

3.16

UTILITIES/SERVICES

3.16 Utilities/Services

This section of the Draft EIR analyzes the potential demands on Utilities and Service Systems generated by the proposed project and makes determinations of the significance of these impacts on the provider of these services.

3.16.1 SETTING

Environmental Setting

WATER SUPPLY

The Merced water system had its beginnings in the pioneer efforts of C. H. Huffman and Charles Crocker in 1868, when they established the Merced Water Company. The company was responsible for construction of Lake Yosemite. The first connections to the City of Merced in 1899 were made possible by a 16-inch line from Lake Yosemite. In 1917, the domestic water was changed to a well system and the largest capacity elevated storage tank in California was built (300,000 gallons).

In 1973, the City of Merced Water Division assumed operations from the privately owned Merced Water Company and has maintained operations ever since. The current system is composed of 21 groundwater production wells located throughout the City, approximately 284 miles of main lines, and 4 water tower tanks for storage of approximately 1.6 million gallons. Automated well operations ensure reliability and adequate system pressure, attempted to be maintained at 45 to 50 pounds per square inch (psi), at all times to satisfy customer demand; diesel-powered generators help maintain uninterrupted operations during power outage. The City is required to meet State Health pressure requirements, which call for a minimum of 20 psi at every service connection under the annual peak hour condition and maintenance of the annual average day demand plus fire flow, whichever is stricter. To keep pace with water supply demands, two new wells were added in 2006 and an additional well is presently under construction. The City of Merced Water system delivered 20.75 million gallons of drinking water per day in 2009 to approximately 20,269 residential, commercial, and industrial customer locations. The City of Merced Water Division is operated by the Public Works Department.

The City of Merced's wells have an average depth of 414 feet and range in depth from 161 feet to 800 feet. The depth of these wells would suggest that the City of Merced is primarily drawing water from a deep aquifer associated with the Mehrten geologic formation. Increasing urban demand and associated population growth, along with an increased shift by agricultural users from surface water to groundwater and prolonged drought, have resulted in declining groundwater levels due to overdraft. This condition was recognized by the City of Merced and the Merced Irrigation District (MID) in 1993, at which time the two entities began a two-year planning process to assure a safe and reliable water supply for Eastern Merced County through the year 2030.

Merced has engaged in a number of water planning forums, and actively participates in the various entities which share concerns for water supply in the area. In 1995, the *Merced Water*

Supply Plan was created, establishing goals for managing groundwater resources and for providing a continued, high quality supply of water. In 2001, the *Merced Water Supply Plan Update* was prepared. Both plans addressed the problems of water supply, which were compounded by the increasing demand for water from population growth, persistent drought, and a change by agricultural users from surface water to groundwater. These increased demands have resulted in a decrease in groundwater levels and have led to overdraft of the aquifer.

At the completion of the 1995 and 2001 plans, recommended actions to restore the aquifer were made, and a preferred alternative was identified. The preferred alternative indicated that the study area will remain on groundwater, with a goal that groundwater levels be stabilized at 1999 levels, by recharging the groundwater basin with imported surface water from the Merced River.

Further studies of the Merced Groundwater Basin were provided through the Merced Area Groundwater Pool Interests (MAGPI), formed in 1993. As a result of this research, in 1997, MAGPI published the *Merced Groundwater Management Plan*, which constitutes the City's groundwater management plan. The management plan was updated in July 2008.

Water needs within the Merced River, relative to fishery resources, were also evaluated and the study concluded that fishery resource needs within the Merced River are expected to dramatically increase. Conversely, agricultural needs are likely to decrease by 12 percent by the year 2030 in response to improved conservation practices and as the trend toward less water-intensive crops continue; however, it is anticipated that 90 percent of all permanent crops and 20 percent of field crops will be irrigated by private wells due to an increased cost in delivering surface water. This condition will place an increasing demand on the groundwater aquifers as agricultural interests' transition from surface water resources in favor of private wells.

In terms of water supply, the plan determined that if current patterns of water usage continue and no action was taken, groundwater levels would continue to decline, resulting in increasing costs and poor water quality. Concurrent with this activity, MID will increase the delivery of surface water to agricultural users along with new wells to protect against drought.

In 2005, the City adopted an Urban Water Management Plan (UWMP) as required by State law. The UWMP further describes the availability of water, and discusses water use, reclamation, and recycling activities. In addition to assessing the projected needs, the UWMP identifies a number of conservation practices which, when implemented, will relieve the pressure on groundwater supplies.

Issues that will need further study include the location and timing of construction of groundwater recharge facilities, which agency or agencies will operate and maintain these facilities, and what costs should be shared. It is indicated that by 2040, approximately 100,000 acre feet of recharge per year will be needed to maintain 1999 groundwater levels.

