

4.10 UTILITIES AND SERVICE SYSTEMS

4.10.1 Introduction

This section of the Recirculated Draft SEIR (SEIR) describes the existing environmental conditions pertaining to the public utility systems on the project site and its vicinity. A discussion of the regulatory setting follows the description of the environmental setting. The section discusses the demand for utilities associated with the development of the campus under the proposed 2020 LRDP and evaluates the environmental consequences from the construction and operation of utility improvements needed to serve the campus. The primary concerns related to utilities and service systems are environmental effects of supplying the project with potable water, irrigation water, wastewater disposal, solid waste disposal, electricity, and natural gas.

4.10.2 Environmental Setting

The campus is located within incorporated Merced County. However, the campus site is within the City's SOI and receives water and wastewater services from the City of Merced under an extraterritorial Urban Services agreement. The agreement states that the City will serve a campus population of up to 10,000 Full Time Equivalent (FTE) students.

Water Service

Water service to the campus is provided by the City of Merced. Much of the water in Merced County, including that provided by the City of Merced, is drawn from groundwater sources. Discussion of the size and status of the underground aquifer that provides this water is presented in **Section 4.4, Hydrology and Water Quality**. There are 25 urban water and irrigation districts that serve most of Merced County. These districts pump groundwater and divert water from the Merced River and out-of-county sources, including the Central Valley Project (CVP) and the State Water Project (SWP). The largest district is the Merced Irrigation District (MID), which diverts water from the Merced River for agricultural purposes. MID currently serves some of the area near the campus. However, the campus is not within the service area of MID. The City of Merced provides potable water service within the city limits of Merced. In order to provide for future growth, the City of Merced and MID have entered into a cooperative water supply and management agreement.

Water Supply

The City of Merced's water supply is drawn from 20 active production wells with a combined capacity of 54,100 gallons per minute (gpm). All of the wells pump directly into the distribution system and have chlorination facilities for disinfection.

The City of Merced provides potable water to the campus via its distribution system. The water is primarily supplied by a 16-inch water line that was constructed within the roadway alignment of Bellevue Road. The City also produces potable water used to serve the campus from Well 17, which is located on the campus. Well Number 17 is a City-owned facility located on UC land deeded to the City. Ninety percent of the water from this well is supplied to the campus, with the remaining flow contributing to the City's distribution system. This well is capable of pumping 2,500 gallons per minute (gpm) (City of Merced 2017). An on-campus distribution system delivers potable water to each building within the campus. Irrigation water for the campus is also obtained from the City of Merced supply. In addition, UC Merced also owns a pump station and a large aboveground 250,000-gallon water storage tank near Well 17 that provides operational and emergency storage for the campus.

Recycled Water

Water recycling is the use of treated wastewater to meet non-potable water demands. Outdoor water demands (e.g., landscape irrigation) are ideally suited for water recycling. Water treated to certain standards established in Title 22 of the California Administrative Code can be used for irrigation of landscaped areas, and for toilet flushing. Water recycling not only reduces the amount of potable water needed, but also results in less wastewater requiring disposal. A recycled water distribution system serving portions of the campus has been installed although it is not connected to the City's recycled water distribution system as no existing recycled water facilities are located in the vicinity of the campus. It is presently connected to the City's potable water distribution system.

Wastewater

The City of Merced owns and operates a municipal wastewater treatment system and provides service to all areas within city limits and also to some unincorporated areas outside the city limits, including the campus. The City's system consists of wastewater conveyance pipelines and a wastewater treatment plant (WWTP) located approximately 3 miles south of the city.

Wastewater Conveyance

The campus is currently connected to the City of Merced wastewater collection and treatment system. To serve the campus, a 27-inch sanitary sewer line was installed in Bellevue Road that connects to the City of Merced's sewer system via a connection to a 27-inch sewer main in G Street.

Wastewater Treatment

Wastewater generated on the campus is treated at the City of Merced WWTP. The WWTP currently has a tertiary treatment capacity of 12 million gallons per day (mgd). The WWTP currently treats an average flow of 8.2 mgd (Osmer 2018). In 2006, the City certified an EIR (SCH No. 2005101135) for the expansion of the WWTP to a design capacity of 20 mgd. The additional capacity would be installed in phases and would include several facility upgrades.

According to the City, the WWTP expansion would accommodate wastewater flows from the approved 1997 Specific Urban Development Plan (SUDP) that would generate approximately 17.1 mgd of wastewater, in addition to 2.25 mgd of wastewater flows expected from the full development of the campus (City of Merced 2006), based on the University's 2002 estimates of the wastewater that would be generated by the campus.

Municipal Solid Waste

Merced County Regional Waste Management Authority (MCRWMA) oversees solid waste transportation and disposal operations of Class III municipal solid waste in Merced County. There are two landfills in the county. Waste from the campus is sent to the Merced County Highway 59 Landfill, located at 6049 North Highway 59.

Although the Highway 59 Landfill has a design capacity of 36.4 million cubic yards, it has a permitted capacity of approximately 30 million cubic yards. About 22.6 million cubic yards of capacity remains at the present time (Lawrie 2018). The landfill is also permitted to receive up to 1,500 tons of waste on a daily basis, which translates to a maximum of 459,000 tons per year; however, the average daily and annual tonnage received is substantially less. The estimated closure date for the facility is 2065 (MCRWMA 2016).

Solid waste is collected by the City of Merced within the city limits, and by franchise hauling companies throughout the unincorporated areas of Merced County. The City and these companies also pick up some recyclable materials for a fee. The City picks up cardboard from businesses for a reduced fee. There is no

sorting or recycling plant in Merced County, but some recyclable material is accepted at the landfills, which is then taken to a recycling plant in Turlock.

Electricity

The campus site is a part of the California Independent System Operator's Fresno local area. Currently, PG&E provides electricity to the City of Merced and to the campus. Current electricity demand for the campus is approximately 2.5 megawatts per year. The campus site is within PG&E's Wilson 115-kilovolt (kV) subarea. There are three PG&E transmission lines near the campus site: the 230-kV Belotta-Herndon line that originates at the Wilson Substation south of Childs Avenue and terminates north of Bellevue and west of Highway 59; the 115-kV Wilson-Atwater line; and the 70-kV Merced-Merced Falls line.

