages local agencies and private enterprise to implement potential water conservation and reclamation projects.

California Integrated Waste Management Act - AB 939

The California Integrated Waste Management Act of 1989 (AB 939) established the current organization, structure, and mission of California Integrated Waste Management Board (CIWMB) with an integrated waste management hierarchy that consists of the following (in order of importance): source, reduction, recycling, composting, and land disposal of solid waste. Under the provisions of this statute, the University of California (UC) is not subject to this and other regulations pertaining to solid waste. However, according to the bill, the UC is “encouraged” to adopt reduction measures similar to those imposed on local agencies.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, codified in the California Water Code, authorizes the State Water Resources Control Board to implement programs to control pollution into state waters. This law essentially implements the requirements of the Federal Clean Water Act. Pursuant to this law, the RWQCB establishes the wastewater concentrations of a number of specific hazardous substances in treated wastewater discharged from the campus.

UC Green Building Policy and Clean Energy Standard

As discussed in Section 4.14.1.4, the Regents have adopted a policy pertaining to all capital projects regarding the principles of efficiency and sustainability in the planning, financing, design, construction, renewal, maintenance, operation, space management, facilities utilization, and decommissioning of facilities and infrastructure to the fullest extent possible. Goals of this policy include reducing consumption of non-renewable energy for all proposed and existing facilities and the provision of an annual report to the Regents that examines impacts on energy utilization and building design and the effects on capital and operating costs.
4.14.3 PROJECT IMPACTS AND MITIGATION

4.14.3.1 ISSUE 1 –WASTEWATER TREATMENT

Utilities, Service Systems, and Energy Issue 1 Summary

Would implementation of the 2004 LRDP result in an exceedence of the San Diego Regional Water Quality Control Board’s wastewater treatment requirements or the City’s treatment capacity to serve the project’s projected demand?

Impact: Implementation of the 2004 LRDP could affect wastewater treatment by the City through increasing wastewater flows or altering wastewater quality. However, UCSD will comply with City of San Diego Industrial User Discharge permit requirements, which will avoid this impact.

Mitigation: No mitigation is required.

Significance Before Mitigation: Less than significant.  Significance After Mitigation: Less than significant.

Standards of Significance

Based on Appendix G of the CEQA Guidelines, implementation of the 2004 LRDP may have a significant adverse impact if it would exceed the RWQCB’s wastewater treatment requirements or if the wastewater treatment provider that serves, or may serve, the project would not have adequate capacity to serve the project’s projected demand in addition to the provider's existing commitments.

Impact Analysis

Implementation of the proposed 2004 LRDP would increase the amount of on-campus building space and the on-campus residential population, which would result in generation and discharge of additional wastewater, which would require treatment at the municipal treatment facility operated by the City of San Diego.

As identified in Table 4.14-3, the total existing average daily sewage flow for UCSD is 744.1 gpm with a peak hour flow of 2,088.1 gpm. To calculate for future campus wastewater demand, values for 2020-21 assume that the proposed campus population increase during the 2004 LRDP planning horizon would be proportionate to the increase in wastewater demand over the same period. Thus, the anticipated future 2020-21 average daily wastewater flow would be approximately 1,123 gpm and the future peak hour flow would be approximately 3,151 gpm. The PLWTP currently treats approximately 180 million gallons of wastewater per day from a 450 square mile area, which includes UCSD. However, the PLWTP has the capacity to treat up to 240 mgd. Thus, it is anticipated that the PLWTP will have the capacity to receive and treat wastewater from UCSD.

Development under the 2004 LRDP has the potential to affect compliance with the waste discharge requirements that are placed on discharges from the Point Loma Wastewater Treatment Plant, either by increasing wastewater discharge to a point that is above the capacity of the plant or by discharging types or quantities of constituents that cannot be adequately treated by the plant. As already described, it is not anticipated that the implementation of the LRDP would result in problems with treatment capacity at the PLWTP. In addition, as previously discussed, the City of San Diego received a modified permit, or waiver, from Secondary Treatment requirements of the Clean Water Act in November 1995, which was renewed in September 2002. Through a combination of factors, including industrial source control, Advanced Primary Treatment of wastewater, a deep ocean outfall and comprehensive monitoring, the EPA and the RWQCB agreed that the PLWTP fully protects the ocean. It is anticipated that the City would continue to regulate
UCSD discharges through Industrial User Discharge Permits in order to ensure that RWQCB and EPA regulations are met. In the future, UCSD would continue to comply with City Industrial User Discharge Permit regulations regarding sewage generation quantities and constituents; therefore, implementation of the 2004 LRDP would not result in a potentially significant impact with regard to wastewater treatment requirements.

Mitigation Measures

The 2004 LRDP would have a less than significant impact with regard to wastewater treatment; therefore, no mitigation measures are proposed.

4.14.3.2 ISSUE 2 – NEW WATER OR WASTEWATER FACILITIES

Utilities, Service Systems, and Energy Issue 2 Summary

Would implementation of the 2004 LRDP require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities?

Impact: Implementation of the 2004 LRDP would create additional demand for water and wastewater infrastructure, which would likely require development of some new facilities that may have an adverse physical effect on the environment.

