4.13 UTILITIES AND SERVICE SYSTEMS

4.13.1 INTRODUCTION

This section describes existing utility systems serving the California State University East Bay (CSUEB), Hayward (Hayward campus), and evaluates the effects on these systems from campus development under the proposed Master Plan. This section analyzes potentially significant impacts to the following utilities: water, wastewater, storm water, solid waste, electricity, and natural gas.

Public comments related to utilities and service systems received in response to the Notice of Preparation (NOP) issued for this EIR are summarized below.

- The EIR should identify the anticipated need for additional water supply, if any, and the timeline for additional water deliveries.
- The EIR should identify the anticipated timeline for implementation of the proposed water reduction strategies, e.g., xeriscape and Bay Friendly landscaping, retrofit of existing buildings with water efficient fixtures, cooling system efficiency, and replacement of existing turf on playing fields with artificial turf.
- Water conservation best management practices to be implemented during construction should be described in the EIR.
- The EIR should describe how the Master Plan will meet the requirements of the proposed water conservation legislation, such as AB 2175 (requirement for up to 20 percent reduction in gross per capita consumption by 2020) and AB 2153 (requirement for no increase in water use from proposed developments or off-site mitigation of unavoidable increases), assuming the proposed legislation passed.
- The provisions of an SB 610 water assessment should be addressed in the EIR.
- The EIR should discuss whether wastewater discharge flow and constituents will increase and if so, what the impacts on the City's sanitary sewer system would be.
- The EIR should describe any water recycling or reuse program that would be considered, such as grey water reuse.
- All mitigation measures to be implemented at the existing facilities to reduce water use and wastewater discharge from existing facilities should be identified in the EIR.
- The EIR should describe waste reduction, recycling, and organic composting goals for the Campus along with the proposed implementation schedule.
- Methods of construction and demolition debris recycling proposed to be implemented during construction should be described in the EIR.

All of the scoping comments relevant to the proposed Master Plan are addressed in the analysis in this section. Water usage during construction of campus projects is fairly limited and therefore no specific water conservation measures are discussed in the proposed Master Plan and in this section. Water conservation during current and future campus operations is a major component of the proposed Master Plan's sustainability component, and is described both in the Master Plan and in this section. Reductions in indoor water use would minimize the increase in the total volume of wastewater discharged from the campus. Similarly, waste reduction goals are included in the proposed Master Plan and measures that the Campus would implement to achieve the goals are described both in the proposed Master Plan and in this section. The plan addresses construction debris, paper, metal and organic wastes.

4.13.2 ENVIRONMENTAL SETTING

4.13.2.1 Study Area

To evaluate the impacts of campus development under the proposed Master Plan, the study area is defined as the Hayward campus, the vicinity of the campus, and the City of Hayward, as relevant to the topic being evaluated. The term "campus" encompasses the 180-acre developed portion of the Hayward campus as well as approximately 184 acres of undeveloped land in the eastern and southern portions of the campus.

4.13.2.2 Water Supply

Campus Infrastructure

The water distribution system on the Hayward campus consists of 6-inch- and 8-inch-diameter pipelines running northwest southeast along the stadium access road, West Loop Road, northeast of the University Library, and northeast of the Science Building. These pipelines are looped via pipelines along Carlos Bee Boulevard, East Loop Road, and four pipelines in the campus interior. Water to the Pioneer Heights student-housing neighborhood is conveyed via an 8-inch pipeline near Parking Lot D. The campus water distribution system connects to the City of Hayward water distribution system at two feed points. The first feed point is located at Campus Drive between Hayward Boulevard and Highland Boulevard on the northeast side of the campus. This connection feeds into a 10-inch-diameter pipeline, which connects, to the main campus distribution system near the campus theater. The second connection is located at East Loop Road near Parking Lot F on the southeast side of the campus. This connection feeds into a 10-inch-diameter pipeline, which connects, to the main campus distribution system at two points: the intersection of Old Hillary Road and East Loop Road; and near the campus corporation yard. Each connection has a water meter in a vault. There are approximately 23 existing fire hydrants located on the Hayward campus. The fire hydrants are connected directly to the water distribution system. All of these fire

hydrants appear to be served by 6-inch-diameter or larger pipelines; this ensures that firewater can be provided at the hydrants at 1,500 gallons per minute (gpm) at less than 20 feet per second.

Campus Water Demand

Current water demand at the Hayward campus ranges from approximately 100,000 gallons per day (gpd) in the winter to 300,000 gpd in the summer. This variation is mainly due to increased irrigation demand in the summer, which accounts for over 75 percent of the water used during the summer. After irrigation, the largest water user on the campus is the swimming pool.

City of Hayward Water Supply and Infrastructure

Drinking water to the Hayward campus is provided by the City of Hayward. The sole source of drinking water for the City of Hayward is the City and County of San Francisco regional system, which relies primarily on water from the Sierra Nevada delivered through the Hetch Hetchy aqueducts, but also includes treated water produced by the San Francisco Public Utilities Commission (SFPUC) from its local facilities in Alameda and San Mateo Counties. The City of Hayward maintains a contract with the City and County of San Francisco that allows the City of Hayward to buy unlimited water to serve its needs. However, during drought years, the City has to reduce its use based on a formula used by SFPUC (City of Hayward 2005).