Natural Gas

PG&E currently supplies Merced County, including the campus, with natural gas. The main pipeline serving the City of Merced is an 8-inch-diameter transmission pipeline that parallels Highway 99 through Merced. The campus is connected to the regional natural gas distribution system via a pipeline aligned along Lake Road. Additional distribution lines and hook-ups are generally constructed on an "as-needed" basis. Current natural gas demand for the campus is approximately 571,482 therms per year.

4.10.3 Regulatory Considerations

State Laws and Regulations

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 over at least a 20-year planning period given their existing and anticipated future demands. UWMPs must be updated every five years in years ending in zero and five. The City of Merced updated and adopted its current 2015 UWMP in November 2017. The 2015 UWMP projects and analyzes the City's future demand and water supplies through 2035.

Senate Bills 610 and 221

In 2001, the California Legislature passed Senate Bill 610 (Water Code Section 10910 et seq.) and Senate Bill 221 (Water Code Section 66473.7) to improve the link between information on water supply

availability and certain land use decisions made by cities and counties. SB 610 and SB 221 were companion measures, which sought to promote more collaborative planning between local water suppliers and cities and counties.

SB 610 requires the preparation of a water supply assessment (WSA) for large developments (i.e., more than 500 dwelling units or business establishments employing 1,000 persons or 500,000 feet of floor space). SB 221 prohibits approval of subdivisions consisting of more than 500 dwelling units unless there is verification of sufficient water supplies for the project from the applicable water supplier(s) and only applies to residential projects. SB 610 requires cities and counties to prepare a WSA for large developments. SB 221 requires a verification of an adequate water supply for large residential subdivisions before a final subdivision map may be recorded. Additionally, when a city or county determines that a “project” as defined by SB 610 (Water Code Section 10912) is subject to CEQA, the city or county must comply with the provisions of SB 610; this information must be included in environmental review under CEQA.

SB 610 and SB 221 apply only to cities and counties, and not to the University of California, a constitutionally established public entity. Nevertheless, although preparation of a Water Supply Assessment is not required for University projects, in order to evaluate the 2020 LRDP’s impact on water supply, UC Merced voluntarily prepared a Water Supply Evaluation (WSE) that conforms with the required elements of a Water Supply Assessment prepared pursuant to SB 610. The WSE is included in **Appendix 4.10** and was used in the preparation of this section.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act of 2014 (SGMA) became law on January 1, 2015, and applies to all groundwater basins in the state (Wat. Code, § 10720.3). Pursuant to SGMA, any local agency that has water supply, water management, or land use responsibilities within a groundwater basin may elect to be a “groundwater sustainability agency” for that basin (Wat. Code, § 10723). Local agencies were given until January 1, 2017, to elect to become or form a groundwater sustainability agency. In the event a basin is not within the management area of a groundwater sustainability agency, the county within which the basin is located will be presumed to be the groundwater sustainability agency for the basin. However, the county may decline to serve in this capacity (Wat. Code, § 19724).

Any established groundwater sustainability agency would have additional powers under the SGMA to manage groundwater within the basin, including, for example, the powers to conduct investigations of the basin, to require registration of groundwater extraction facilities and metering of groundwater extractions; to regulate groundwater extractions from individual groundwater wells or wells generally;

and to assess fees on groundwater extractions (see generally Wat. Code, § 10725 et seq.). In exercising its authority under the SGMA, a groundwater sustainability agency must consider the interests of holders of overlying groundwater rights, among others, and may not make a binding determination of the water rights of any person or entity (Wat. Code, §§ 10723.2, 10726.8). The SGMA also provides local agencies with additional tools and resources designed to ensure that the state's groundwater basins are sustainably managed.

The SGMA also requires the California Department of Water Resources (DWR) to categorize each groundwater basin in the state as high-, medium-, low-, or very low priority (Wat. Code, §§ 10720.7, 10722.4). All basins designated as high- or medium-priority basins must be managed by a groundwater sustainability agency under a groundwater sustainability plan that complies with Water Code Section 10727 et seq. In lieu of preparation of a groundwater sustainability plan, a local agency may submit an alternative that complies with the SGMA no later than January 1, 2017 (Wat. Code, § 10733.6). On December 15, 2014, DWR announced its official "initial prioritization" of the state's groundwater basins for purposes of complying with the SGMA, and this priority list became effective on January 1, 2015 (DWR 2014).

Assembly Bill 939 and Senate Bill 1016

The California Integrated Waste Management Act of 1989, or Assembly Bill 939, established the Integrated Waste Management Board, required the implementation of integrated waste management plans, and mandated that local jurisdictions divert at least 50 percent of all solid waste generated (from 1990 levels), beginning January 1, 2000, and divert at least 75 percent by 2010. Projects that would have an adverse effect on waste diversion goals are required to include waste diversion mitigation measures to assist in reducing these impacts to less than significant levels. With the passage of Senate Bill 1016 (the Per Capita Disposal Measurement System) in 2006, only per capita disposal rates are measured to determine if a jurisdiction's efforts are meeting the intent of Assembly Bill 939.

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 solid waste landfills, but instead are recyclable and (to encourage recycling and recovery of valuable metals) can be managed under less stringent requirements than those that apply to other hazardous wastes.

Government Code Section 54999

Government Code Section 54999 provides for the payment of fees in certain specific enumerated situations for capital improvements for utilities actually serving the University. A capital facilities fee that is imposed must be nondiscriminatory and the amount must not exceed the amount actually necessary to provide capital facilities to the University.

Local Plans and Policies

UC Sustainable Practices Policy

As with all UC campuses, UC Merced is required to implement the UC Sustainable Practices Policy. The following are specific policies designed to address water conservation and solid waste.