WASTEWATER TREATMENT

Wastewater (sanitary sewer) collection and treatment in the Merced urban area is provided by the City of Merced. The wastewater collection system handles wastewater generated by residential, commercial, and industrial uses in the City.

The City Wastewater Treatment Plant (WWTP), located in the southwest part of the City about two miles south of the airport, has been periodically expanded and upgraded to meet the needs of the City's growing population and new industry. The City's wastewater treatment facility has a capacity of 11.5 million gallons per day (mgd), with an average 2006 flow of 8.5 mgd. The City has initiated an expansion project to increase capacity to 12 mgd and upgrade to tertiary treatment with the addition of filtration and ultraviolet disinfection. Future improvements would add another 8 mgd in capacity (in increments of 4 mgd), for a total of 20 mgd. This design capacity can support a population of approximately 174,000. The collection system will also need to be expanded as development occurs.

Treated effluent is disposed of in several ways depending on the time of year. Most of the treated effluent (75% average) is discharged to Hartley Slough throughout the year. The remaining treated effluent is delivered to a land application area and the on-site City-owned wetland area south of the treatment plant.

STORM DRAINAGE

The *City of Merced Storm Drainage Master Plan* addresses the collection and disposal of surface water runoff in the City's 1997 SUDP. The study addresses both the collection and disposal of storm water. Systems of storm drain pipes and catch basins are laid out, sized, and costed in the plan to serve present and projected urban land uses. The City will need to update the 2002 Storm Drain Master Plan in order to address the proposed SUDP/SOI boundary.

It is the responsibility of the subdivider to insure that utilities, including storm water and drainage facilities, are installed in compliance with City regulations and other applicable regulations. Necessary arrangements with the utility companies or other agencies will be made for such installation, according to the specifications of the governing agency and the City (Ord. 1342 § 2 (part), 1980: prior code § 25.21(f)). The City requires the construction of storm water percolation/detention basins with new development. Percolation basins are designed to collect storm water and filter it before it is absorbed into the soil and reaches groundwater tables. Detention basins are designed to temporarily collect runoff so it can be metered at acceptable rates into canals and streams which have limited capacity. The disposal system is mainly composed of MID facilities, including water distribution canals and laterals, drains, and natural channels that traverse the area.

The City of Merced has been involved in developing a Storm Water Management Plan (SWMP) to fulfill requirements of storm water discharges from Small Municipal Separate Storm Sewer System (MS4) operators in accordance with Section 402(p) of the Federal Clean Water Act (CWA). The SWMP was developed to also comply with General Permit Number CAS000004, Water Quality Order No. 2003-0005-DWQ. The Merced Storm Water Group (MSWG) is a

coalition of municipalities consisting of the Cities of Atwater, Livingston, Merced, Merced County and the Merced Irrigation District. The SWMP will be implemented to limit, to the maximum extent practicable, the discharge of pollutants from the MSWG storm sewer system. Implementation of these control measures laid out in the SWMP is expected to result in significant reductions of pollutants discharged into receiving water bodies. The six control measures are addressed in separate sections of the SWMP.

Each control measure contains Best Management Practices (BMPs) necessary for proper storm water management. The BMPs contain specific tasks to meet the objective of that control measure. This SWMP is intended to be a living document with BMPs added and deleted as new management practices arise and management practices are found not to work. A schedule for implementing each BMP is provided at the end of each section.

SOLID WASTE

The City of Merced is served by the Highway 99 Landfill and the Highway 99 Compost Facility, located at 6040 North Highway 99, one and one-half miles north of Old Lake Road. The County of Merced is the contracting agency for landfill operations and maintenance, while the facilities are owned by the Merced County Association of Governments. The City of Merced provides services for all refuse pick-up within the City limits and franchise hauling companies collect in the unincorporated areas. In addition to these two landfill sites, there is one private disposal facility, the Flintkote County Disposal Site, at SR 99 and the Merced River. This site is restricted to concrete and earth material.

Regulatory Setting

FEDERAL

The federal Clean Water Act regulates the discharge of pollutants into surface waters. The City's waste water treatment system requires a National Pollutant Discharge Elimination System (NPDES) permit in order to discharge treated water.

STATE

Senate Bill 610 Urban Water Management Plans

SB 610 makes changes to the Urban Water Management Planning Act to require additional information in Urban Water Management Plans if groundwater is identified as a source available to the supplier. The information required includes a copy of any groundwater management plan adopted by the supplier, a copy of the adjudication order or decree for adjudicated basins, and if non-adjudicated, whether the basin has been identified as being overdrafted or projected to be overdrafted in the most current California Department of Water Resources (DWR) publication on that basin. If the basin is in overdraft, that plan must include current efforts to eliminate any long-term overdraft. A key provision in SB 610 requires that any project subject to the California Environmental Quality Act supplied with water from a public water system be provided a specified water supply assessment, except as specified in the law.