According to the City of Hayward 2005 Urban Water Management Plan (UWMP), the City of Hayward water demand was 19.7 million gallons per day (mgd) in 2005 and is projected to be about 28.7 mgd in 2030. Under normal water conditions, all of the average annual demand can be met with existing resources (City of Hayward 2005). However, prolonged droughts can lower system capacity. With current demand in the service area, a 24 percent shortage in supplies can be expected during multiple-year droughts. To address these shortages during drought conditions, the City of Hayward developed a Water Shortage Contingency Plan that documents the actions to be taken by the City in response to water supply shortages. In response to various stages of water shortages, the City would implement a public information campaign, mandatory water use prohibitions, and would penalize excess use.

The City's distribution system consists of over 300 miles of distribution mains serving five main pressure zones, water storage tanks, pump stations delivering water to the upper pressure zones, emergency supply wells, transmission system pressure reducing valves, zonal pressure reducing valves, and the Decoto booster pump station.

4.13.2.3 Wastewater

Campus Infrastructure

The Hayward campus sanitary sewer system discharges to the City of Hayward system via an 8-inch-diameter sewer along Carlos Bee Boulevard. There are four main branches discharging into the Carlos Bee Boulevard sanitary sewer, including an 8-inch-diameter sanitary sewer running from the campus theater to Carlos Bee Boulevard; a 15-inch- to 18-inch-diameter sanitary sewer running from Pioneer Heights area southwest of West Loop Road to Carlos Bee Boulevard; an 8-inch- to 12-inch-diameter sanitary sewer running from the Science Building to the West Loop Road sanitary sewer near the tennis courts; and a 6-inch- to 8-inch-diameter sanitary sewer running from the Art and Education Building to the Science Building sanitary sewer.

All of the sanitary sewers are gravity flow, except near the field house where a lift station is located. Existing average sanitary sewer flows are approximately 100,000 gpd.

City of Hayward Wastewater Collection and Treatment Infrastructure

The City of Hayward provides wastewater collection, treatment, and disposal services to all areas within city limits and limited portions of the adjacent unincorporated areas of Alameda County. The collection system includes about 300 miles of sewers, two major lift stations and five smaller lift stations, and 2.5 miles of force mains. The City of Hayward Water Pollution Control Facility (WPCF) treats wastewater generated within its service area and handles normal average flows of approximately 13 to 14 mgd (City of Hayward 2005). The wastewater treatment plant has been permitted with a rated dry-weather capacity of 16.5 mgd (City of Hayward 2005). Most of the collection and conveyance system is from the post-World War II period. The system experiences problems common to many sewer systems, such as root intrusion and solid and grease buildup, but operates with little silt buildup or groundwater infiltration.

Wastewater service is organized as a service fee enterprise fund separate and distinct from the City's General Fund. The City maintains an ongoing five-year Capital Improvement Program (CIP) in order to ensure system capacity, good performance, and proper maintenance. The CIP includes the Sewer Capital Improvement Fund, the Sewer Collection Replacement Fund, and the Treatment Plan Replacement Fund.

Present sewage treatment facilities are the result of a series of improvements and expansions that have been installed through a joint powers agreement administered by the East Bay Dischargers Authority (EBDA). Treatment plant improvements upgrade sewage treatment plan efficiency and meet National Pollutant Discharge Elimination System (NPDES) requirements established pursuant to the Federal Water Pollution Control Act Amendments of 1972. The effluent from the plant is pumped into the East

Bay Dischargers Authority "Super Sewer" line for final disposal in the deeper water of San Francisco Bay west of San Leandro.

The City is currently developing a project to substantially improve the performance of, and provide redundancies for, various processes in the City's wastewater treatment plant. Phase I of the project is currently being designed. Additional improvements may be implemented with the construction of the proposed Russell City Energy Center, which would make improvements to the system in order to use recycled process water.

4.13.2.4 Electricity

As stated in the CSUEB Hayward Master Plan, the existing electrical demand on the campus is approximately 18,800-megawatt hours (MWh) with a peak demand of 5,800 kilowatts (kW). Electricity is purchased from Arizona Public Service Corporation (APSC) and is brought to the campus via Pacific Gas & Electric lines. The APSC supplies approximately 42 percent of its energy from coal, 54 percent from nuclear, 4 percent from natural gas, and 0.1 percent hydroelectric. The main electrical feed is via the switchgear house northeast of Carlos Bee Boulevard. The switchgear is 12,000 kilovolt (kV). From here, a main electrical line runs to Manhole 1 and from there through the main part of the campus southeast to Harder Road at Pioneer Heights. There are five branch electrical lines on the campus. There are also several lateral duct banks. Pioneer Heights student housing is not fed from the main campus system but is served by a separate feed located east of the campus along Grand View Avenue. There are three electrical loops: A, B, and C. Most buildings are fed from loops B and C, but the campus data center is fed from loops A and B. Several electrical manholes are starting to fail and are currently being rebuilt. The electrical distribution system is starting to reach the end of its design life. The CSUEB is currently developing a plan to replace the electrical distribution system throughout the campus. This plan will be implemented in order to provide more reliable electrical service. A central plant currently exists on the campus near the corporation yard, but has not been in use for over 10 years.

