4.16 UTILITIES and SERVICE SYSTEMS

This section evaluates potential impacts to water supply, wastewater, and solid waste service. Section 4.9, *Hydrology and Water Quality,* addresses potential impacts related to stormwater runoff, flooding, and surface water quality.

4.16.1 Setting

a. Water Supply. Development in Tuolumne County receives water primarily from public utilities such as Tuolumne Utilities District (TUD) and Groveland Community Services District (GCSD) and also from local groundwater. The water supply varies from year to year based on the amount of rain and snowfall in the Sierra Nevada Mountains. As discussed in the updated Safety Element, the County is currently experiencing a multi-year drought. Inadequate rainfall and snowpack reduces the runoff to the reservoirs supplying most of the potable water in the County. The reserved pools of water in those systems are not of adequate size to withstand a sustained drought of multiple years without either adding to the supply or rationing the water. On February 4, 2014 the Tuolumne County Board of Supervisors declared a local state of emergency due to drought conditions.

Tuolumne Utilities District. The public water system providing service to most residents in Tuolumne County is operated by the Tuolumne Utilities District (TUD). Actually an agglomeration of numerous large and smaller systems under TUD ownership and operation, TUD provides water either directly or indirectly to most of the developed portions of Tuolumne County. TUD serves about 44,000 residents, which represents about 81% of the County's total population including the City of Sonora (TUD, 2015).

The District's service area occupies approximately the northerly two-thirds of Tuolumne County bounded on the west by the North Fork and Main Stem of the Stanislaus River along the Tuolumne County and Calaveras County boundary, on the north by Alpine County, on the east by Mono County and Yosemite National Park, on the south by the Tuolumne River, and on the southwest by Stanislaus County. This service area does not include the communities of Groveland and Big Oak Flat, which (as described below) receive potable water from the Groveland Community Services District (GCSD), or Lake Don Pedro, which receives potable water from the Lake Don Pedro Community Services District.

Approximately 96% of TUD's water supply consists of surface water that originates as rainfall and runoff from snowpack in the Sierra Nevada Mountains (TUD, 2014). Snowmelt runs through the South Fork Stanislaus River, filling PG&E's Pinecrest and Lyons reservoirs; while TUD has no independent water rights, it obtains water from these reservoirs (TUD, 2015). The remaining 4% of water supply is met with groundwater from 30 wells either as a primary source or a backup source. However, the groundwater supply is limited due to the hard, impermeable bedrock that covers most of Tuolumne County (TUD, 2011). The California Department of Water Resources' Bulletin 118, which provides a detailed description of groundwater basins in California, does not identify any groundwater basins in the County. Approximately one-third to two-thirds of the treated potable water is produced by the District's largest treatment plant, in Sonora.

Table 4.16-1 shows current water demand (from 2010 data) and projected water demand for the year 2035 in TUD's service area. Total demand for treated water is approximately 5,331 acre-feet per year and is projected to reach 9,750 acre-feet per year in 2035, including unaccounted-for system losses and wholesale deliveries (TUD, 2011). Overall water demand is currently 15,513 acre-feet per year and projected to be 26,074 acre-feet per year in 2035. Average per capita water use was 173 gallons per day between 2006 and 2010.

Table 4.16-1.
Water Demand in TUD Service Area

Category	2010 Water Demand (AFY)	2035 Water Demand (AFY)
Treated Water		
Treated water sales		
Single-family residences	3,106	5,843
Multi-family residences	319	826
Commercial	351	618
Institutional/governmental	347	476
Landscape	71	103
Industrial	3	4
Subtotal	*4,197*	*7,870*
Additional treated water uses and losses	926	1,522
Wholesale deliveries	208	358
Raw and Recycled Water		
Agriculture irrigation as raw water	2,366	3,505
Agriculture irrigation as recycled water	1,850	2,794
Wholesale deliveries	501	713
Additional raw water uses and losses	5,465	9,312
Total	**15,513**	**26,074**

Source: TUD, 2010 UWMP (Table 6-5), 2011.
Notes: AFY = acre-feet per year

TUD's 2010 Urban Water Management Plan (UWMP) summarizes the results of modeling to forecast the District's surface water availability under a normal hydrologic year, the single driest hydrologic year, and a period of three consecutive dry years. Based on minimum targeted storage levels of 1,200 acre-feet at Lyons Reservoir and 3,500 acre-feet at Pinecrest Lake, TUD estimates the available surface water supply during multiple-dry water years to be between 26,600 and 27,650 AFY. Even with water demand projected to increase to 26,074 AFY in the year 2035, TUD estimates that the total water supply would exceed demand by 5% at that time (a surplus of 1,298 AFY).

Chapter 8 of the 2010 UWMP describes TUD's water shortage contingency plan. As shown in Table 4.16-2, TUD has grouped the actions to be taken during a water shortage into three phases that are based on the water supply conditions. This three-phase rationing plan includes both voluntary and mandatory rationing, depending on the causes, severity, and anticipated durations of the water supply shortage.