Sustainable Water Systems

With the overall intent of achieving sustainable water systems and demonstrating leadership in the area of sustainable water systems, the University has set the following goals applicable to all locations:

1. In line with the Federal Government's Executive Order, locations will reduce growth-adjusted potable water consumption 20 percent by 2020 and 36 percent by 2025, when compared to a three-year average baseline of FY2005/06, FY2006/07, and FY2007/08. Locations that achieve this target early are encouraged to set more stringent goals to further reduce potable water consumption. Each Campus shall strive to reduce potable water used for irrigation by converting to recycled water, implementing efficient irrigation systems, drought tolerant planting selections, and/or by removing turf.
2. Each location will develop and maintain a Water Action Plan that identifies long term strategies for achieving sustainable water systems. The next update of the plan shall be completed in December 2016.
 - A. Campuses will include in this update quantification of total square feet of used turf and under-used turf areas on campus as well as a plan for phasing out un-used turf irrigated with potable water.
3. Each Campus shall identify existing single pass cooling systems and constant flow sterilizers and autoclaves in laboratories and develop a plan for replacement.
4. New equipment requiring liquid cooling shall be connected to an existing recirculated building cooling water system, new local chiller vented to building exhaust or outdoors, or to the campus chilled water system through an intervening heat exchange system if available.
 - A. Once through or single pass cooling systems shall not be allowed for soft plumbed systems using flexible tubing and quick connect fittings for short term research settings.

- B. If no alternative to single pass cooling exists, water flow must be automated and controlled to avoid water waste.

Recycling and Waste Management

1. The University prioritizes waste reduction in the following order: reduce, reuse, and then recycle.
2. The University's goal for diverting municipal solid waste from landfills is as follows:
 - 50 percent as of June 30, 2008
 - 75 percent as of June 30, 2012
 - Ultimate goal of zero waste by 2020

UC Merced Campus Zero Waste Plan

As noted above, the UC Policy on Sustainable Practices requires all UC campuses and medical centers to reach a diversion goal of Zero Waste by June 30, 2020. Diversion refers to the materials directed toward recycling, compost, and re-use rather than being landfilled. (For the purposes of measuring compliance with UC's Zero Waste Goal, campuses need to at least meet or exceed 95 percent diversion of municipal solid waste by 2020. Ultimately, UC's Zero Waste Goal strives for the elimination of all materials sent to the landfill by 2020.) The UC Merced Campus Zero Waste Plan serves as guide to move the UC Merced campus toward its Zero Waste goals.

4.10.4 Impacts and Mitigation Measures

Significance Criteria

This SEIR uses significance criteria derived from Appendix G of the *State CEQA Guidelines*. For the purpose of this SEIR, impacts related to utilities and service systems would be significant if implementation of the 2020 LRDP would:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment facilities or storm water drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects;
- Have insufficient water supplies available to serve the project and reasonably foreseeable development during normal, dry and multiple dry years;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;

- Generate solid waste in excess of State or local standards, or in excess of the capacity of the local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or
- Fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Issues Not Discussed Further

Impacts to storm water drainage facilities are discussed in **Section 4.4, Hydrology and Water Quality**. The remaining thresholds that pertain to utilities and service systems are addressed below.

Methodology

The demand for water was estimated based on unit water demand factors developed as part of the Water Supply Evaluation prepared for the 2020 LRDP by West Yost Associates (WYA 2018) (included in **Appendix 4.10**). These factors were derived based on an analysis of historic demand for water by the campus. Wastewater that would be generated was estimated by utilizing the ratio of potable water to wastewater based on 2017 data. Municipal solid waste was estimated based on a campus specific per student rate derived from 2017-2018 data. **Table 4.10-1, Campus Utility Demand**, presents the estimated utility demand of the campus in 2030 with the implementation of the 2020 LRDP. To evaluate potential impacts on utility systems, the proposed project's estimated demand was compared to the available existing and future capacity in the utility systems that serve the campus site.

**Table 4.10-1
Campus Utility Demand**

	Existing (2017)	2020	2030
Potable Water (AFY)	260	386	623
Wastewater (mgd)	0.14	0.16	0.25
Solid Waste (tons/year)	687	776	1,200
Electricity (MW)	2.5	4.8	10.3
Natural Gas (Therms/hour)	65.2	128.7	276.2

Source: Impact Sciences 2019; West Yost 2019.

4.10.5 LRDP Impacts and Mitigation Measures

LRDP Impact UTL-1: Implementation of the 2020 LRDP would generate demand for potable water for which sufficient water supplies would be available in normal, dry, and multiple dry years. (*Less than Significant*)

The 2009 LRDP EIS/EIR analyzed the potential impacts of campus development under the 2009 LRDP on water supply. The analysis, presented under Impact UTILS-1 in the 2009 LRDP EIS/EIR, was based on the assumption that campus enrollment would increase to 25,000 students by 2030 and that the campus would have an employee population of 6,560 faculty and staff for a total of 31,560 persons. The EIS/EIR estimated a water demand of 2,387 acre-feet per year for the campus by 2030 and compared it to 8,073 acre-feet included in the City's 2005 UWMP for the campus. Given that the campus's demand was estimated to be substantially less than the demand accounted for in the 2005 UWMP, and the UWMP demonstrated that there were adequate supplies to serve the demand, the EIS/EIR concluded that the impact on water supply was less than significant.

As noted in **Section 3.0, Project Description**, UC Merced is now expected to grow at a slower pace than originally anticipated, adding no more than 5,300 additional students between 2020 and 2030, such that by 2030, the enrollment level is expected to be approximately 15,000 students, and the faculty and staff projection for 2030 is also substantially lower than previously projected and analyzed in the 2009 LRDP EIS/EIR. Additionally, in 2015, the City prepared and adopted a new UWMP. Given the change in the proposed project and the conditions in which it would be implemented, an updated analysis of the project's water supply impact is presented below.

The campus receives potable water from the City of Merced pursuant an extraterritorial urban services agreement. The agreement states that the City will serve a campus population of up to 10,000 Full Time Equivalent (FTE) students. The agreement will need to be updated to serve future campus growth under the 2020 LRDP.

Campus development under the 2020 LRDP would result in an increase in campus water demand compared to existing conditions but less than what was analyzed in the 2009 LRDP EIS/EIR. In 2017, the Campus used approximately 260 acre-feet of water. With the completion of the 2020 Project, campus population (students, faculty and staff) is expected to increase to approximately 11,000 by 2020, and water demand is expected to increase to about 386 acre-feet. To estimate UC Merced's projected demand in 2030, a water use factor was developed 575.046 3450288.1 Utilizing this factor and the revised 2030 population projections for the campus, projected water demand for the campus was estimated to be approximately 623 AFY by 2030 (WYA 2018). Refer to **Appendix 4.10**, which presents a Water Supply

Evaluation (WSE) prepared for the proposed project and contains a detailed description of the water demand associated with the campus in 2030. The WSE includes an estimate of the campus' 2030 water demand based on an early (2018) estimate of the 2020 LRDP-related campus population increase. In 2019, UC Merced revised its 2030 population projection down to include a smaller increase in faculty and staff than previously projected in 2018. Please see memorandum in **Appendix 4.10** which shows that based on the revised population projection, the campus's 2030 water demand would be about 612 AFY, and not 623 AFY. As a result, the water demand estimate in the WSE and in the impact analysis below is a conservative estimate.