In addition, the Hayward campus has a 1-megawatt (MW) photovoltaic system, which is one of the largest photovoltaic installations in Northern California, and is in the final stages of procuring a multi-resource fuel cell installation. The photovoltaic system meets approximately 7 percent of the campus electricity demand.

4.13.2.5 Natural Gas

Existing natural gas demand for the campus is approximately 580 therms per hour or 760,000 therms per year. The Hayward campus natural gas system is fed from the Pacific Gas & Electric system at Carlos Bee Boulevard. The main meter is at the old boiler plant, with a second meter near the Music Building. The

distribution system is not looped. The main gas line is a 4-inch-diameter line running along Carlos Bee Boulevard and Old Hillary Road to the site of the former central plant at the corporation yard. There are five branch lines within the campus. The natural gas pressure on the campus is 10 pounds per square inch (psi).

4.13.2.6 Solid Waste

The Hayward campus is primarily considered to be a commuter campus. The solid waste generated on campus is therefore mainly characterized by non-residential rather than residential activity. This implies that large volumes of recyclables, particularly paper, are currently discarded. There are also cafeterias and fast food vendors located on site which contribute to the recyclables as well as organics and solid waste streams. Waste generated on the campus is currently source separated into cardboard and paper, bottles and cans, green waste and garbage. Cardboard, paper, bottles, and cans are taken off site for recycling, while green waste is composted in a pit located near the field house.

Currently, the Hayward campus has a contract with Waste Management of Alameda County (WMAC) that allows for WMAC trucks to pick up solid waste from a single location on campus every 1 to 2 days. Collector carts and trolleys operated by the campus pick up solid waste from bins distributed across the campus and deliver it to a centrally located compactor. The Pioneer Heights student-housing neighborhood has separate collection bins for which pickups are scheduled more frequently.

The disposal facility currently used by the WMAC is the Altamont Landfill, which is owned and operated by Waste Management, Inc., and is located in the eastern part of the county. The estimated closure date of Altamont is 2029 (CIWMB 2008). The other two disposal sites located in Alameda County are the Vasco Road Landfill and the Tri-Cities Landfill. The Vasco Road Landfill is owned by Republic Industries, Inc. and is also located in the eastern part of the county. The estimated closure date for Vasco is 2015. The Tri-Cities Landfill is located in the City of Fremont and serves the Cities of Fremont, Newark, and Union City. This site is operated by Waste Management, Inc. and is slated for closure in 2008. The Hayward area is served by the Davis Street transfer station, which is located in San Leandro and owned and operated by Waste Management, Inc.

City of Hayward Initiatives

The City of Hayward has set an aggressive goal of achieving 75 percent diversion of solid waste from landfills by the year 2010. To achieve its goal, the City offers one of the most progressive recycling services in the Bay Area. Several of the commercial, educational, and residential programs implemented by the City to achieve this target provide the Hayward campus with working examples of waste mitigation measures. These measures include providing containers free of charge, and education about

separating waste. Also, since construction, activities have increased in the Bay Area, construction and demolition debris has become a significant component of the waste stream and is a targeted material for diversion. In addition to guidelines for builders and contractors set forth in the Hayward "Notice to Building Permit Applicants," the City of Hayward requires the following:

- Applicants for all construction, demolition, and/or renovation projects valued at $75,000 or more recycle 100 percent of all asphalt and concrete and 50 percent of all other materials generated from the project.
- Applicants must complete a "Construction and Demolition Debris Recycling Statement" in order to obtain approval from the City's solid waste manager.
- Applicants must submit a "Debris Recycling Summary Report" along with waste weight tags at the end of the project, indicating actual quantities recycled and disposed.

The City also incentivizes recycling by offering builders and contractors a $10 per ton rebate for tonnage that is properly documented as recycled.

4.13.2.7 Storm Water Conveyance

The Hayward campus storm drains discharge to several drainages located northeast and southeast of the campus. Other storm drains from off-campus areas discharge to Ward Creek, which is carried under Parking Lots F, G, H, and K through a 48-inch-diameter pipeline. There are six main campus storm drain branches. These include a 48-inch-diameter Ward Creek storm drain; a 12-inch- to 24-inch diameter storm drain running from the Science Building area to Old Hillary Road, and then along Old Hillary Road to Hayward Boulevard; an unknown size storm drain running from the Science Building area to the Music Building; an 8-inch-diameter storm drain running along West Loop Road; a 15-inch to 18-inch-diameter storm drain running from Pioneer Heights to the tennis courts, and a 10-inch-diameter storm drain running from the tennis courts to the soccer field. It appears that this storm drain discharges to grade near the Field House. There have been some drainage problems along West Loop Road, including a main, which backed up into an adjacent building. Therefore, the campus is currently televising the storm drains. A bioswale has been installed near the Valley Business and Technology Building.