Mitigation: Applicable mitigation measures in other sections of this EIR.

Standards of Significance

Based on Appendix G of the CEQA Guidelines, implementation of the 2004 LRDP may have a significant adverse impact if it would require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Impact Analysis

As previously discussed, water consumption for the year 2002-03 was approximately 1,200 acre-feet for UCSD. Future water demands have been estimated for the 2004 LRDP’s projected ultimate build-out population using the 50.9 percent growth rate in the total campus population for the period of 2002-03 to 2020-21. When applying the estimated 50.9 percent increase in campus population to the existing water consumption on campus, UCSD anticipates a potable/domestic water demand of approximately 1,661 acre-feet by 2020-21. In addition, the anticipated reclaimed water demand would be increased to approximately 149 acre-feet per year by 2020-21. As compared to current demand, this represents a potable/domestic water demand increase of approximately 560 acre-feet per year and a reclaimed water demand increase of approximately 50 acre-feet per year. Overall, as a result of the 2004 LRDP, the campus' water demand is expected to increase by approximately 610 acre-feet in the year 2020-21. The total projected water demand for the UCSD campus would be approximately 1,810 acre-feet per year in 2020-21. This projected increase in demand for water would have the potential to require the construction of new or expanded water facilities. With the construction of new buildings, fire flow demands are also anticipated to increase. However, due to the improved fire rating of modern construction materials and the increased use of automatic sprinkler systems, newer buildings would have lower fire flow demands than the older, existing buildings on campus. Improvements that are anticipated to be required of the water supply service system include an 8-inch line to both the east side of Revelle College and the west side of Mesa Housing. Additional 12-inch pipelines would also be installed for fire flows in Scholars Drive between Voigt Drive and Northpoint Drive, Muir College Drive connecting to Scholars Drive, and a new 12-inch line extension would be installed from Gilman Drive.
north out towards the Pepper Canyon apartment complex. A 12-inch pipeline in Canyonview Road would be installed and connected to the existing City pressure (gravity) system at the intersection with Voigt Drive, which would be connected to the existing system north of the Warren Apartments. A 95-psi residual with a 1,250 gpm fire sprinkler fire flow at all locations in the pressure system would require the pump station discharge pressure controls setting be raised from 93 psi to 105 psi. Additional water supply facilities, including additional reclaimed water pipelines, may also be required in the future for development occurring under the 2004 LRDP.

In addition, the UCSD campus is planning on performing a feasibility study for the installation of a 2.5 million gallon potable water storage tank on the campus. The location of this site has not been determined at this time. The tank would be used to protect the campus from a disruption in service from the City for any reason. The study would consider having a one or two day supply on site.

As discussed in Issue 1, implementation of the proposed 2004 LRDP would increase the amount of on-campus building space and the on-campus residential population, which would result in generation and discharge of additional wastewater. To calculate for future campus wastewater demand, values for 2020-21 assume that the proposed campus population increase during the 2004 LRDP planning horizon would be proportionate to the increase in wastewater demand over the same period. Thus, the anticipated future 2020-21 average daily wastewater flow would be approximately 1,123 gpm and the future peak hour flow would be approximately 3,151 gpm. Wastewater generated would require treatment at the municipal treatment facility operated by the City of San Diego. The PLWTP currently treats approximately 180 million gallons of wastewater per day from a 450 square mile area and has the capacity to treat up to 240 mgd. According to the City of San Diego, it is anticipated that the PLWTP will have the capacity to receive and treat wastewater from UCSD and the MWWD is planning to meet wastewater treatment capacity through the year 2050.

The current wastewater system at UCSD is capable of supporting present-day peak flows. Future flows from planned development would require improvements and additions to expand the existing sewage service system. These improvements, identified in the UCSD Sewer System Analysis (May 1991) report and updated by UCSD (Gerry White, personal communication, October 20, 2003), are summarized below:

- An eight-inch line serving development in the Marshall College area would be constructed. The new gravity line would start in Scholars Drive approximately 600 feet south of Voigt Drive and continue directly to the south through the parking lot just north of Muir College and then turn west and connect to an existing manhole located northwest of the Muir College Residence Halls. This line would be tributary to the Gilman Drive Trunk Sewer.

- A portion of the 10-inch line in the Hopkins Drive alignment would be reconstructed. Approximately 550 feet of existing 10-inch sewer line in the Hopkins Drive alignment south of Voigt Drive would be abandoned to install a parallel 10-inch line at a constant and increased slope.

With these improvements to the existing sewage service system, UCSD is anticipated to have the capacity to accommodate wastewater flow to the off-site sewer system in the City of San Diego.

The construction of future water and wastewater projects to serve the on-campus growth under the 2004 LRDP, including those projects listed above, would have the potential to cause additional secondary environmental effects. The facilities could be developed as an individual project or in combination with academic, residential, administrative, or other development consistent with the LRDP. Any future water and wastewater projects located on or off campus would require review pursuant to CEQA prior to approval. Physical impacts that would be associated with the construction of these projects are addressed in other sections of this EIR. As discussed in these other sections, the majority of environmental impacts associated with the development of water and wastewater facilities are anticipated to be less than significant or would
mitigated to below a level of significance. Only those direct impacts associated with traffic and cumulative impacts with air quality are anticipated to result in significant and unavoidable impacts. Because water and wastewater facilities are not traffic generators, they would not substantially contribute to the significant and unavoidable air quality and traffic impacts. Temporary construction impacts associated with lane closures and construction noise may occur and could be considered potentially significant impacts, but would be mitigable to below a level of significance.