Senate Bill 221 Water Supply Verification

Senate Bill 221 (SB 221), passed in 2001, amended the California Water Code by prohibiting 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). This requirement also applies to increases of 10 percent or more of service connections for public water systems with less than 500 service connections. The law defines criteria for determining "sufficient water supply" such as using normal, single-dry, and multiple-dry year hydrology and identifying the amount of water that the supplier can reasonably rely on to meet existing and future planned uses. Rights to extract additional groundwater, if used for the project, must be substantiated.

California Urban Water Management Planning Act

The Urban Water Management Planning Act (§10610-10656 of the California Water Code) requires that all urban water suppliers prepare urban water management plans and update them every five years.

Assembly Bill 939 California Integrated Waste Management Act

To minimize the amount of solid waste that must be disposed of by transformation or land disposal, the State Legislature passed Assembly Bill 939 (AB 939), the California Integrated Waste Management Act of 1989, effective January 1990. According to AB 939, all cities and counties in California were required to divert 25% of all solid waste from landfill or transformation facilities by January 1, 1995, and 50% by January 1, 2000 through source reduction, recycling and composting, and environmentally safe transformation.

Assembly Bill 1327 (AB 1327) California Solid Waste Reuse and Recycling Access Act

The Solid Waste Reuse and Recycling Access Act of 1991 required each jurisdiction to adopt an ordinance by September 1, 1994 requiring each development project to provide an adequate storage area for collection and removal of recyclable materials.

Groundwater Management Act

The Groundwater Management Act, Assembly Bill 3030 (AB 3030), signed into law in 1992, established provisions by which local water agencies could develop and implement groundwater management plans (GMP's).

LOCAL

General Plan Consistency

The *Merced Vision 2030 General Plan* contains a number of policies that apply to utilities and service systems impacts in conjunction with ultimate buildout of the City in accordance with the General Plan. The specific policies listed below contained in the Urban Expansion, Land Use, Public Services and Facilities, Open Space, Conservation, and Recreation, Housing and Safety Elements of the General Plan are designed to ensure that utilities and service systems impacts are

minimized as development occurs in accordance with the *Merced Vision 2030 General Plan*. The *Merced Groundwater Management Plan* and the *Merced Water Supply Plan* also provide policy and direction aimed at ensuring that there is sufficient water available to serve the City's projected 2030 population.

Urban Expansion Policies:

UE-1.2 Foster compact and efficient development patterns to maintain a compact urban form.

UE-1.5 Promote annexation of developed areas within the City's Specific Urban Development Plan (SUDP)/Sphere of Influence (SOI) during the planning period.

Land Use Policies:

L-1.9 Ensure connectivity between existing and planned urban areas.

L-3.2 Encourage infill development and a compact urban form.

Public Services and Facilities Policies:

P-1.1 Provide adequate public infrastructure and municipal services to meet the needs of future development.

P-1.2 Utilize existing infrastructure and public service capacities to the maximum extent possible and provide for the logical, timely and economically efficient extension of municipal infrastructure and services where necessary.

P-1.3 Require new development to provide or pay for its fair share of public facility and infrastructure improvements.

P-3.1 Ensure that adequate water supply can be provided within the City's service area, concurrent with service expansion and population growth.

P-3.2. In cooperation with the County and the Merced Irrigation District, work to stabilize the region's aquifer.

P-4.1 Provide adequate wastewater collection, treatment and disposal capacity for existing and projected future needs.

P-4.2 Consider the use of reclaimed water to reduce non-potable water demands whenever practical.

P-5.1 Provide effective storm drainage facilities for future development.

P-5.2 Integrate drainage facilities with bike paths, sidewalks, recreation facilities, agricultural activities, groundwater recharge, and landscaping.

- P-6.1** Establish programs to recover recyclable materials and energy from solid wastes generated within the City.
- P-6.2** Minimize the potential impacts of waste collection, transportation and disposal facilities upon the residents of Merced.

Open Space, Conservation, and Recreation Policies:

- OS-5.1** Promote water conservation throughout the planning area.

Safety Policies:

- S-2.2** Encourage the improvement of all public facilities and infrastructure such as natural gas, fuel, sewer, water, electricity, and railroad lines and equipment with up-to-date seismic safety features.
- S-2.3** Restrict urban development in all areas with potential ground failure characteristics.