4.13.3 REGULATORY SETTING

4.13.3.1 Water Supply

Urban Water Management Planning Act

California State Assembly Bill 797 (California Water Code Section 10610, et seq.), adopted in 1983, requires every urban water supplier providing water for municipal purposes to more than 3,000

customers or more than 3,000 acre-feet of water on an annual basis to prepare an Urban Water Management Plan (UWMP). The intent of the UWMP is to assist water supply agencies in water resource planning given their existing and anticipated future demands. UWMPs must be updated every five years in years ending in zero and five.

The City of Hayward adopted an UWMP in December of 2005 and it was subsequently submitted to the Department of Water Resources. The 2005 UWMP includes projected water supplies required to meet future demands through 2030.

Senate Bill 610

In accordance with Senate Bill 610 (effective January 1, 2002, and codified in the Water Code beginning at Section 10910), in the setting where a City or County has determined that a project is subject to the California Environmental Quality Act (CEQA), the City or County must request, and the public water supplier must prepare, a Water Supply Assessment (WSA) for any "project approval" which is subject to CEQA and which meets the definition of "project" in Water Code Section 10912. The law provides a definition of "project" to be used in determining whether a water supply assessment should be requested by a City or County, and prepared by the water purveyor. For a water purveyor with the designated number of connections, a water supply assessment should be prepared when a project includes any of the following: (1) more than 500 residential dwelling units; (2) a shopping center or business with more than 1,000 employees or more than 500,000 square feet of floor space; (3) a commercial office building with more than 250,000 square feet of floor space or more than 1,000 employees; (4) a hotel or motel with more than 500 rooms; (5) an industrial, manufacturing or processing plant, or an industrial park, with more than 650,000 square feet of floor area, more than 1,000 employees, or that occupies more than 40 acres; (6) a mixed-use project that includes one or more of the above specified projects; or (7) a project that will demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

This process essentially requires proof that there will be adequate water supplies for larger projects within a 20-year timeframe at the local level. The water assessment addresses whether a projected water supply for the next 20 years, based on normal, single-dry, and multiple-dry years, will meet the demand of the project. The conclusions of the water assessment are then included in the water supply impact analysis of the EIR.

As the CSU is not a City or County entity, a WSA is not required under SB 610 for the proposed Master Plan. In addition, the law does not appear to be intended to apply to projects defined as a long-term state university campus master plan revision, like the proposed Master Plan. Accordingly, the proposed

Master Plan does not meet the definition of a project subject to SB 610 and a WSA was not requested and prepared for the proposed Master Plan. However, the effect of the proposed project on the local water supply and distribution system is evaluated and analyzed in this section.

CSU Water Conservation Policy

The CSU has recently adopted a policy requiring all campuses to take every possible step to conserve water resources, including installing controls to optimize irrigation water, reducing water usage in restrooms and showers, and cooperating with state, City, and County governments to the greatest extent possible to effect additional water conservation. Consistent with CSU policy, the Hayward campus installs low-flow fixtures in all new construction. The Hayward campus is also currently implementing retrofits to fixtures in existing buildings, primarily upgrading to water-efficient toilets and urinals. These retrofits are being undertaken during the course of normal maintenance of buildings and fixtures.

4.13.3.2 CSU Energy Initiatives

Several energy-related initiatives already underway address short- and long-term sustainability targets for the CSU. These initiatives call for a collective effort from all CSU campuses to achieve overall reductions in energy consumption and demand.

- Executive Order 987 Policy Statement on Energy Conservation, Sustainable Building Practices, and Physical Plant Management for the California State University calls for a 15 percent reduction in 2003/4 energy levels by 2009/10.
- Executive Order S-12-04 requests that CSU campuses participate in statewide energy conservation and reduced electrical demand.
- CSU aims to increase the total co-generation capacity on its campuses from 24 MW to 40 MW by 2014.
- Executive Order-987 sets guidelines for lighting, building envelopes, and the use of energy-efficient equipment.
- The CSU aims for an overall renewable energy increase from two MW to 10 MW by 2014.

4.13.3.3 Solid Waste

Assembly Bill 939

In 1989, Assembly Bill (AB 939) established the current organization, structure, and mission of California Integrated Waste Management Board (CIWMB). The purpose was to direct attention to the increasing waste stream and decreasing landfill capacity, and to mandate a reduction of waste being disposed in

landfills. Jurisdictions were required by AB 939 to meet diversion goals of 25 percent by 1995 and 50 percent by the year 2000. The City of Hayward aims to achieve 75 percent diversion by 2010.

The California Universal Waste Law

This legislation went into effect in February 2006. Universal wastes are a wide variety of hazardous wastes such as batteries, fluorescent tubes, and some electronic devices, that contain mercury, lead, cadmium, copper, or other substances hazardous to human and environmental health. Universal waste may not be discarded in municipal solid waste landfills, but instead must be recycled and to encourage recycling and recovery of valuable metals, these wastes can be managed under less stringent requirements than those that apply to other hazardous wastes.