As described in the April 2017 update to the 2009 LRDP, UC Merced plans to achieve "water neutrality" and reduce water use so that no new water resources are needed to supply the campus. UC Merced has already implemented multiple projects to reduce water use, including:

- Installing an evapotranspiration system that predicts weather conditions and reduces the amount of water needed for irrigation accordingly;
- Reducing irrigation of lawns and other landscaped areas to a level sufficient to minimize the growth of invasive weeds and to keep trees alive;
- Removing annual plants and replacing them with drought resistant species;
- Altering condenser plant operations to more efficiently cool the campus; and
- Developing a system where leaks on water fixtures can be reported by scanning a QR code on the fixture with a mobile device.

While UC Merced recognizes that in the near-term it is not feasible to reduce its net water consumption to zero, it remains committed to reduce water demands as much as possible.

As noted above, the City of Merced updated and adopted its current 2015 UWMP in November 2017. The 2015 UWMP projects and analyzes the City's future demand and water supplies through 2035. That plan estimated and included a demand of 1,406 acre-feet per year for the campus in 2030. That projected demand was based on a projected campus student population of 25,000 students, and associated faculty and staff, and an estimated per capita demand factor of 39 gpcd that was developed in the City's 2015 Water Master Plan based on campus water use from 2007 to 2012.

The total demand of 623 acre-feet per year associated with the campus under the 2020 LRDP is well below 1,406 acre-feet per year anticipated in the 2015 UWMP. The water demand associated with the development of the campus is accounted for in the approved 2015 UWMP. In addition, the 2015 UWMP concluded that the City of Merced has an adequate groundwater supply to meet water demands in its service area through 2035, including the UC Merced water demand, during normal, single-dry, and

multi-dry years (WYA 2018). Therefore, there would be sufficient water supplies to serve the proposed project's demand, and the impact of the proposed project on water supply would be less than significant.

As discussed under **LRDP Impact HYD-1**, the three GSAs that manage the Merced Subbasin have completed their GSP which lists priority projects and management actions that the GSAs will implement to reduce water demand, recharge the basin, and increase supply from non-groundwater sources. Plan implementation is to begin in early 2020. As noted earlier, based on modeling of current and projected subbasin conditions, absent implementation of any new supply-side or recharge projects, current agricultural and urban groundwater demand in the Merced Subbasin would need to be reduced by approximately 10 percent in order to balance out the change in groundwater storage over a long-term average condition. On both a per capita basis and total demand basis, the Campus has reduced its demand substantially from previous levels and the reductions are significantly more than the required 10 percent water demand reduction identified in the GSP to bring the groundwater subbasin into balance. The Campus is continuing to implement actions to reduce use of potable water. The Campus will also continue to work with the City and MID to identify other sources of water, including the use of canal water for irrigation and other non-potable uses.

With respect to small-scale projects that may be located within lands designated CMU, CBRSL or ROS, due to the location, small size, and nature of these projects, they would not cause the campus population to increase and thereby increase water demand. To the extent a small project would add employees to the campus or increase water demand, those new employees and water demand are accounted for in the analysis above. For the same reasons that are set forth above, the impact of small-scale projects on water supply would be less than significant.

Mitigation Measures: No mitigation is required.

LRDP Impact UTL-2: Implementation of the 2020 LRDP could require the construction of new water supply and conveyance facilities; the construction of these facilities would not result in significant impacts on the environment. (*Less than Significant*)

The 2009 LRDP EIS/EIR analyzed the potential impacts of campus development under the 2009 LRDP on the environment from the construction of new water supply and conveyance facilities. The analysis, presented under Impact UTILS-2 in the 2009 LRDP EIS/EIR, determined that the existing 16-inch water main located in Bellevue Road was adequate to serve the campus through 2030, and that construction of additional water conveyance infrastructure off site would not be required. Similarly, the EIS/EIR found

that the on-campus well was adequate to serve the needs of the campus and that construction of additional wells would not be required. The impact related to new water supply and conveyance facilities was determined to be less than significant.

As noted above, the campus's water demand in 2030 would be substantially lower than previously anticipated. Therefore, the existing water main and well are expected to be adequate to serve the campus through 2030. A large water storage tank is located near the campus well. Additional storage tanks may be constructed on the campus as needed to serve the growing campus' fire flow requirements under the 2020 LRDP. The environmental impacts from the development of on-site water infrastructure that may be needed are evaluated in other sections of this SEIR and those impacts that are found to be significant are mitigated by the mitigation measures included in those sections. In summary, the environmental impacts related to water infrastructure are considered less than significant.

Government Code Section 54999 authorizes public utilities to charge the University a limited capital facilities fee under certain circumstances (i.e., a non-discriminatory charge to defray the actual cost of that portion of a public utilities facility actually serving the University). In the event that there are any costs incurred by the City associated with the provision of water to the campus in the future, the University will comply with its obligations as authorized under Section 54999.

With respect to small-scale projects that may be located within lands designated CMU, CBRSL or ROS, due to the location, small size, and nature of these projects, they would not increase water demand or the need for water supply and conveyance facilities. To the extent a small project would increase water demand, that increase in water demand and the need for new facilities is accounted for in the analysis above. For the same reasons that are set forth above, the impact of small-scale projects on water supply infrastructure would be less than significant.

Mitigation Measures: No mitigation is required.