Mitigation Measures

Implementation of applicable mitigation measures in this EIR would reduce significant impacts associated with the construction of new facilities to below a level of significance.

4.14.3.3 ISSUE 3 – IMPACTS FROM NEW STORM WATER FACILITIES

Utilities, Service Systems, and Energy Issue 3 Summary

Would implementation of the 2004 LRDP require or result in the construction of new storm water drainage facilities or expansion of existing facilities which could cause adverse effects on the environment?

Impact: Implementation of the 2004 LRDP would create additional runoff which would likely require development of new storm water facilities that may have an adverse physical effect on the environment.

Mitigation: Applicable mitigation measures in other resource section of this EIR.

Significance Before Mitigation: Potentially significant. Significance After Mitigation: Less than significant.

Standards of Significance

Based on Appendix G of the CEQA Guidelines, implementation of the 2004 LRDP may have a significant adverse impact if it would require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Impact Analysis

As discussed in Section 4.7, development under the 2004 LRDP would increase impervious surfaces, which could increase the volume of storm water discharged from project sites or the campus as a whole. These increases may overflow capacities of existing storm water facilities requiring construction of detention basins or larger conveyance facilities. In addition, in order to treat storm water from new developments, new facilities may need to be developed that possess the chemical, physical, and/or biological characteristics that facilitate removal of pollutants from storm water.

As with water and wastewater facility improvements, these improvements would be subject to CEQA review prior to their approval. The storm water facilities improvements would likely be addressed as part of a larger development project; however, it is possible that they could be dealt with as an individual project. Physical impacts that would be associated with the construction of these projects are addressed in other sections of this EIR. As discussed in these other sections, the majority of environmental impacts associated with the development of storm water facilities are anticipated to be less than significant or would mitigated to below a level of significance. Only those direct impacts associated with traffic and cumulative impacts with air quality are anticipated to result in be significant and unavoidable impacts. Because storm water facilities are not traffic generators, they would substantially contribute to the significant and unavoidable air quality and traffic impacts. Temporary construction impacts associated with lane closures and construction noise may occur and could be considered potentially significant impacts, but would be mitigable to below a level of significance.
Mitigation Measures

Implementation of applicable mitigation measures in this EIR would reduce significant impacts associated with the construction of new facilities to below a level of significance.

4.14.3.4 ISSUE 4 – WATER SUPPLY AVAILABILITY

Utilities, Service Systems, and Energy Issue 4 Summary

Would implementation of the 2004 LRDP result in insufficient water supplies available to serve the project from existing entitlements and resources, or new or expanded entitlements needed?

Impact: Implementation of the 2004 LRDP would result in additional water demand, which could be accommodated by existing and projected entitlements.

Mitigation: No mitigation is required.

Significance Before Mitigation: Less than significant.

Significance After Mitigation: Less than significant.

Standards of Significance

Based on Appendix G of the CEQA Guidelines, implementation of the 2004 LRDP may have a significant adverse impact if sufficient water supplies are not available to serve the project from existing entitlements and resources, or new or expanded entitlements are needed.

Impact Analysis

The UCSD on-campus population is projected to grow from 33,100 total students, faculty/researchers, and staff in 2002-03 to approximately 49,700 total students, faculty/researchers and staff in 2020-21. This is an increase of 16,600 persons over the next 18 years, representing a 50.2 percent overall increase and a 2.3 percent average annual rate of increase.

The most recent data available detailing campus water demand relates to fiscal year 2002-03, when the total campus water consumption was approximately 1,200 acre-feet per year. Of this total, approximately 1,101 acre-feet per year is attributable to potable/domestic water demand, while the remaining 99 acre-feet per year relates to the campus’ use of reclaimed water sources, primarily for landscaping irrigation uses.

Approximately 92 percent of the total campus water consumption is attributed to indoor use, including air conditioning, cooling, and hygienic uses, with approximately 8 percent used for landscape irrigation. Of the 92 percent, primary water uses include residential, research and laboratory, steam boilers and cooling towers, chillers, food facilities, restrooms, custodial areas, showers, and drinking fountains.

As discussed in Issue 2 above, future water demands have been estimated for the 2004 LRDP's projected ultimate build-out population using the 50.9 percent growth rate in the total campus population for the period of 2002-03 to 2020-21. A water supply assessment report for the 2004 LRDP was prepared to determine whether adequate supplies exist to provide water to the campus in 2020-21. The report identifies local sources of water, including groundwater and surface water, and imported sources of water from water transfers. It identifies the historical amounts of water received in the region, as well as past, present and projected future demands. New sources of water are also identified and demand reduction methods, such as the City’s water conservation program, are discussed. The water supply assessment report is provided as Appendix J to this EIR.