3.16.2 THRESHOLDS OF SIGNIFICANCE

According to Appendix G of the CEQA Guidelines, the proposed project is considered to have a significant impact on the environment if it will:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments
- Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs
- Comply with federal, state, and local statutes and regulations related to solid waste

3.16.3 IMPACTS AND MITIGATION MEASURES

Impact #3.16-1: The proposed project would result in the exceedance of wastewater treatment requirements of the CVRWQCB

Discussion/Conclusion: Implementation of the proposed General Plan would be expected to result in additional growth requiring additional wastewater treatment capacity. Effluent from the City's WWTP is currently regulated by the CVRWQCB under a Discharge Permit for the City of Merced. As of 2008, the City's WWTP has a flow capacity of 11.5 mgd (and permitted capacity of 20 mgd), with an average 2008 flow of 8.5 mgd. Peak flows into the wastewater treatment plant have been measured near 20 mgd. The Merced WWTP currently discharges at several locations, including Miles Creek, the Merced Wildlife Management Area, Hartley Slough and the Land Application Area. The City plans to increase this design flow capacity through three phases to an ultimate capacity of 20 mgd of tertiary effluent. According to the EIR prepared for the WWTP expansion (ESA, August, 2006), wastewater demand in Merced is 115 gallons per day per capita. The expanded WWTP (at 20 mgd) would be able to serve a population of approximately 174,000, which is more than 12% higher than the projected 2030 population of 155,000 (Sphere of Influence est.).

The proposed General Plan includes Policy P-4.2 which calls for the City to consider the use of reclaimed water to reduce non-potable water demands whenever practical. Implementing Action 1.2.b of Policy P-1.2 says that as long as it remains cost-effective, existing facilities (such as the WWTP) should be expanded at their present location to save the cost of obtaining and constructing new facilities.

All planned WWTP improvements must continue to comply with Federal water quality, waste discharge, and total maximum daily load standards defined under the Clean Water Act and the City's Discharge Permit. The 2008 discharge permit (Order nos. 2008-0027 and 2008-0028) is for 11.5 mgd (secondary treatment) and three phases of tertiary treatment to 20 mgd. Since the City is required to comply with the CVRWQCB when expanding the WWTP to support the General Plan, implementation of the General Plan would not result in exceeding CVRWQCB wastewater treatment requirements. The impact is considered ***less than significant***.

Mitigation Measures

No mitigation measures are required.

Impact #3.16-2: The proposed project would require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects

Discussion/Conclusion: Implementation of the proposed General Plan would result in additional City urban development within the proposed SUDP/SOI. This future development would result in the need for additional water supply facilities through either the construction of new facilities or through the expansion or retrofitting of existing facilities. These facilities could include water

treatment facilities, pipelines, groundwater wells, pump houses, and so forth. As water use increases, facilities that recycle used water may also be needed depending upon the needs of the public water service provider. A Water Master Plan, being prepared for 2010-11 completion after the General Plan is adopted, will provide a water system capital improvement program. The site specific impacts of these facilities cannot be determined until such time that the specific types of facilities and their specific locations are identified and undergo their own specific environmental review. All future water delivery and treatment infrastructure will require additional project-level CEQA environmental review. This may be conducted as part of the specific development project, or as a stand-alone infrastructure project. Any resulting environmental impacts will be addressed through mitigation measures identified in the relevant environmental document.

The proposed General Plan includes several policies and standards designed to address a variety of environmental impacts associated with the development of new water treatment and conveyance facilities. Policy UE-1.2 will foster compact and efficient development patterns to maintain a compact urban form. Policy OS-5.1 promotes water conservation throughout the planning area. Policies P-1.1 and P-1.2 call for the City to provide adequate public infrastructure and services to meet the needs of future development and utilize existing infrastructure and public service capacities to provide for the logical, timely and economically efficient extension of infrastructure and services where necessary. Policy P-1.3 requires new development to provide or pay for its fair share of public facility and infrastructure improvements. Policy P-3.1 will ensure that an adequate water supply can be provided within the City's service area, concurrent with service expansion and population growth. In addition, the various water management plans by the City identify a number of Best Management Practices (BMPs), designed to reduce water waste and consumption. Implementation of these policies and practices will reduce the impact to the environment to ***less than significant***.

The City of Merced has already anticipated the need for additional wastewater treatment capacity. Plans for doubling the capacity of the current treatment plant from 10 mgd to 20 mgd have already been completed, and an EIR prepared and certified. The impacts associated with construction and operation of the treatment plant are identified in the EIR, and the mitigation measures will need to be implemented. Approval from the California State Water Resources Control Board was obtained in April of 2008. This additional capacity will exceed the anticipated waste water generation of the City's proposed 2030 population. As this project has already been approved, the impact is ***less than significant***. Extension of the collection system is analyzed in the 2002 and 2007 Wastewater Collection System Master Plan. The 2007 draft will need to be completed once the SUDP/SOI boundary is approved. Construction of the system will require project-level CEQA review.