LRDP Impact UTL-3: Implementation of the 2020 LRDP would not require construction of new or expanded wastewater conveyance or treatment facilities; nor would the proposed project result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to existing commitments. (*Less than Significant*)

The 2009 LRDP EIS/EIR analyzed the potential impacts of campus development under the 2009 LRDP on the environment from the construction of new or expanded wastewater conveyance and treatment facilities. The analysis, presented under Impact UTILS-3 in the 2009 LRDP EIS/EIR, determined that the existing sewer main in Bellevue Road was adequate to handle wastewater flows from the campus at buildout of the 2009 LRDP (25,000 students and associated faculty and staff); however, the sewer line in G Street had capacity to serve a campus with about 10,000 students. For this reason, the EIS/EIR concluded that off-site improvements to that sewer line would be needed. However, because the capacity expansion would occur within the existing G Street right of way, pipeline construction activities would result in less than significant impacts. With respect to the effect of the campus development on treatment capacity at the City's WWTP, the 2009 LRDP EIS/EIR analysis showed that at full development, the campus would generate 1.13 million gallons per day (mgd) of wastewater for treatment at the WWTP, and that assuming no increases in flows from other sources, there was adequate capacity at the WWTP to handle this flow and an expansion of the facility would not be required. Therefore, the campus's impact on WWTP and wastewater conveyance facilities was determined to be less than significant.

As noted above under **LRDP Impact UTL-1**, UC Merced is now expected to grow at a slower pace than originally anticipated, such that by 2030, the enrollment level is expected to be 15,000 students, and the faculty and staff projection for 2030 is also substantially lower than previously projected and analyzed in the 2009 LRDP EIS/EIR. Given this change in the proposed project and the conditions in which it would be implemented, an updated analysis of the project's impact on wastewater conveyance and treatment capacity is presented below.

As noted earlier, wastewater service is provided to the campus by the City of Merced pursuant an extraterritorial urban services agreement. The agreement states that the City will serve a campus population of up to 10,000 FTE students. The agreement will need to be updated to serve future campus growth under the 2020 LRDP.

As shown in **Table 4.10-2, Wastewater Generation**, in 2017, the campus generated about 52.2 million gallons of wastewater or 0.14 mgd, and with a campus population of approximately 9,500, this equated to approximately 15.1 gpd per person. With the completion of the facilities under 2020 Project and the projected enrollment of 9,700 students by 2020, the campus will accommodate a population of approximately 11,000 persons (students, faculty, and staff). Assuming 15.1 gpd per person, campus wastewater discharge would increase to 0.17 mgd by 2020. Ultimately, with a campus population of approximately 17,700 persons and assuming 15.1 gpd per person, campus wastewater generation would be 0.27 mgd in 2030.

**Table 4.10-2
Wastewater Generation**

	Existing (2017)	2020	2030
Wastewater Generation (mgd)	0.14	0.17	0.27
Campus Population	9,500	11,000	17,700
Wastewater Generation (gpd)/person	15.1	15.1	15.1

Source: Impact Sciences 2019

Effect on Wastewater Treatment Capacity

Wastewater generated on the campus is currently conveyed to the City's WWTP for treatment and disposal. Wastewater from campus development under the 2020 LRDP would also be discharged to and treated at the City's WWTP. With the addition of 6,700 students, faculty, and staff between 2020 and 2030, the campus would generate an additional 0.10 mgd for a total of 0.27 mgd by 2030. This is substantially lower than 1.13 mgd estimated and analyzed in the 2009 LRDP EIS/EIR.

The WWTP currently treat approximately 8.2 mgd of wastewater. If the projected wastewater flows from the campus development under the 2020 LRDP are added to the existing flows, the WWTP would be required to treat approximately 8.47 mgd. As noted earlier, the City's WWTP is currently has the capacity to treat up to 12 mgd and the City has approved the expansion of the capacity to 20 mgd. This WWTP expansion will be implemented to serve regional population growth with and without the campus. If it is assumed that there are no increases in flows to the WWTP from other sources, the existing WWTP would be adequate to serve the wastewater demands of the campus. Even with increases in flows from other sources, there would be adequate capacity to serve the campus in 2030.

Effect on Conveyance Capacity

Although there would be a substantially lower flow from the campus than previously projected, the existing sewer line on G Street would not be adequate to handle campus flows through 2030. For this reason, the installation of a new line or an upgrade to the existing line on G Street would be needed. These improvements would likely take place within roadway shoulders or under the pavement consistent with current City practice. Because these improvements would be located in already disturbed environments along city roads, the construction of these pipeline improvements would not result in significant environmental impacts. Furthermore, as stated earlier, Government Code Section 54999 authorizes public utilities to charge the University a limited capital facilities fee under certain circumstances. The University will comply with its obligations as authorized under Section 54999. This fee (i.e., a non-discriminatory charge to defray the actual cost of that portion of a public utilities facility

actually serving the University) covers UC Merced's share of construction cost, including the cost of mitigation measures to address environmental impacts from the construction of improvements.

In summary, campus development under the 2020 LRDP would not require construction of new or expanded wastewater treatment facilities; nor would the proposed project result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to existing commitments. Although expansion of conveyance capacity would be needed along G Street, the impact related to wastewater conveyance and treatment facilities would be less than significant.

With respect to small-scale projects that may be located within lands designated CMU, CBRSL or ROS, due to the location, small size, and nature of these projects, they are not expected to increase wastewater discharge or contribute to the need for expanded wastewater conveyance facilities. To the extent a small project would result in wastewater discharge, that increase in discharge and the need for new facilities is accounted for in the analysis above. For the same reasons that are set forth above, the impact of small-scale projects on wastewater infrastructure would be less than significant.

Mitigation Measures: No mitigation is required.

LRDP Impact UTL-4: Implementation of the 2020 LRDP would not generate solid waste that is in excess of State or local standards, or in excess of local infrastructure, or otherwise impair attainment of solid waste reduction goals. (*Less than Significant*)

The 2009 LRDP EIS/EIR analyzed the potential impacts of campus development under the 2009 LRDP on the environment from the disposal of municipal solid waste. The analysis, presented under Impact UTILS-4 in the 2009 LRDP EIS/EIR, determined the campus at a 2030 enrollment level of 25,000 students would generate approximately 8,368 tons of solid waste per year, of which about 31 percent or 2,594 tons would be disposed of at the regional landfill, and that the landfill would have adequate capacity to handle this waste and an expansion of the landfill would not be required.