The UCSD campus is considering the construction of a new 2.5 million gallon (7.67 acre-foot) potable water storage tank on campus. This water tank would serve the campus in the event of a long-term water shortage.
as an emergency supply as well as to provide additional fire flow. The campus has medical and research facilities that are dependant upon water and UCSD currently has no water storage on campus. If this project were to occur, the campus water demand would increase by an additional 7.67 acre-feet. A location for the potential water tank has not yet been identified.

The UCSD campus practices water conservation through several campus policies and programs. The UC Green Building Policy promotes water conservation technology in new and existing buildings. This type of technology includes motion-sensor operated faucets, low-flow toilets and showerheads and drip systems or timer-controlled systems for landscaping irrigation. The campus also utilizes reclaimed water for landscaping and other appropriate uses. As campus development increases over the planning period of the 2004 LRDP, reclaimed water and water conservation technology will increase as well. One such new use of reclaimed water is the proposed east campus utility project expected to begin in the fall of 2004. This project would utilized reclaimed water for its heated and chilled water systems which provide heating and air conditioning to campus buildings.

According to the water supply assessment report, the increased water demand calculated for the 2004 LRDP has been included in water demand forecasts of the water supply agencies and the City’s Urban Water Management Plan (UWMP). In addition, the supplies necessary to serve the 2004 LRDP, along with existing and other uses, have been identified in the water supply planning documents of the agencies. Water transfers, canal lining projects, and future seawater desalination facilities would provide additional sources of water for future use in the San Diego region; therefore, the City's total projected water supplies during the next 20 years would be sufficient to meet the additional 610 acre-feet per year of water demand resulting from the implementation of the 2004 LRDP, in addition to existing and planned future uses, and the additional 7.67 acre-feet needed for a future water storage tank. Impacts to water supply availability as a result of the implementation of the 2004 LRDP would be less than significant.

Mitigation Measures

The 2004 LRDP would have a less than significant impact on local water supply; therefore, no mitigation measures are necessary.

### 4.14.3.5 ISSUE 5 – LANDFILL CAPACITY

Utilities, Service Systems, and Energy Issue 5 Summary

Would the campus be served by a landfill with insufficient permitted capacity to accommodate the 2004 LRDP's solid waste disposal needs?

**Impact:** For development under the 2004 LRDP, solid waste disposal needs would be served by adequate existing and planned future landfill capacity in the County of San Diego.

**Mitigation:** No mitigation is required.

**Significance Before Mitigation:** Less than significant.  
**Significance After Mitigation:** Less than significant.

Standards of Significance

Based on Appendix G of the CEQA Guidelines, implementation of the 2004 LRDP may have a significant adverse impact if the campus would be served by a landfill with insufficient permitted capacity to accommodate the solid waste disposal needs generated by the 2004 LRDP.
Impact Analysis

As previously discussed, solid waste is collected in dumpsters located throughout the campus, and is removed by a private refuse collection service. Refuse is correctly disposed of off site at the Miramar Landfill, which is operated by the City of San Diego and is the primary disposal site for solid waste in the City. UCSD generated 5,671 tons of solid waste in 2002, which is less than one percent (approximately 0.41 percent) of the annual total of solid waste received at the Miramar Landfill in 2002. The Miramar Landfill is expected to operate and accept refuse through the year 2011. The City of San Diego has an agreement with Allied, Inc., the owner/operators of Sycamore Landfill in East Elliott to provide San Diego preferred customer status if the capacity exists to accept waste after Miramar closes. Sycamore Landfill is located on a 520-acre site and processes 3,300 tons of trash daily. The annual refuse delivery total for the year 2002 at the Sycamore Landfill was reported at 883,921 tons. Sycamore Landfill is fully permitted as a Class III landfill and accepts only routine household and commercial waste, thus hazardous wastes are not collected. Sycamore Landfill is also anticipated to be at capacity in the year 2011; however, it is in the process of obtaining more land.

According to the Integrated Waste Management Plan Countywide Siting Element (County 2003), if no additional in-county landfill capacity were added, the County would potentially run out of landfill capacity in approximately 2016. In order to meet the waste disposal needs of the County through 2020 and beyond, two landfill projects are currently planned that would increase the County’s landfill capacity. The first landfill project is the opening of the new Gregory Canyon landfill in 2006. This landfill would be located off of SR-76 near Fallbrook and, if permitted, would provide an additional 33.4 million tons of landfill capacity in the County. The second landfill project is the phased expansion of the existing Sycamore Landfill in 2005 and 2011. The annual rate of acceptance would be increased by 535,000 tons in 2005 and 2.7 million tons in 2011. The combined effect of these two projects, along with the achievement of a 50 percent landfill diversion rate, would provide adequate landfill capacity for the County of San Diego, including UCSD until 2020 and beyond. UCSD would continue to implement and promote the campus-wide UCSD Waste Prevention and Recycling Policy, which applies to all facilities under the jurisdiction of UCSD and sets forth particular standards and processes. UCSD currently operates a successful recycling program. In 2002, approximately 1,641 tons of solid waste was recycled on the campus. In addition, on July 17, 2003, the UC Board of Regents adopted a system-wide policy for the design of “Green Buildings” and a standard for the use of “Clean Energy.” The UC Green Building Policy also promotes the recycling of construction wastes in order to divert as much as 75 percent of wastes from sanitary landfills. In addition, this policy promotes on-site recycling of aluminum, plastics, and glass. It is likely that with its recycling program, UCSD would control the volume of refuse generated to a manageable amount and that adequate disposal options would be available in the future, including the expansion of Sycamore Canyon landfill and the permitting of the new Gregory Canyon landfill. Therefore, solid waste generated by UCSD would not expected be to result in a significant impact with regard to landfill capacity.