Mitigation Measures

No mitigation measures are required.

Impact #3.16-3: The proposed project would require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects

Discussion/Conclusion: Merced is located in an area with little topographical relief. This results in poor drainage and potential flooding during peak storm events. The City presently relies on a combination of natural drainage courses, MID canals and storm water retention basins to manage storm waters. Urban expansion will require development of new long-term storm water facilities in the City's urban area. The City is committed to providing overall coordination for the management of storm water within its urban limits and working cooperatively with other agencies in resolving regional storm water management issues.

Development can cause significant increases in peak flow and runoff volume. Increases in peak flow and volume can be an additional 50 percent and higher when compared to undeveloped conditions. Due to the lack of peak flow capacity in the minor waterways and channels serving the Merced SUDP/SOI, most new development areas will require additional on-site, local area, or regional flood control facilities to mitigate for potential flow increases. Increasing the capacity of most existing streams and channels is considered impractical. Because of this, flood control detention/retention is considered the most viable option for mitigating the increase in runoff from new development areas where creek capacity is limited.

Regional detention facilities can be used to provide not only flood control storage, but also storm water quality treatment and, in some circumstances, can also be used as active and passive recreation areas. Regional joint-use basins can provide better land use efficiency and provide for consolidated maintenance that can reduce overall maintenance costs. At a minimum, the basins should be used to provide flood control and storm water quality mitigation, but should also be considered for recreational uses, when appropriate.

The proposed General Plan includes a number of policies and standards and implementing actions designed to provide for an adequate storm drainage collection and disposal system in the City of Merced. Policy P-1.3 requires new development to provide or pay for its fair share of public facility and infrastructure improvements. Policies P-5.1 and P-5.2 call for the City to provide effective storm drainage facilities for future development and integrate those facilities with bike paths, sidewalks, recreation facilities, agricultural activities, groundwater recharge and landscaping. Implementing Action 5.1.a of Policy P-5.1 states that the City will continue to implement the City's Storm Water Master Plan and the Storm Water Management Plan and its control measures. Implementing Action 5.1.b states that the City will work with MID and the County to update the City's Storm Water Master Plan to account for changes in expected storm drainage runoff due to expanded land uses within the Merced area. Implementing Actions 5.1.c and 5.1.d call for the City to continue to require all development to comply with the 2002 *Storm Water Master Plan* and subsequent updates and that installation of facilities necessary to provide services to development projects will be based on the full buildout scenario. Implementing Actions 5.2.a and 5.2.b of Policy P-5.2 call for the City to provide drainage channels in transportation or canal easement areas to the extent feasible and that storm water facilities be designed and constructed in accordance with the standards in the Parks and Open Space Master

Plan and Storm Water Master Plan. With implementation of the policies identified in the 2030 General Plan, and utilization of Best Management Practices from the *Storm Water Management Plan*, the impact is ***less than significant***.

Mitigation Measures

No mitigation measures are required.

Impact #3.16-4: The proposed project would require new or expanded water supply entitlements

Discussion/Conclusion: Growing urban areas will place increased demands on the area's water supplies and increased pressure on water purveyors to provide for the reliable delivery of high-quality drinking water to homes and industry throughout the planning area. The purpose of long-range water supply studies, such as the Merced Water Supply Plan, is to identify actions required to meet future urban, agricultural, and environmental water needs. These needs can vary, depending on the eventual outcome of a multitude of fluctuating demands on the area's water resources – some outside of the control of the study's sponsoring agencies.

The Merced Water Supply Plan Update (2001) examined the availability of water within a 582,000 acre area bounded by the San Joaquin River, the Merced River, the Stanislaus County line, the Mariposa County Line, and the Chowchilla River. About half of the study area lies within MID's boundaries which include the cities of Merced, Atwater and Livingston and unincorporated lands. The 1995 report concluded that through a mixture of groundwater and surface water resources, there would be adequate supplies to meet projected needs through the year 2030. The report noted; however, that due to increased demands on groundwater sources, the area would most likely experience continued declines in groundwater levels unless a groundwater recharge program was initiated.

The goals of the 1995 plan remain the same in the 2001 plan. Those goals are as follows:

1. Manage groundwater resources
2. Provide high quality, reliable supply for cities
3. Protect and enhance economic base
4. Protect Merced ID's Merced River water rights
5. Maintain consensus on water supply plan

Based on data developed for the City of Merced, MID, and UC, Merced, and contained in the 1995 and 2001 Water Supply Plans, there is sufficient water to support urban development within the Merced urban area at General Plan buildout.