4.13.4 IMPACTS AND MITIGATION MEASURES

4.13.4.1 Standards of Significance

In accordance with Appendix G of the *State CEQA Guidelines* and the CSU CEQA Handbook, the impact of campus development under the proposed Master Plan on utilities would be considered significant if it would:

- Exceed the Regional Water Quality Control Board's wastewater treatment requirements.
- Require or result in the construction or expansion of water or wastewater treatment facilities, which would cause significant environmental effects.
- Require or result in the construction or expansion of storm water drainage facilities, which could cause significant environmental effects.
- Result in the need for new or expanded water supply entitlements due to insufficient water supplies available to serve the project from existing entitlements and resources.
- Exceed available wastewater treatment capacity.
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.
- Fail to comply with applicable federal, state, and local statutes and regulations related to solid waste.
- Require or result in the construction or expansion of electrical or natural gas facilities, the construction of which would cause significant environmental effects.

4.13.4.2 Methodology

The analysis of impacts to utilities is based on a comparison of the existing and projected demand for utilities and the resulting need, if any, for new, expanded, or modified facilities to meet the increased demand. Under CEQA, impacts are typically considered to be significant if a project will require new or expanded utility service facilities the construction of which will result in significant environmental impacts.

4.13.4.3 Project Impacts and Mitigation Measures

MP Impact UTIL-1: Growth and development under the proposed Master Plan would result in a demand for water currently not anticipated in the City's 2005 UWMP.

Level of Significance: Significant

Water Supply

The Hayward campus currently receives water supply from the City of Hayward. Current daily water consumption at the Hayward campus ranges from approximately 100,000 gpd in the winter to a maximum daily consumption of 300,000 gpd in the summer. At Master Plan buildout, the overall campus water demand would range from an average consumption of approximately 566,000 gpd to a maximum daily consumption of 865,000 gpd which would occur in the months of May through August (BMS Design Group 2008).

The proposed Master Plan outlines strategies to minimize campus water consumption, including water-efficient landscaping, fixture retrofits, efficient fixtures in new buildings, and building cooling efficiency. The goals of the proposed Master Plan are to reduce the Campus' reliance on water from the City of Hayward and reduce potable water consumption by between 35 percent and 60 percent compared to a business as usual scenario. The proposed Master Plan also includes a discussion of the use of rainwater harvesting and recycled water, which the Hayward campus plans to incorporate into its overall water conservation strategy. While preliminary calculations indicate that a gray water (generated from dishwashing, bathing, laundry, etc.) recycling system could meet the non-potable water demand of all new construction under the proposed Master Plan, a feasibility study is required to evaluate the options available to the Hayward campus (BMS Design Group 2008).

This analysis conservatively considers the campus water demand at Master Plan buildout without implementation of water conservation measures outlined in the proposed Master Plan, which would be an average of 566,000 gallons per day (gpd) at buildout with a maximum water demand of 865,000 gpd.

The maximum water consumption at the Hayward campus at this time is approximately 300,000 gpd. Therefore, the net increase in maximum water consumption at Master Plan buildout would be approximately 765,000 gpd. The average increase would be lower.

An increase in water demand associated with new classrooms and teaching labs, expanded student union, and additional student housing on the Hayward campus was incorporated in the demand projections included in the 2005 UWMP (City of Hayward 2005). All projected construction on the Hayward campus that was included in the 2005 UWMP has already been completed. The expansion of the Hayward campus as proposed in the current Master Plan was not considered in the 2005 UWMP (Ameri 2008).

At this time, there is no cap on the amount of water that the City of Hayward may obtain from the SFPUC in the contract between the two agencies. According to the City's 2005 UWMP, the City of Hayward will have adequate supplies to meet demand in the region during non-critical years through 2030. The total projected water demand within the City of Hayward in the Master Plan buildout year of 2030 is 27.9 mgd. The net increase in peak water demand under the proposed Master Plan of 765,000 gpd, or 0.77 mgd represents approximately 2.8 percent of the overall City of Hayward daily water demand in 2030. While campus development outlined in the proposed Master Plan was not specifically considered in the projections included in the 2005 UWMP, the net increase in water demand is not considered substantial and would not result in the need for the City of Hayward to obtain additional entitlements to serve the campus at Master Plan buildout.

With respect to drought years, according to the SFPUC, a system-wide reduction during a single dry year would not be necessary until 2030 when a 10 percent deficiency would occur. However, during multiple dry years, implementation of system-wide reductions ranging from 13 percent in 2010 to 22 percent in 2025 would be required to meet the demand. The 2005 UWMP includes a water shortage contingency plan, which outlines the actions that would be taken by the City of Hayward in response to supply shortages (City of Hayward 2005). Because the 2005 UWMP states that cutbacks would be required in multiple-dry years and because water demand associated with the proposed Master Plan was not included in the City's demand projections, the proposed project's impact related to water supply is conservatively considered a significant impact.

The increase in demand for water under the proposed Master Plan would be reduced to the extent possible via the implementation of water conservation and efficiency measures as part of the Campus Sustainability Framework and Infrastructure and Utilities Framework. If these measures are implemented on the Hayward campus and a 35 percent reduction is achieved, at Master Plan buildout the water consumption would range from an average of approximately 367,900 gpd to a maximum of 562,250 gpd.

If the Hayward campus installs a recycled water system, the demand for potable water would decrease further. Implementation of the water conservation measures included in the proposed Master Plan, excluding installation of a recycled water system, is included below as a mitigation measure (**MP Mitigation Measure UTIL-1**) and would reduce the proposed project's water supply impact to a less than significant level. If the Hayward campus installs a recycled water system, the impact would be reduced further.