Mitigation Measures

The 2004 LRDP would have a less than significant impact with regard to landfill capacity; therefore, no mitigation measures are proposed.
4.14.3.6 ISSUE 6 – APPLICABLE SOLID WASTE REGULATIONS

Utilities, Service Systems, and Energy Issue 6 Summary

Would implementation of the 2004 LRDP result in UCSD’s failure to comply with federal, state, and local statutes and regulations related to solid waste?

Impact: Development under the 2004 LRDP would not result in UCSD’s failure to comply with relevant regulations regarding solid waste.

Mitigation: No mitigation is required.

Significance Before Mitigation: Less than significant. Significance After Mitigation: Less than significant.

Standards of Significance

Based on Appendix G of the CEQA Guidelines, implementation of the 2004 LRDP may have a significant adverse impact if it would fail to comply with federal, state, and local statutes and regulations related to solid waste.

Impact Analysis

As an entity created by the State Constitution, the UC is not subject to AB 939 or other local regulations pertaining to solid waste. However, according to the bill, the UC is “encouraged” to adopt reduction measures similar to those imposed on local agencies. UCSD implements a campus-wide comprehensive waste prevention and recycling program, the UCSD Waste Prevention and Recycling Policy, which applies to all facilities under the jurisdiction of UCSD and sets forth particular standards and processes. The purpose of this policy is to set forth standards and organizational processes aimed at (1) reducing waste at the source; (2) encouraging the purchase and use of durable and reusable products; (3) encouraging the purchase of high post-consumer content recycled products; (4) increasing the total volume of waste materials diverted from landfills to recycling processes; (5) ensuring the long term viability of campus recycling operations through appropriate educational programs, coordination, management and oversight; and (6) remaining in compliance with Federal and state mandates. In addition to this policy, a Waste Minimization and Advisory committee has also been formed which functions as an advisory committee to the vice chancellor for Business Affairs. The committee advises on the campus-wide waste minimization, recycling and waste management issues and makes recommendations regarding financial and policy issues. As discussed in Issue 5, UCSD generated 5,671 tons of solid waste and recycled approximately 1,641 tons of solid waste in 2002. Thus, approximately 28.94 percent of the solid waste generated by UCSD in 2002 was recycled. In the future, UCSD will continue to implement, promote and improve the campus-wide comprehensive waste prevention and recycling program. The adoption of the UC Green Building Policy in 2003 is one example of a UC policy that currently promotes recycling and would continue to do so in the future; therefore, solid waste generated by UCSD is not expected to create a significant impact with regard to applicable regulations.

Mitigation Measures

Development under the 2004 LRDP would not result in UCSD’s failure to comply with relevant statutes and regulations regarding solid waste; therefore, no mitigation measures are necessary.
4.14.3.7 ISSUE 7 – ENERGY CONSUMPTION

Utilities, Service Systems, and Energy Issue 7 Summary

Would implementation of the 2004 LRDP require or result in the construction or expansion of electrical, natural gas, chilled water, or steam facilities or result in the wasteful, inefficient or unnecessary use of energy?

**Impact:** Implementation of the 2004 LRDP would create additional demand for energy which would likely require the development of new facilities, but would not result in the wasteful, inefficient or unnecessary use of energy.

**Mitigation:** Applicable mitigation measures in other resource section of this EIR.

**Significance Before Mitigation:** Potentially significant.

**Significance After Mitigation:** Less than significant.

Standards of Significance

Based on Appendix G of the CEQA Guidelines, implementation of the 2004 LRDP may have a significant adverse impact if it would require or result in the construction or expansion of electrical, natural gas, chilled water, or steam facilities, which would cause significant environmental impacts or result in the wasteful, inefficient or unnecessary use of energy.

Impact Analysis

Development of additional building space would result in the consumption of additional energy, including electricity, natural gas and other fossil fuels with the implementation of the 2004 LRDP. This additional consumption may require the expansion of facilities, which are discussed in the following sections. As with the other utilities that may require construction under the 2004 LRDP, these improvements would be subject to CEQA review prior to their approval and it is likely that most significant impacts could be mitigated to a level that is less than significant. Therefore, impacts associated with the construction of energy facilities associated with the 2004 LRDP are expected to be less than significant.