The major issues in the study area, according to the 2001 Plan, are increased population, regulatory changes, water use trends, groundwater changes and UC Merced related growth. The common solutions, according to the Plan, are: intentional recharge; drought relief wells; incentives and related system improvements; surface water conservation and automation;

agricultural capacity improvements; urban capacity improvements; urban water conservation; and urban groundwater to surface water conversion.

In 1990, the total annual water demand in the 500,000 acre MID service area amounted to 1,022,000 acre feet. This is projected to increase to 1,160,000 acre feet per year by 2040 according to the 2001 Water Supply Plan Update. This total demand over the 50-year period is 13 percent, depending on the extent of increased in-stream flow demands. While the report concludes that there are sufficient water resources to meet these demands, the increased demands on the groundwater resources from urban and agricultural pumping could result in a 1,500,000 acre foot depletion in area groundwater reserves. This would translate into a 70 foot decline in the groundwater level around the City of Merced. The impacts of this trend are:

- Additional pumping costs to urban and agricultural interests.
- Potential land subsidence in the area.
- Loss of underground reservoir capacity to support drought cycle needs.
- Possible spreading of existing groundwater pollutants.
- Potential need to establish some sort of state regulatory authority of the use of groundwater.
- Reduction in the economic vitality of the region.

According to the City's 2005 Urban Water Management Plan (UWMP), the 2005 annual water demand for the City of Merced's SUDP/SOI, during a normal year, was 30,118 acre-feet per year (afy). This calculation includes water for residential, commercial, industry, the UC Merced campus and unaccounted for water (reference Table 3-6 in the UWMP). By 2025, water demands are expected to increase by approximately 85 percent, from 30,118 afy in 2005 to 55,677 afy in 2025. A significant proportion of the water demand increase is a direct result from UC Merced growth. Impacts to water use due to any conservation measures implemented in the future are not reflected in the projected water demands.

Water conservation is a method available to reduce water demands, thereby reducing water supply needs for the City. The City implements the following BMPs, as outlined in the *Memorandum of Understanding Regarding Urban Water Conservation in California*, and listed in the City's 2005 UWMP:

- System water audits, leak detection, and repair.
- Metering with commodity rates for all new connections and retrofit of existing connections.
- Public information programs.
- School education programs.
- Conservation pricing.
- Water Conservation Coordinator
- Waste water prohibition

Several policies and implementing actions included as part of the proposed General Plan that would minimize this impact through the early identification of required infrastructure and the orderly construction and rehabilitation of the facilities needed to serve existing and planned urban areas are summarized below. For example, policies P-3.1 and P-3.2 call for the City to

ensure that an adequate water supply be provided within the City's service area, concurrent with expansion and population growth and that the City cooperates with the County and MID to stabilize the region's aquifer. Implementing Actions of Policy P-3.1 include pursuing innovative programs to reduce the demand for potable ("drinkable") water (3.1.a); update the City's Water Master Plan and Urban Water Management Plan as needed for the SUDP/SOI (3.1.b); review the current water system maintenance program and coordinate planned water main replacements with the updated Water Master Plan (3.1.c); continue to work with MID and the County to ensure that adequate water supply and distribution facilities can be developed to meet the growth of the Merced metropolitan area (3.1.d); continue to support policies and programs which prohibit the use of private wells and water systems within the City limits (3.1.e); plan and design water facilities to efficiently serve the City's urban area (3.1.f); the City shall not extend water service outside its incorporated limits (3.1.g), and the City will convert flat-rate water services to water meters in compliance with the California State Water Code Section 527.

Implementing Actions of Policy P-3.2 include working closely with the State and County agencies in exploring innovative technology and procedures for water conservation and recycling (3.2.a); working cooperatively with MID to preserve and enhance its surface water delivery system (3.2.b); exploring the use of MID water resources for applications that do not require treated water to reduce demand on the regional groundwater supplies and reduce costs of water treatment (3.2.c); cooperating with MID and the County in the development of groundwater recharge facilities (3.2.d); and obtaining, purchasing or preserving rights to open space such as transitioning agriculture lands for proposed major treatment plants, groundwater recharge and storage facilities (3.2.e).

The City of Merced must continue to work closely with the MID in order to ensure that water resources remain stable. The City of Merced is committed to a program of cooperating in the long-term management of the area's water resources and utilizing policies and programs which conserve and manage water use in such a manner as to maintain the potable quality of the City's system and reduce treatment costs on applications which do not require the use of treated water.

Implementation of the proposed General Plan policies and implementing actions noted above, the continuation of water conservation measures and BMPs, and adherence to State and local regulations will reduce the potential impact on the City's future water supply. Even though groundwater levels will decrease in the region, the proposed General Plan will not require new or expanded water entitlements which would result in a significant environmental impact. The impact is therefore *less than significant*.

Mitigation Measures

No mitigation measures are required.