As noted above under **LRDP Impact UTL-1**, UC Merced is now expected to grow at a slower pace than originally anticipated, such that by 2030, the enrollment level is expected to be 15,000 students, and the faculty and staff projection for 2030 is also substantially lower than previously projected and analyzed in the 2009 LRDP EIS/EIR. Given this change in the proposed project and the conditions in which it would

be implemented, an updated analysis of the project's impact related to municipal solid waste is presented below.

Based on data provided by UC Merced, in 2017-18, with a student population of about 8,500 students, the campus generated about 678 tons of municipal solid waste. This equates to a rate of approximately 160 pounds per student per year. Of this solid waste, approximately 43 percent was recycled or otherwise diverted and about 57 percent was sent to the Merced County Highway 59 Landfill. With the completion of the 2020 Project under the 2009 LRDP, the campus will accommodate 9,700 students and associated faculty and staff, and assuming 160 pounds per student per year, campus generated solid waste would increase to 773 tons by 2020.

The proposed 2020 LRDP would provide facilities to accommodate an increase of 5,300 students between 2020 and 2030. Based on existing disposal rates, the additional on-campus population in 2030 would generate about 424 tons of additional solid waste per year for a total of about 1,197 tons by 2030, of which about 43 percent would require disposal at Highway 59 Landfill. The University of California Sustainable Practices Policy sets a goal of zero waste by 2020 for UC campuses (meeting zero waste goal means that 90 percent of the waste will be diverted from landfills). The Sustainable Practices Policy also encourages recycling of construction waste. While it is unlikely that the campus would reach the zero waste goal by 2020 given the Campus' 2017 diversion rate of approximately 83 percent for academic and campus operations but a lower rate for housing and dining for a campus-wide average of 43 percent, the Campus would continue to make improvements to its recycling and reuse programs to minimize the amount of solid waste that would go to the County landfill as the campus works to fulfill these goals.

It is anticipated that capacity at the Highway 59 Landfill will be reached in approximately 2065. While full development of the campus would generate more solid waste than existing conditions, it is anticipated that eventually very little solid waste would be disposed of in a landfill in the future. However, in the interim, based on the existing diversion rate of approximately 43 percent, the campus would dispose of about 515 tons of waste per year in the landfill by 2030. This is about 0.11 percent of the permitted annual amount of waste that can be accepted at Highway 59 Landfill, which can accept up to 459,000 tons per year. As the campus anticipates that 90 percent of solid waste would be diverted from the landfill in the future, the amount disposed at the landfill annually would be even lower. As there is adequate capacity available in the landfill, an expansion of the landfill would not be required, and this impact would be less than significant.

With respect to small-scale projects that may be located within lands designated CMU, CBRSL or ROS, due to the location, small size, and nature of these projects, they would not generate substantial amounts of solid waste that would require disposal. To the extent a small project would generate solid waste, that

increase is accounted for in the analysis above. For the same reasons that are set forth above, the impact of small-scale projects on solid waste infrastructure would be less than significant.

Mitigation Measures: No mitigation is required.

LRDP Impact UTL-5: Implementation of the 2020 LRDP would require on- and off-site improvements to electric transmission lines and natural gas pipelines. (*Less than Significant*)

The 2009 LRDP EIS/EIR analyzed the potential impacts of campus development under the 2009 LRDP on the environment from off-site improvements to electric transmission lines and natural gas pipelines. The analysis, presented under Impact UTILS-4 in the 2009 LRDP EIS/EIR, determined that at full development of the campus in 2030, the campus would require about 18 MW of electricity, and the maximum natural gas demand would be about 1,020 therms/hour. Based on these estimated demands, the EIS/EIR noted that off-site improvements including a 15kV transmission line and potentially a new natural gas pipeline would be required. The EIS/EIR included an evaluation of the programmatic impacts of these off-site improvements and determined that the impacts would be reduced to less than significant levels with mitigation.

As noted above, UC Merced is now expected to grow at a slower pace than originally anticipated, such that by 2030, the enrollment level is expected to be 15,000 students, and the faculty and staff projection for 2030 is also substantially lower than previously projected and analyzed in the 2009 LRDP EIS/EIR. Given this change in the proposed project and the conditions in which it would be implemented, an updated analysis of the project's impact related to off-site electrical and natural gas improvements is presented below. A discussion of the potential impacts associated with the consumption of energy that would result from the implementation of the UC Merced 2020 LRDP project is provided in **Section 4.11, Energy**.

The 2009 LRDP planned for an enrollment of 25,000 students by 2030, and projected that, excluding housing, there would be about 8.9 million square feet of building space on the campus by 2030. The proposed 2020 LRDP plans for a lower enrollment level of 15,000 students by 2030, and excluding housing, the campus is now projected to have about 4.3 million gross square feet of building space by 2030. As a result of the lower amount of building space and population, by 2030, the campus would require 10.3 MW of electricity and the maximum gas demand is projected to be approximately 276 therms/hour.

The estimated maximum electric demand at full development of the campus is based on an “energy efficient scenario,” which requires buildings to exceed the basic requirements of Title 24 Energy Code. Given the importance of energy efficiency to Green Building design, the UC Policy on Sustainable Practices sets a goal for all new building projects, other than acute-care facilities, to outperform the required provisions of Title 24 energy-efficiency standards by at least 20 percent. At UC Merced, a more ambitious goal of outperforming Title 24 energy efficiency standards by 30 percent has been set. Current campus buildings, which employ an array of design and technological strategies to minimize and manage campus energy consumption, are using approximately 50 percent less energy than Title 24 standards. The design of new buildings would follow appropriate building design requirements, such as passive solar design, and utilize energy-efficient methods and appliances, such as solar hot water systems and low-flow showerheads. In addition, all new buildings would incorporate energy conservation measures.

Electricity is provided to the campus via a connection to the electrical grid. The campus also has a 1.0 MW ground-mounted solar array and has approved the installation of roof-top solar panels on some of the residence halls on the campus to provide 4.2 MW of power. Another expansion of the ground-mounted solar array is planned. In compliance with UC Policy on Sustainable Practices, power that will be needed by the campus at buildout will be obtained from a number of renewable and alternative technologies, including wind turbines, fuel cells, and photovoltaic systems. In light of the lower estimated demand for electricity in 2030 and the campus initiatives to obtain electricity from on-site renewal sources, no off-site improvements such as additional transmission lines would be required. Similarly, no off-site improvements to provide natural gas to the campus would be required. As a result, there would be no significant environmental effects from the construction of off-site improvements. The impact related to electricity and natural gas would be less than significant.