Water Delivery Infrastructure

The maximum water demand for the proposed project of 865,000 gpd equates to a maximum flow rate of 600 gpm. Based on this flow rate, no improvements are required to the City's water mains that serve the campus.

Within the campus, water would be delivered to new campus buildings via connections to the existing domestic and fire water mains. The existing main distribution pipelines within the campus are either 6-inch- or 8-inch-diameter pipelines, with a capacity of 700 gpm or greater. Given that the existing pipelines can accommodate maximum flow of 600 gpm, the proposed project would not require construction of new pipelines to accommodate the increased water demand associated with the Master Plan at buildout.

Under the proposed Master Plan, several of the planned buildings would be constructed on top of existing water pipelines, and so those pipelines would need to be relocated. These pipelines include a 6-inch-diameter water line southeast of the Science Building, and a 6-inch-diameter water line southeast of the campus corporation yard. The main distribution pipelines within the campus are of adequate size to serve the campus at buildout and new pipelines would not be required to handle the increased water demand.

The environmental effects of minor improvements to the campus potable water distribution system are addressed throughout this EIR, including but not limited to, in **Section 4.2, Air Quality; Section 4.3, Biological Resources; Section 4.4, Cultural Resources; Section 4.7, Hydrology and Water Quality**; and **Section 4.9, Noise**. Piping connections and extensions would occur primarily within roadways or other areas that are already developed or disturbed and which are unlikely to contain sensitive biological or cultural resources. Additionally, due to the limited ground disturbance needed for connections and extensions, construction-phase air quality and noise impacts would also be less than significant. Impacts related to the construction of water distribution system improvements on campus would be less than significant.

MP MM UTIL-1: The CSUEB Hayward campus shall implement water conservation measures included in the Campus Master Plan Sustainability Framework and Infrastructure and Utilities Framework and achieve a 20 percent reduction in average and peak water demand compared to business as usual by 2015 and a 35 percent reduction in average and peak water demand compared to business as usual by 2030.

Significance after Mitigation: Less than significant. Note that this mitigation would also address the requirements of the proposed water conservation legislation AB 2175 to achieve to 20 percent reduction in gross per capita consumption by 2020, should that legislation be passed.

MP Impact UTIL-2: Growth and development under the proposed Master Plan would not require the construction or expansion of wastewater conveyance or treatment facilities.

Level of Significance: Less than significant

Treatment Facilities

Wastewater generated on the Hayward campus is conveyed by the City of Hayward sewer system to the City of Hayward WPCF. Existing average sanitary sewer flows generated on the campus are approximately 100,000 gpd. Implementation of the proposed Master Plan would increase the volume of wastewater generated on the Hayward campus. At buildout, without conservation of water use at the campus, the sanitary sewer flows from the campus are expected to increase to an average of 450,000 gpd (0.45 mgd) with a maximum flow of 650,000 gpd (0.65 mgd). The City of Hayward WPCF currently handles normal average flows of approximately 13 to 14 mgd and is permitted to treat up to 16.5 mgd. When considering current treated volumes, permitted capacity, and wastewater generated at Master Plan buildout, the WPCF has sufficient capacity to treat wastewater generated on the Hayward campus. Furthermore, implementation of water conservation measures included in the Campus Sustainability Framework and Infrastructure and Utilities Framework of the Master Plan, and incorporated as part of the project under **MP Mitigation Measure UTIL-1** above, would reduce wastewater demands at Master Plan buildout to an average of 235,000 gpd (0.23 mgd) and a maximum daily sewer flow of 317,000 gpd (0.32 mgd) (ARUP 2008). There would be adequate capacity at the WPCF to handle the flows from the proposed project. The impact would be less than significant.

On Campus Sewer System Improvements

Based on the volume of wastewater generated at Master Plan buildout, the maximum flow rate would be approximately 450 gpm although with the implementation of **MP Mitigation Measure UTIL-1**, the flow

rate would be lower. Most of the increased flows described above would come from new student housing, and so the sanitary sewers in these areas would need to be replaced. Specifically, for the later phases of development in the Pioneer Heights area, the existing 18-inch-diameter sanitary sewer from Pioneer Heights to Parking Lot B would require replacement with a 24-inch-diameter sanitary sewer. A pump station and force main would be required to transport sanitary sewage from the housing proposed for the tennis courts area to the sanitary sewer along West Loop Road. The sanitary sewer from Parking Lot B to the Stadium is already being replaced to accommodate new buildings. This sanitary sewer would also require upsizing to 24-inch-diameter to handle the increased flows from new and existing student housing areas. The sanitary sewer from the Stadium would require replacement with an 18-inch-diameter sanitary sewer to handle the increased flows from the campus. Limited information is available on the existing inverts, so it may be possible to downsize some of these new pipelines if the slopes available are greater than assumed.

As indicated in **Section 3.0, Project Description**, under the proposed Master Plan, several of the planned buildings would be constructed on top of existing sanitary sewers, and so these sewers would need to be relocated. These pipelines include a 12-inch to 15-inch sanitary sewer running between Meiklejohn Hall and the Stadium, and a 12-inch sanitary sewer running between the Science Building and the Student Health Center.