Energy Efficiency

With regard to efficient energy usage under the 2004 LRDP, UCSD would continue to incorporate programs and techniques that create buildings and systems that are environmentally friendly and help provide for a sustainable environment. Specifically, UCSD would continue to implement energy-saving projects that conserve energy, improve efficiency, and reduce energy costs through a variety of programs. Project design typically incorporates energy efficient lighting fixtures; occupancy sensors which activate lights when people enter/leave rooms; double glazed, low "E" windows to reduce heat gain/loss though out the day; and low-flow plumbing fixtures. The University also works to meet or improve upon the Title 24 energy efficiency standards. In addition, the Policy for Green Building Design and Clean Energy Standards would also continue to be implemented. This policy provides information and guidance to the UC campuses for implementing policies and standards for the design of green buildings and the use of clean energy. The continued implementation of these energy-efficient programs and policies would ensure that the UCSD campus would not result in wasteful, inefficient or unnecessary use of energy. No significant impact would occur.
Electricity

Annual electricity consumption on the campus for 2002-03 included 20,804,564 kWh purchased from SDG&E and 180,038,830 kWh generated on site by UCSD. As shown in Table 4.14-4, the projected annual electricity consumption for 2020-21 would be approximately 338,129,199 KWh/year. The existing 12 kV distribution system is expected to be able to operate and support new facilities until additional circuits are added for the ECUP and circuits are rerouted at the School of Medicine. According to the report, 12 kV Distribution Study for UCSD from 2001 to 2039 (Van Buuren, Kimper Engineering, undated), upgrades and additions would be needed to meet future campus demands. Additional 12 kV distribution facilities are proposed for new facilities to eliminate overloads. Maximum supply capability to the campus would be reached with the installation of a fourth 69/12 kV transformer at the east campus substation in 2025. The demand of all campus areas could be served through 2039 assuming that demands would continue to grow at 3 percent per year. By 2030, new and efficient alternative energy sources may become available to supplement the distributed power, including fuel cells and solar cells.

Future growth would demand additions or changes to the existing facilities such as switching stations, tie-ins, distribution feeders, gas turbines, motors, cable and ductbanks. The north campus area is anticipated to have the most growth in the future. As such, in 2004, the capacity of the circuits serving the new north campus engineering buildings are expected to be exceeded, in which case other existing circuits would be utilized and additional circuits would be required to support the new buildings and growth. The east campus would require dedicated feeders to service Thornton Hospital and two additional circuits would be installed to serve the ECUP. The estimated campus demand load is 82.3 MVA through 2012, after which the east campus substation would serve the campus with three transformers for a combined capacity of 114 MVA through 2021. An additional 69/12 kV transformer to the east campus substation, for a total of four transformers, would serve the campus through 2039. The Revelle switching station would have a combined maximum capacity of 2,376 amps to carry the load until 2028, with one gas turbine and one tie-line. The installation of an additional gas turbine would increase the combined capacity to 3,244 amps and carry the Revelle load through 2040. A switching station with a satellite central plant for the School of Medicine would also be required to alleviate future overload. The additional facilities for the campus are expected to meet the UCSD electrical demand loads from 2001 through 2039. No improvements are planned for La Jolla Del Sol or Torrey Pines Center.

The construction of the additional electrical facilities improvements listed above would have the potential to cause additional secondary environmental effects. Any future electrical facilities projects located on or off campus would require review pursuant to CEQA prior to approval. Secondary impacts resulting from the on-campus development of new electrical facilities have been largely mitigated for in other sections of this EIR. Temporary construction impacts associated with lane closures and construction noise may occur, which are considered to be potentially significant impacts.

Natural Gas

As identified in Table 4.14-5, the total natural gas consumption for the campus (not including SIO) during 2002-03 was 28,624,314 thm/day and the projected natural gas consumption for 2020-21 would be approximately 47,345,700 thm/day, assuming a 3.0 percent annual rate of increase (Gerry White, UCSD, personal communication, March 24, 2004). This annual rate of increase assumes that energy conservation measures would not be implemented. Since UCSD would implement a number of energy saving measures during the planning horizon of the 2004 LRDP, the actual consumption would likely be much lower than the projections in Table 4.14-5. As previously discussed, SDG&E provides natural gas service to UCSD through numerous high pressure gas mains. These mains connect to a distribution system that distributes the gas throughout the campus. New major users of natural gas would be expected to require an additional connection to the SDG&E system. A number of available interior campus connections and additional lines would
provide adequate capacity for future development (Gerry White, UCSD, personal communication, November 5, 2003).

The construction and operation of additional natural gas facilities improvements would have the potential to cause additional secondary environmental effects. Any future natural gas facilities projects located on or off campus would require review pursuant to CEQA prior to approval. Secondary impacts resulting from the on-campus development of new natural gas facilities have been largely mitigated for in other sections of this EIR. Temporary construction impacts associated with lane closures and construction noise may occur, which are considered to be potentially significant impacts.

Cooling and Heating Systems

The chilled water system has a total capacity of 15,830 tons and 442,538 mbh for the heating hot water system. The central plant at UCSD houses eight chillers for a total of 15,830 tons, a thermal energy storage tank with a capacity of 3,900 tons, and six cooling towers. The boiler capacity at the central plant is 350,000 mbh from the four boilers and two HRSGs from the cogeneration units at the central plant. The heat exchangers have a total capacity of 368,800 mbh.