Impact #3.16-5: Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Discussion/Conclusion: As discussed above under Impact #3.16-1, the WWTP is currently being upgraded to provide additional capacity. An EIR has been prepared and certified (SCH No. 2005101135), and the state Water Quality Control Board has issued an approval. As of 2008, the City's WWTP has a flow capacity of 11.5 mgd, with an average 2008 flow of 8.5 mgd. Peak flows into the wastewater treatment plant have been measured near 20 mgd. The project will take place in three phases, with the first adding 1.5 mgd to existing capacity (already completed). Subsequent phases will increase capacity to 16 mgd, and finally the full 20 mgd. The expansion will accommodate the City's planned growth and a population of 174,000, which is more than 12% higher than the projected 2030 population of 155,000 (Sphere of Influence est.).

According to the City of Merced Sewer Collection Master Plan, through the modeling process, it was determined that the existing wastewater collection system in the City does not have the capacity to handle wastewater flows from buildout of the City limits, UC Merced, Campus Community, and the SUDP/SOI. Serving all of these areas will require construction of several large trunk sewers. Building large trunk sewers to serve these areas involves long-term planning, which makes these sewers unavailable to development occurring within the next few years. The Sewer Collection Master Plan outlines solutions for serving near-term development with existing infrastructure. Areas planned for improvements/interim options include two existing trunks in north Merced; the sewer trunk along G Street serving UC Merced; the Highway 59 pump station and trunk; and two trunks currently serving South Merced, Gerard Avenue Trunk and the West Avenue Trunk.

The Sewer Master Plan also outlines long-term system needs. Due to the capacity limitations of the existing sewer system, large trunk sewers must be built to accommodate future development in the proposed SUDP/SOI. Recommended trunk sewers would be aligned along the following roads:

- 1) Mission/Vassar Avenue: Would service future development in South Merced and relieve peak flows in the existing Gerard Avenue trunk as necessary. Pump station would be required to serve areas north of Bear Creek (on the east side of the City). A parallel sewer along Vassar would serve buildout of the SUDP/SOI study area.
- 2) Cardella Road: Would serve portions of the northern part of the SUDP/SOI between Cardella and Bellevue Roads as well as UC Merced and the Campus Community. Inverts and slopes selected for to avoid a pump station at Fahren's Creek.
- 3) Bellevue Road: Would serve portions of the SUDP/SOI in North Merced and would terminate at the Cardella trunk.
- 4) Thornton Road: After collecting flows from the Cardella trunk, would extend south to the WWTP. Would collect flows from portions of the SUDP/SOI and. Includes a pump station (Thornton Pump Station) just north of Bear Creek.

Depending on the growth rate of the City, the buildout of the service area might represent a 50 year or more development horizon. As a result, the City may elect to phase all or a portion of the trunk sewers to better match capacity needs with cash flows from development.

The proposed General Plan includes a number of policies and implementing actions to provide for an adequate wastewater collection, treatment and disposal system in the City of Merced. Policy P-1.2 calls for the City to utilize existing infrastructure and capacities to the maximum extent possible and provide for the logical, timely and economically efficient extension of infrastructure. Policy P-1.3 requires new development to provide or pay for its fair share of public facility and infrastructure improvements. Policy P-4.1 calls for the City to provide adequate wastewater collection, treatment and disposal capacity for existing and projected future needs. To reduce potable water demands, the City will consider the use of reclaimed water whenever practicable (Policy P-4.2). Implementing Actions of Policy P-4.1 include maintaining and enhancing the existing wastewater system to increase its lifetime (4.1.a); developing and maintaining wastewater master plans to Merced's future expansion (4.1.b); coordinating wastewater planning activities with the County (4.1.c); and prohibiting the extension of wastewater service outside of City limits, except in unique circumstances (4.1.d). Implementing Actions of Policy P-4.2 call for the City to consider the development of reclaimed water systems, including pipelines, pump stations and storage ponds (4.2.c); consider conducting a reclaimed water market study to identify potential users (4.2.b); and consider preparing a plan for the use of reclaimed water which evaluates the facilities and costs required to serve potential users, determines required capacities of facilities, and presents an implementation plan (4.2.c).

As stated above, the City will continue to implement a variety of policies and implementation actions designed to ensure that new development projects plan and finance future required wastewater infrastructure consistent with adopted City-wide master and specific plans. Therefore, implementation of the proposed General Plan would result in a *less than significant* impact.

Mitigation Measures

No mitigation measures are required.