With respect to small-scale projects that may be located within lands designated CMU, CBRSL or ROS, due to the location, small size, and nature of these projects, they would not substantially increase the demand for electricity and/or natural gas. To the extent a small project would increase the demand, that increase is accounted for in the analysis above. For the same reasons that are set forth above, the impact of small-scale projects on energy infrastructure would be less than significant.

Mitigation Measures: No mitigation is required.

4.10.6 Cumulative Impacts and Mitigation Measures

Cumulative Impact C-UTL-1: Development of the campus under the 2020 LRDP, in conjunction with other past, present, and reasonably foreseeable future development in the project area, would not result in a substantial increase in demand for water that would not be served by existing supplies during normal, dry, and multiple dry years. (*Less than Significant*)

The study area for potential cumulative impacts related to provision of water is the City of Merced's service area. The development of the campus under the 2020 LRDP would increase the campus's demand for water compared to existing conditions. As discussed above, the total amount of water needed to serve the campus is well within the amount identified for the campus in the City of Merced UWMP and Water Master Plan. Other past, present, and reasonably foreseeable future development in the City would also place a demand on the City's water supply system. The City's UWMP estimates and reports the projected increase in water demand from 2020 through 2035. The estimated demand is based on past, present, and reasonably foreseeable development within the City's water service area, including the demand associated with the campus.

The City pumps groundwater from the Merced Subbasin (Subbasin 5-22.04), which is located in the San Joaquin Groundwater Basin (Basin Number 5-22). The entire production of the City's well system is derived from this subbasin, which is the primary groundwater aquifer underlying the City. Groundwater from the subbasin is used by the City (including UC Merced), other water districts and private users.

The groundwater aquifer from which the City obtains its water is not adjudicated, and because of this there are no defined legal pumping rights for the City and there are no legal constraints on groundwater pumping. Therefore, as shown by the data in **Table 4.10-3, City of Merced Water Supply and Demand in Normal Years, Single Dry Years, and Multiple Dry Years**, the 2015 UWMP concludes that the City of Merced has an adequate groundwater supply to meet water demands, including the Campus's demand, during normal, single-dry, and multi-dry years.

Table 4.10-3
City of Merced Water Supply and Demand in Normal Years,
Single Dry Years, and Multiple Dry Years, AFY^(a)

	2020	2025	2030	2035
Normal Year				
Supply Totals	31,260	33,287	35,875	37,829
Demand Totals	31,260	33,287	35,875	37,829
Difference	0	0	0	0
Demand Served, %	100%	100%	100%	100%
Single Dry Year				
Supply Totals	33,809	36,034	38,876	41,025
Demand Totals	33,809	36,034	38,876	41,025
Difference	0	0	0	0
Demand Served, %	100%	100%	100%	100%
Multiple Dry Years				
First Year				
Supply Totals	33,809	36,034	38,876	41,025
Demand Totals	33,809	36,034	38,876	41,025
Difference	0	0	0	0
Demand Served, %	100%	100%	100%	100%
Second Year				
Supply Totals	31,260	33,287	35,875	37,829
Demand Totals	31,260	33,287	35,875	37,829
Difference	0	0	0	0
Demand Served, %	100%	100%	100%	100%
Third Year				
Supply Totals	23,614	25,047	26,873	28,241
Demand Totals	23,614	25,047	26,873	28,241
Difference	0	0	0	0
Demand Served, %	100%	100%	100%	100%

Source: City of Merced 2015 UWMP, Tables 7-2, 7-3, 7-4, and 7-5.

However, it is acknowledged that the City's ability to pump groundwater may be impacted in the future due to the Sustainable Groundwater Management Act (SGMA). In 2014, SGMA was signed into law to provide a framework for management of groundwater supplies by local agencies and restricts state intervention, if required. SGMA provides an opportunity for local agencies overlying the basin to form a Groundwater Sustainability Agency (GSA), which is the primary agency responsible for achieving sustainability. As part of the region's compliance with SGMA, as discussed above, three GSAs have been formed to manage the groundwater basin and a GSP has been completed. According to the GSP, sustainability of the Merced Subbasin will be attained through a combination of groundwater management actions and 12 priority projects to increase recharge and secure other sources of water.

The City recognizes that it will need to diversify its water supply and develop sources of water other than groundwater to sustain its projected population growth. The 2015 UWMP notes that the City plans to exchange recycled water for untreated surface water from MID, beginning in 2020. The City's WWTF is capable of producing 12 mgd of tertiary filtered wastewater, which may be used for a variety of non-

potable uses. The City currently does not have the infrastructure to distribute the recycled water produced at the WWTF throughout the City. The City would provide recycled water to MID for use primarily by agricultural users. The City would take untreated surface water from MID and use it to irrigate a number of landscaped areas within the City. This exchange would offset the need to construct 12 miles of recycled water pipeline and pump stations from the City's wastewater treatment facility (WWTF). The City's 2014 Water Master Plan also includes a preferred alternative to increase supply that involves the construction of a 10 million gallon per day Surface Water Treatment Plant (SWTP) by 2030 that will receive untreated surface water from MID. The City expects to receive an average of 4,000 AFY from MID. The City's 2015 and future water supplies are presented in **Table 4.10-4, City of Merced Existing and Projected Normal Year Water Supplies**, below.

Table 4.10-4
City of Merced Existing and Projected Normal Year Water Supplies, AFY

Supply Source	2015	2020	2025	2030	2035
Groundwater		25,486	27,408	25,901	27,807
Exchanges	-	-	58	105	153
Transfers	-	-	-	4,000	4,000
Recycled Water	4,886	5,774	5,821	5,869	5,869
Total	22,741	31,260	33,287	35,875	37,829

Source: City of Merced 2015 UWMP, Tables 6-11 and 6-12.

There would be a potential for environmental impacts to result from the implementation of these future water supply options. However, there is not sufficient detail available at this time to evaluate the impacts of these options, and any evaluation would involve speculation. Therefore, this SEIR does not attempt to analyze the impacts.