The environmental effects of constructing and operating the improvements described above are addressed in other sections of this Draft EIR, including but not limited to, **Section 4.2, Air Quality**; **Section 4.3, Biological Resources**; **Section 4.4, Cultural Resources**; **Section 4.7, Hydrology and Water Quality**; and **Section 4.9, Noise**. Piping connections and extensions would occur primarily within roadways or other areas that are already developed or disturbed and which are unlikely to contain sensitive biological or cultural resources. Additionally, due to the limited ground disturbance needed for connections and extensions, construction-phase air quality and noise impacts would also be less than significant. Impacts from sanitary sewer construction on campus would be less than significant.

Off-Campus Infrastructure

Based on the volume of wastewater generated at Master Plan buildout, the maximum flow rate would be approximately 450 gpm. No major improvements to the City's sewer mains that serve the campus are needed to handle this increased flow from the campus. However, it is possible that project-specific improvements to distribution piping or other facilities (e.g., line or pump upgrades) near the campus may be required specifically to accommodate the increase in wastewater generation as the proposed Master Plan is implemented. Such upgrades are not expected to result in significant environmental effects due to the urban context (all improvements would be within existing road right-of-ways in areas that

have been previously disturbed in conjunction with other utilities and roadway construction). Furthermore, Government Code Section 54999 authorizes public utilities to charge the campus a limited capital facilities fee under certain circumstances. This fee is a non-discriminatory charge to defray the actual cost of that portion of a public utility facility actually serving the campus. The City of Hayward would charge the Hayward campus for any such upgrades under Government Code Section 54999 which would cover CSUEB's fair share of the construction cost, including the cost of mitigation measures to address environmental impacts, if any.

In summary, the construction of wastewater collection and conveyance facilities would not result in significant environmental effects. The impact related to wastewater would be less than significant.

Mitigation Measure: No mitigation is required.

MP Impact UTIL-3: The proposed Master Plan would result in the construction of new electrical, natural gas, and heating water facilities, which would not cause significant environmental impacts.

Level of Significance: Less than significant

Increase in Demand

The proposed Master Plan calls for new strategies to reduce the campus' demand for power from the APSC and to promote energy independence as well as attain the goal of overall carbon neutrality by 2030. This would be achieved through a series of energy efficiency strategies that include retrofits to existing buildings, new building design that incorporates passive and active strategies to reduce energy demand, energy recovery systems, and use of renewable energy. New buildings included in the proposed Master Plan would be required to conform to energy conservation standards specified in Title 24 of the California Code of Regulations and to CSU green building standards. While this is the case, the planned physical development outlined in the proposed Master Plan would result in an increase in electricity and natural gas demands on the Hayward campus. The electrical demand at buildout is expected to increase to approximately 10,000 kilowatts (kW) or 30,000 MWh per year. The natural gas demand is expected to increase to 980 therms per hour or 1,292,000 therms per year.

On-Campus Infrastructure

To meet future energy demands at the campus, the proposed Master Plan includes a new central plant to the east of the existing central plant located west of the intersection of Hillary Road and Harder Road. The new power generation equipment in the central plant would house centralized chillers and boilers

that would serve the campus buildings through a buried utility network. The plant would grow as the campus is built out and would allow existing distributed building plants to tie into the utility loop, allowing for satellite growth and maximum capacity benefit. The existing natural gas distribution system would be used to serve the new facilities under the proposed Master Plan. However, depending on the ultimate location and configuration of new buildings, several gas lines might need to be relocated.

The environmental effects of constructing and operating the above improvements are addressed in other sections of this Draft EIR, including but not limited to, **Section 4.2, Air Quality**, **Section 4.3, Biological Resources, Section 4.4, Cultural Resources**, and **Section 4.9, Noise**. Air pollutant emissions from the expanded capacity of the campus central plant equipment are evaluated in **Section 4.2, Air Quality**. Connections and extensions of piping and circuits would occur primarily within roadways or other areas that are already developed or disturbed and which are unlikely to contain sensitive biological or cultural resources. Additionally, due to the limited ground disturbance needed for connections and extensions, construction-phase air quality and noise impacts would be short term and less than significant. Therefore, the proposed Master Plan would not result in the construction of new electrical and natural gas facilities that would cause significant environmental impacts. The impact related to energy system improvements would be less than significant.

Off-Campus Infrastructure

Given the campus' goal to reduce its dependence on power from the grid, it is unlikely that campus growth under the proposed Master Plan would result in the need for expansion or construction of new electrical system capacity improvements. Moreover, the project-generated demand for electricity would be negligible in the context of overall demand within the state, and would not in and of itself require a major expansion of power facilities. Therefore, the proposed Master Plan would not require the construction of new or expanded electrical system capacity improvements off campus that could result in significant environmental impacts. The impact related to power supply would be less than significant.

Mitigation Measure: No mitigation is required.