Implementation of the 2004 LRDP would require the expansion of the campus chilled water and heating hot water piping systems. As previously discussed, the ECUP is intended to provide central cooling and emergency power for non-hospital uses located in the east campus. The Chilled Water Piping, Heating Hot Water Piping and Central Plant Analysis II report, prepared by Berchard Long & Associates (2000), proposed modifications to and identified requirements for the existing systems on the west campus. At Warren College, the report proposed the installation of new pipe for the heating hot water piping system extending from the existing 4-inch line. At Roosevelt College, the report identified the need for an extension of the existing 24-inch line and the installation of a new 16-inch line for the chilled water system. It was also proposed to extend a 5-inch line to the Muir College faculty club to provide additional heating piping capacity. The report did not propose additional modifications to the cooling or heating systems at Muir College, Marshall College, or the North Campus. In the School of Medicine area, a 24-inch chilled water line and 8-inch high temperature heated water line will be installed in Osler Lane and are being installed for the Pharmacy Building and for connections from a Satellite Utility Plant being installed in 2004-05. Ultimate cooling capacity of the Satellite Utility Plant is 8,000 tons.

The construction future cooling and heating systems projects, including the new satellite utility plant, would have the potential to cause additional secondary environmental effects. Any future cooling and heating systems projects located on or off campus would require review pursuant to CEQA prior to approval. Secondary impacts resulting from the on-campus development of new cooling and heating systems facilities have been largely mitigated for in other sections of this EIR. Temporary construction impacts associated with lane closures and construction noise may occur, which are considered to be potentially significant impacts.

Mitigation Measures

Implementation of applicable mitigation measures in this EIR would reduce significant impacts associated with the construction of new facilities to below a level of significance.
4.14 Utilities, Service Systems, and Energy

4.14.3.8 ISSUE 8 – TELECOMMUNICATION FACILITIES

Utilities, Service Systems, and Energy Issue 8 Summary

Would implementation of the 2004 LRDP require or result in the construction or expansion of telecommunication facilities?

Impact: Implementation of the 2004 LRDP would increase the need for wireless service and reliable networks to service the campus.

Mitigation: Applicable mitigation measures in other resource section of this EIR

Significance Before Mitigation: Potentially significant. Significance After Mitigation: Less than significant.

Standards of Significance

Based on Appendix G of the CEQA Guidelines, implementation of the 2004 LRDP may have a significant adverse impact if it would require or result in the construction or expansion of telecommunication facilities, the construction of which would cause significant environmental impacts.

Impact Analysis

The UCSD campus supports approximately 10,000 lines and 1,000 trunks with a daily call volume of 40,000 outgoing trunk calls, 60,000 incoming trunk calls, and 100,000 internal campus calls. The Ericsson MD110 PBX, which provides the campus with telephone services, is capable of supporting 25,000 lines; therefore, implementation of the 2004 LRDP is not anticipated to exceed the available telecommunications capacity of the campus.

As UCSD continues to grow, wireless service and reliable networks would be required to service the campus. Improvements would be required to reinforce congested conduits, expand existing nodes, and provide new node rooms in parts of the campus, which have not been developed yet or are presently underserved. Upgrades would be performed for node rooms without inert gas fire suppression systems. Uninterrupted Power Supply (UPS) systems are installed in most major node rooms and would become standard in all new node rooms. Physical route diversity would be created for several important buildings, which do not have dual cable entrances. Links between the west and east campus’ are currently located along Voigt Drive bridge over I-5. A planned new tunnel constructed under the freeway would contain new telecom conduits. Telecom conduits would also be attached to the planned new bridge to be built over I-5 (Gilman Street) approximately one-half mile south of the existing bridge. In addition, the ACT would continue to collaborate with the Capital Planning and Facilities Design and Construction departments on projects in their early stages. Planned infrastructure on the UCSD campus is anticipated to meet future telecommunications service demands. Any improvements would be subject to CEQA review prior to their approval and as with the other utilities analyzed in this EIR section, it is likely that most significant impacts could be mitigated to a level that is less than significant.

Mitigation Measures

Implementation of applicable mitigation measures in this EIR would reduce significant impacts associated with the construction of new facilities to below a level of significance.
4.14.4 CUMULATIVE IMPACTS AND MITIGATION

Utilities, Service Systems, and Energy Cumulative Issue Summary

Would implementation of the 2004 LRDP have a cumulatively considerable contribution to a cumulative utilities, service systems, and energy impact considering past, present, and probable future projects?

<table>
<thead>
<tr>
<th>Cumulative Impact</th>
<th>Significance</th>
<th>LRDP Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional development could affect wastewater treatment capabilities.</td>
<td>Less than significant.</td>
<td>Not cumulatively considerable.</td>
</tr>
<tr>
<td>Regional development could generate a cumulative demand for new water, wastewater or storm water facilities.</td>
<td>Potentially significant.</td>
<td>Not cumulatively considerable.</td>
</tr>
<tr>
<td>Regional development could generate cumulative demand beyond water supply availability.</td>
<td>Potentially significant.</td>
<td>Not cumulatively considerable.</td>
</tr>
<tr>
<td>Regional development could generate cumulative demand beyond available landfill capacity.</td>
<td>Potentially significant.</td>
<td>Not cumulatively considerable.</td>
</tr>
<tr>
<td>Regional development could generate cumulative demand causing increased energy consumption.</td>
<td>Potentially significant.</td>
<td>Not cumulatively considerable.</td>
</tr>
<tr>
<td>Regional development could generate a cumulative demand for new telecommunication facilities.</td>
<td>Potentially significant.</td>
<td>Not cumulatively considerable.</td>
</tr>
</tbody>
</table>