Impact #3.16-6: The proposed project would increase demand for solid waste disposal services

Discussion/Conclusion: Solid waste removal services for the plan area will be provided by the City of Merced. Waste will be hauled to the Merced County Highway 59 Landfill. The Highway 59 Landfill was expanded in 2001, and no further expansion of the facility is currently planned. The landfill permitted capacity after the expansion is 30 million cubic yards, with a maximum permitted disposal rate of 1,500 tons per day. According to the CIWMB, in 1999 the Highway 59 Landfill had approximately seven percent remaining capacity. After the expansion of the facility in 2001, as of September 1st, 2005, the Highway 59 Landfill had a remaining capacity of 28 million cubic yards or 93 percent according to the CIWMB. The proposed General Plan will result in the construction of additional residential, commercial, public and industrial uses. The recent expansion of the Highway 59 Landfill allowed this facility to increase its capacity and serve the City and the County until 2030 as an expected close date.

The proposed General Plan includes policies to establish programs to recover recyclable materials and energy from solid wastes generated within the City and to minimize the potential

impacts of waste collection, transportation and disposal facilities upon the residents of Merced (Policies P-6.1 and P-6.2). Implementing Actions of Policy P-6.1 call for the City to continue to implement source reduction and recycling programs to minimize waste at the point of manufacture or use (6.1.a); work with Merced County Regional Waster Management Authority officials in seeking federal and state funds for projects utilizing resources and material recovery processes (6.1.b); and to participate in resource and material recovery studies (6.1.c). Implementing Actions of Policy P-6.2 call for the City to site intermediate waste processing facilities and materials recycling facilities in heavy commercial or industrial areas, with access to major roadways (6.2.a); to cooperate with the Merced County Regional Waster Management Authority to implement recommendations for source reduction programs which have the least environmental and economic impacts on the City and its residents (6.2.b); and to continue to implement programs in cooperation with the County to meet solid waste diversion goals.

Policies of the proposed General Plan will help reduce the amount of solid waste generated and increase recycling efforts in the City. The landfill has available capacity to service the General Plan through buildout. The solid waste generated as a result of General Plan adoption will have a *less than significant* impact on solid waste services for the County of Merced.

Mitigation Measures

No mitigation measures are required.

Impact #3.16-7: Will the proposed project comply with federal, state, and local statutes and regulations related to solid waste?

Discussion/Conclusion: In compliance with AB 939, the City continues to divert solid waste from local landfills through various conservation, recycling, and composting measures, including curbside recycling programs. The City complies with all other federal, State, and local statutes and regulations related to solid waste and will continue to do so in the future.

Policies and implementation actions included as part of the proposed General Plan that address additional solid waste handling services are summarized above under Impact #3.16-6. With implementation of the above mentioned policies and implementation actions, this impact is considered *less than significant*.

CUMULATIVE IMPACT ANALYSIS

Water Supply and Delivery

Future growth in the City and County would generate an additional demand for water. As previously described above, groundwater will be the primary source of potable water throughout the County. In 1990, the total annual water demand in the 500,000 acre MID service area amounted to 1,022,000 acre feet. This is projected to increase to 1,160,000 acre feet, within the 582,000 acre expanded study area, per year by 2040 according to the 2001 Water Supply Plan Update. This total demand over the 50-year period is 13 percent, depending on the extent of increased in-stream flow demands. While the report concludes that there are sufficient water

resources to meet these demands, the increased demands on the groundwater resources from urban and agricultural pumping could result in a 1,500,000 acre-foot depletion in area groundwater reserves. This is a **significant cumulative** impact to water supply and delivery.

Wastewater

Future growth would result in demand for wastewater services throughout the region; however, only growth within the City of Merced and its SOI/SUDP would result in the need for the City to construct additional wastewater facilities, resulting in additional environmental impacts. Since the proposed General Plan includes policies to tie development with the provision of utilities and to avoid creating a project-level significant impact associated with wastewater availability, the proposed General Plan would **not contribute to a cumulative impact** associated with the provision of wastewater service.

Stormwater

Future regional growth would result in increased demand for additional stormwater drainage infrastructure throughout the County; however, only growth within Merced's proposed SOI/SUDP would result in the need for the City to construct additional stormwater drainage infrastructure, resulting in additional environmental impacts. The above program-level analysis for the proposed General Plan concluded that due to the uncertainties about future facilities and their locations, potential impacts resulting from the construction and expansion of any required public utility facilities or infrastructure remain significant. No additional feasible mitigation is currently available given the fact that future facilities have not been designed. The cumulative impact of additional stormwater drainage infrastructure is also considered **cumulatively significant**.

Solid Waste

Growth within Merced County would contribute to the need for adequate solid waste disposal facilities. As discussed for the project-level analysis, the Highway 59 Landfill has adequate capacity until 2030. The cumulative population growth within the County was considered when evaluating the lifespan of the facility and planning for future expansions. As a result, it can be concluded that there would be adequate capacity to support regional increases in population, and a **significant cumulative impact would not occur**.