MP Impact UTIL-4: **Growth and development under the proposed Master Plan would require minor expansion of the storm water conveyance system, which would not cause significant environmental impacts.**

Level of Significance: Less than significant

The proposed Master Plan includes a storm drain plan, which would modify the existing on-campus system. Several of the planned buildings would be constructed on top of existing storm drains, and so

these storm drains would need to be relocated. These pipelines include three storm drain systems in new student housing area southwest of Pioneer Heights; storm drains in the Parking Lot K area; a 21-inch storm drain running between Carlos Bee Boulevard and Hayward Boulevard; a 15-inch to 36-inch storm drain running from Harder Road at West Loop Road southwest to Harder Road. Other smaller storm drain laterals would also be constructed as required by new building footprints.

The environmental effects of constructing the above improvements are addressed in other sections of this EIR, including but not limited to, **Section 4.2, Air Quality**, **Section 4.3, Biological Resources, Section 4.4, Cultural Resources**, and **Section 4.9, Noise**. Connections and extensions of the storm drain system would occur primarily within roadways or other areas that are already developed or disturbed and which are unlikely to have sensitive biological or cultural resources. Additionally, due to the limited ground disturbance needed for connections and extensions, construction-phase air quality and noise impacts would also be less than significant. The effects of increased storm water runoff from the development of the campus under the proposed Master Plan are evaluated in **Section 4.7, Hydrology and Water Quality,** and are found to be less than significant with mitigation. Therefore, the implementation of the proposed Master Plan would not result in the construction of new storm drain facilities that would cause significant environmental impacts. The impact related to the construction of storm drainage improvements would be less than significant.

Mitigation Measure: No mitigation is required.

MP Impact UTIL-5: The proposed Master Plan would not conflict with applicable solid waste regulations, nor would it result in solid waste requiring disposal that would exceed the landfill capacity.

Level of Significance: Less than significant

With campus development under the proposed Master Plan, the total volume of non-hazardous solid waste generated on the Hayward campus would increase. However, under the proposed Master Plan, 75 to 100 percent of solid waste would be diverted from landfills by full buildout. Additionally, 100 percent of organic waste generated would be composted on the campus. The diversion goals would be met in part by existing campus practices, as described above, and solid waste reduction strategies included in the proposed Master Plan. Strategies proposed by the project include prevention and minimization of waste generation, reuse and recycling, on-site and off-site composting, food donations of edible food, and educating faculty and students.

Implementation of the proposed Master Plan would also result in demolition and deconstruction of old buildings, in addition to removal of existing pavement, underground utilities, and overhead utilities

associated with these areas. These activities would generate a substantial amount of demolition and construction debris that could require disposal in a landfill. The CSUEB is exploring a centralized and integrated approach towards collection and separation of waste associated with demolition and deconstruction, and is studying the services offered by the various regional waste management firms in order to align future contracts with its waste goals. Therefore, to the extent feasible, the CSUEB intends to demolish existing structures to allow for maximum reuse of materials. Where possible, concrete and asphalt pavements would be recycled and used on site or made available for use elsewhere. Utility materials, primarily metals, would be recycled if feasible. As part of standard grubbing and clearing operations, trees and other plant materials would be protected, relocated, or removed as needed from future grading areas. Lastly, as part of the proposed Master Plan, the CSUEB aims to retain as many existing trees and plantings possible.

If the CSUEB continues to contract with the WMAC, there would be sufficient capacity in the Altamont Landfill to meet the needs of the campus until 2029. However, the CSUEB intends to reach its goal of diverting 100 percent of its solid waste from landfills by 2030 so would not affect the landfill capacity. In addition, even though the Campus is currently served by the WMAC, the Hayward campus falls within the jurisdiction of several waste management businesses and could in the future select a contract based on alignment with its waste guidelines, operations and goals, and could dispose waste at another permitted landfill.

In summary, the project would comply with applicable regulations related to solid waste and would be served by a landfill with sufficient remaining capacity. Therefore, campus development under the proposed Master Plan would not result in significant adverse impacts related to solid waste.

Mitigation Measure: No mitigation is required.

4.13.4.4 Cumulative Impacts and Mitigation Measures

Full development of the campus under the proposed Master Plan, in conjunction with buildout of the City of Hayward pursuant to its adopted General Plan, would result in the demand for additional water supply, wastewater treatment, solid waste disposal, electricity, and natural gas. However, as indicated above, the proposed Master Plan would not require substantial modifications to utility systems above and beyond what is already being planned for by the various utility providers. Furthermore, the proposed Master Plan includes sustainability goals to reduce the Campus's water use, energy use, wastewater generation, and solid waste generation and disposal. The extensive programs focused on reduction in demand would minimize the project's contribution to cumulative impacts. In addition, the proposed project includes mitigation measures to further reduce its water demand and thereby also

wastewater demand. As a result of the above, the project's contribution to the cumulative impact would not be considerable and the impact would be less than significant.

The University acknowledges that as a result of cumulative growth including the growth of the campus, some improvements to the city utility systems could be required, including possibly an expansion of the City's WCPF beyond its currently permitted capacity. It is anticipated that as and when such improvements are proposed, they would be evaluated by the City for their environmental impacts and mitigation measures would be incorporated for any impacts that are found to be significant. For reasons presented above, although the growth of the campus under the proposed Master Plan would contribute to potential environmental impacts of utility expansions, the proposed project's contribution to the environmental impacts from the expansion of facilities would not be cumulatively considerable and the impact would be less than significant.

4.13.5 REFERENCES

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