The study area for cumulative impacts on utilities, service systems, and energy is within the San Diego region. As discussed in Section 4.10, implementation of the 2004 LRDP would support the growth that is projected for the region. This growth would place an additional demand on the utilities, service systems, and energy within the community. As additional housing development occurs in the region, increases in the demand for utilities, service systems, and energy will likely require improvements to these services. Hence, the demand for utilities, service systems, and energy follows the demand for housing, rather than changed at the UCSD. Because increases in homes have already been accounted in regional projections and would occur whether or not the 2004 LRDP were implemented, implementation of the 2004 LRDP would not be cumulatively considerable with regard to potential adverse impacts resulting in the construction of utilities, service systems, and energy infrastructure or substantial alterations to existing facilities to services the region. Where necessary, this discussion is expanded upon in the following sections for potential cumulative issues that can be related more closely to the implementation of the 2004 LRDP.

Wastewater Treatment

As discussed in Section 4.14.1.2, the PLWTP currently treats approximately 180 million gallons of wastewater per day from a 450-square-mile area, which includes servicing UCSD. However, the PLWTP has the capacity to treat up to 240 mgd and thus, it is anticipated that the PLWTP would have the capacity to receive and treat wastewater from future developments occurring in the City of San Diego, including those on the UCSD campus. According to the City of San Diego, MWWD is on track to adequately meet all of the City’ wastewater needs through 2050; therefore, the cumulative impact associated with wastewater treatment would be less than significant. Since UCSD’’s future demands for wastewater treatment under the 2004 LRDP would be adequately served by the existing PLWTP, the project’s contribution would not be cumulatively considerable.
Water, Wastewater, and Storm Water Facilities

New water, wastewater, and storm water facilities would be constructed within the City of San Diego throughout the planning horizon of the 2004 LRDP. These new facilities would result in new significant physical impacts on the environment, mostly associated with construction activities. These projects would be subject to review under CEQA prior to approval. Most significant environmental impacts associated with construction activities would be temporary and localized, including road closures, noise, and air quality impacts; however, as discussed in Section 4.14.3, off-campus facility infrastructure should be adequate for the implementation of the 2004 LRDP and the surrounding community is mostly built out. Therefore, implementation of the 2004 LRDP is not anticipated to have a cumulatively considerable contribution to these impacts related to these facilities.

Solid Waste Regulations

The potential for noncompliance with solid waste regulations is not a cumulatively relevant issue. The waste regulations applicable to projects in the San Diego region, including A.B. 949, are mandated by state law; therefore, future projects in the region would be required to comply with these regulations and would not result in a significant cumulative impact with respect to solid waste regulations. As discussed in Section 4.14.3.6, the 2004 LRDP would not result in a significant direct impact associated with applicable waste regulations.

Water Supply

During the planning period of the 2004 LRDP, the population of the San Diego area is expected to increase, which would result in an increase in the demand for water. As discussed in Section 4.14.3.2, a water supply assessment report was prepared for the proposed project to determine whether adequate supplies would be available to provide water to the San Diego region, including the UCSD campus. The report analyzed current and future supplies of water, new sources of water, and past, present and future demands for water in the San Diego region. The report concluded that the City of San Diego would have sufficient water supply in 2020-21 to service the City and UCSD’s additional water demand; therefore, the proposed project’s contribution would not be cumulatively considerable.

Landfill Capacity

Similar to the water supply issue, future landfill capacity adequate to serve the region and UCSD will be sufficient upon the approval and construction of future landfill projects being undertaken by the County; therefore, the proposed project’s contribution would not be cumulatively considerable.

Energy Facilities

Sources of electricity are diverse and widespread. Electricity and natural gas can be transmitted over long distances, and supply is usually made available from varying and numerous sources. Both electricity and natural gas needed in the region may in fact be generated outside of the state or the country. It is not possible to reasonably predict where the new generation facilities would be located, or to evaluate environmental impacts from the construction and operation of these new facilities. However, should they be proposed in California, the California Energy Commission conducts a complete environmental review of proposed power plant projects 50 megawatts and larger before approving them, and requires as a matter of practice that all significant impacts be mitigated to a less-than-significant level. Smaller projects must also go through environmental review under the oversight of the local jurisdiction in which they are proposed.
The UCSD campus and other communities in the San Diego region would depend upon the regional suppliers of natural gas and electricity in the future. The demand for electricity and natural gas at full development of the campus under the 2004 LRDP would not by itself be sufficient to trigger the need for new electric or gas generation facilities. This demand, when combined with demand due to other regional growth, is not cumulative considerable, especially with consideration of the energy saving measures that the campus employs.

Telecommunications Facilities

Planned on-campus telecommunications infrastructure is anticipated to meet future service demands and no off campus improvements are anticipated to be necessary; therefore, proposed 2004 LRDP would not be cumulatively considerable regarding telecommunication services.

4.14.5 CEQA CHECKLIST ITEMS ADEQUATELY ADDRESSED IN INITIAL STUDY

The 2004 LRDP Initial Study indicated that all checklist items under the Utilities category should be evaluated in the EIR.

4.14.6 REFERENCES