In summary, based on the 2015 UWMP which states that there is adequate groundwater to serve the University's projected demand under normal, single-dry, and multiple dry year conditions, this SEIR concludes that cumulative development would not result in the need for new or expanded water supply entitlements, and the cumulative impact would be less than significant.,

Mitigation Measures: No mitigation is required.

Cumulative Impact C-UTL-2: Development of the campus under the 2020 LRDP, in conjunction with other past, present, and reasonably foreseeable future development in the project area, would not result in a significant cumulative impact on wastewater collection and treatment facilities, such that construction of new or expanded facilities would be required. (*Less than Significant*)

The study area for potential cumulative impacts related to the treatment of wastewater is the City of Merced's service area. As discussed above, the City's WWTP currently has the capacity to treat up to 12 mgd of wastewater and the City has approved the expansion of the capacity of its WWTP to 20 mgd. As noted earlier in this section, according to the City's 2006 WWTP EIR, the WWTP expansion would accommodate wastewater flows from the approved 1997 Specific Urban Development Plan (SUDP) that would generate approximately 17.1 mgd of wastewater, in addition to 2.25 mgd of wastewater flows expected from the full development of the campus based on the University's 2002 estimate of wastewater that would be generated by the campus. As noted under LRDP Impact UTL-2, the wastewater flows from the campus would be about 0.27 mgd in 2030, which is substantially lower than the number used by the City in its plan for the WWTP. The expanded WWTP would be able to serve a population of approximately 174,000 (City of Merced 2011). As a result, with the expansion of the WWTP, there would be enough wastewater treatment capacity to serve growth on the campus (which is less than previously projected for 2030) as well as other past, present, and reasonably foreseeable future development within the City's service area. Therefore, cumulative development within the WWTP's service area would not result in a determination by the wastewater treatment provider that it has inadequate capacity to serve future development in addition to its existing commitments, and the cumulative impact would be less than significant.

As discussed above, implementation of the 2020 LRDP could require the construction of off-site sewer mains. Other development within the City's service area would also require installation of new sewer mains. As new and/or expanded sewer line would be located within street rights-of-way, environmental impacts from these improvements are expected to be minimal and less than significant.

Mitigation Measures: No mitigation is required.

Cumulative Impact C-UTL-3: Development of the campus under the 2020 LRDP, in conjunction with other past, present, and reasonably foreseeable future development in the project area, would not result in a significant cumulative impact on the regional landfill capacity. (*Less than Significant*)

The study area for a potential cumulative impact related to solid waste is the service area of the Highway 59 Landfill, which is eastern Merced County. Implementation of the 2020 LRDP along with other development in eastern Merced County would increase the total amount of municipal solid waste that would require disposal at the Highway 59 Landfill. As discussed above, Highway 59 Landfill has a remaining capacity of 22.6 million cubic yards, and it is estimated that capacity will be reached in approximately 2065. In addition, an expansion of the landfill is planned, which would add approximately 6,857,000 cubic yards capacity and extend the life of the landfill by about 15 years. In 2016, the Merced County Regional Waste Management Authority certified an EIR (SCH No. 2014061081) for the expansion of the Highway 59 Landfill.

While full development of the campus would generate more solid waste than existing conditions, it is anticipated that UC Merced will attain its zero-waste goal and eventually very little solid waste would be disposed of in a landfill. In the event that UC Merced does not meet its zero-waste goal, based on the existing diversion rate of 43 percent, UC Merced would dispose of about 500 tons of waste in the landfill at buildout. Given the relatively small amount of municipal solid waste that would be generated by the proposed project and the large amount of remaining capacity in the landfill, it is anticipated that Highway 59 Landfill would be able to accommodate the solid waste disposal needs of eastern Merced County through 2065. Therefore, cumulative development, including the proposed project, would result in a less than significant cumulative impact on the regional landfill capacity.

Mitigation Measures: No mitigation is required.

Cumulative Impact C-UTL-4: Development of the campus under the 2020 LRDP, in conjunction with other past, present, and reasonably foreseeable future development in the project area, would not result in a significant cumulative impact related to construction of new or expanded electrical and natural gas facilities. (*Less than Significant*)

The study area for a potential cumulative impact related to provision of electrical and natural gas service is eastern Merced County. As discussed above, the campus is a part of the California Independent System Operator's Fresno local area. PG&E provides electricity to the City of Merced and to the campus. There are three PG&E transmission lines near the campus site: the 230-kilovolt (kV) Belotta-Herndon line that originates at the Wilson Substation south of Childs Avenue and terminates north of Bellevue and west of Highway 59; the 115-kV Wilson-Atwater line; and the 70-kV Merced-Merced Falls line.

PG&E currently supplies Merced County, including the existing UC Merced campus, with natural gas. The main pipeline serving the City of Merced is an 8-inch-diameter transmission pipeline that parallels Highway 99 through Merced. The campus is connected to the regional natural gas distribution system via a pipeline aligned along Lake Road. Additional distribution lines and hookups are generally constructed on an as-needed basis.

As discussed above, UC Merced plans to minimize energy use, increase on-site generation of renewable energy, and minimize its dependence on the grid. Campus development under the 2020 LRDP would not require construction of new transmission lines or natural gas pipeline and would not contribute to any environmental impacts from the construction of such facilities.

With respect to environmental impacts from the off-site generation of electricity that would be used by the campus and other new development in eastern Merced County, there is no evidence that the demand would result in the construction of new electric and/or natural gas generating facility, such as a power plant. Because electricity and natural gas can be transmitted for long distances, these can be obtained from a wide range of sources, both in and out of California. As a result of this characteristic, it would be speculative to assume cumulative development would generate the need for a new electric generating facility, or where new facilities would be located, or to evaluate environmental impacts resulting from the construction and operation of new facilities in California. In addition, before new power plants are approved in California, an environmental document would be prepared that analyzes and discloses environmental impacts from the construction and operation of any new power plants and imposes mitigation measures as conditions of project approval to address significant impacts. Therefore, the cumulative impact on electricity generating facilities would be less than significant and is not considered further in this SEIR.

Mitigation Measures: No mitigation is required.

4.10.7 References

- City of Merced. 2011. *Merced Vision 2030 General Plan Environmental Impact Report*. July.
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