Table 4.16-2.
Water Supply Shortage Stages and Conditions

Phase No.	Water Shortage Supply Conditions	Shortage Percent
I	Minimum – ongoing water management	0
II	Moderate to critical – conservation measures during low water years	0-50
III	Critical – restricting use of potable water[1]	50+

Source: TUD, 2010 UWMP (Table 8-1), 2011.
1. Per Regulation 12, TUD may implement Phase III "whenever it determines that the amount of available water supply may be less than the projected water system demand."

Due to ongoing drought conditions, TUD imposed Phase III Water Restrictions on April 28, 2015. Table 4.16-3 shows the methods that TUD can use to reduce water consumption during water supply shortages.

Table 4.16-3.
TUD's Methods to Reduce Water Consumption

Consumption Reduction Method	Phase When Method Takes Effect
Demand reduction program	All phases
Use prohibitions	All phases
Plumbing fixture replacement	All phases
Water conservation kits	All phases
Education programs	All phases
Voluntary rationing	I, II
Restrict building permits; restrict for only priority use	II, III
Mandatory rationing	II, III
Reduce pressure in water lines; flow restriction	III
Water shortage pricing; per capita allotment by customer type	III
Incentives to reduce water consumption; excess use penalty	III

Source: TUD, 2010 UWMP (Table 8.5), 2011.

Under the current Phase III Water Restrictions, TUD set a mandatory 25% water reduction as of August 11, 2015, for all customers based upon their water usage of 2013 (TUD, 2015). To help achieve this reduction, the agency has imposed several methods shown in Table 4.16-3. Restrictions in water use include limiting all outdoor irrigation between the hours of 7 pm and 10 am on certain days of the week, limiting restaurants from serving water to patrons unless they request it, and having the operators of hotels and motels provide guests with the option of not having towels and linens laundered daily. In addition, the following activities are prohibited during the current mandatory water restrictions:

- Using potable water to wash sidewalks, driveways, or other hard-surfaced areas unless needed for public health or sanitation;
- Allowing runoff when irrigating with potable water;
- Using hoses with no shutoff nozzles to wash cars, boats, trailers, equipment, or other vehicles;
- Using potable water in decorative water features that do not recirculate the water;
- Irrigating outdoors during and within 48 hours following measureable rainfall;

- Using water from hydrants for construction purposes or any purposes other than firefighting; and
- Using raw or potable water for dust control, earth compaction, and other construction uses, except at specific times and locations determined by TUD.

Due to the recent drought, in addition to the surface water supply historically allotted for use within the County from Lyon's Reservoir and Pinecrest Lake, TUD has identified potential sources of water for its customers. These sources include, but are not limited to, New Melones, wells, and mines which serve as underground reservoirs. TUD continues to consider additional sources of water and water storage to improve the reliability of its system.

Groveland Community Services District. For the southern portion of Tuolumne County, the Groveland Community Services District (GCSD) provides potable water to approximately 3,500 customers in the communities of Groveland, Big Oak Flat, and Pine Mountain Lake (GCSD, 2013). The water is withdrawn from the Hetch Hetchy Mountain Tunnel, under a long-term contract with the San Francisco Public Utilities Commission (SFPUC). The raw water is treated and distributed to approximately 3,500 customers (or about 6.4 percent of the County's population). The present contract has no limit on water quantities until the year 2034, and does allow limited expansion of the present GCSD boundary.

According to GCSD's 2010 Urban Water Management Plan, current water demand is approximately 155.04 million gallons per year, and the average per capita consumption was 130 gallons per day from 1995 through 2012. Because GCSD has a contract service area agreement with the San Francisco Public Utilities Commission (SFPUC) until 2034 and is located on the uppermost portion of their transmission system, GCSD and SFPUC estimate that sufficient quantities of water will be available from the Hetch Hetchy system to meet projected demands over the next twenty years, assuming a projected growth rate of 1.0 percent per year. The SFPUC system operations are designed for providing sufficient carry-over water in SFPUC reservoirs after six years of drought. Table 4.16-4 shows that GCSD's supply would greatly exceed demand in a multiple dry-year scenario through the year 2030.

Table 4.16-4.
Supply and Demand Comparison in GCSD Service Area – Multiple Dry-Year Scenario

		2015	2020	2025	2030
First Year Supply	Supply	3,217 AFY	3,651 AFY	3,867 AFY	4,082 AFY
	Demand	505 AFY	511 AFY	517 AFY	524 AFY
	Difference	***+2,713 AFY***	***+3,140 AFY***	***+3,349 AFY***	***+3,558 AFY***
Second Year Supply	Supply	3,217 AFY	3,651 AFY	3,867 AFY	4,082 AFY
	Demand	505 AFY	511 AFY	517 AFY	524 AFY
	Difference	***+2,713 AFY***	***+3,140 AFY***	***+3,349 AFY***	***+3,558 AFY***
Third Year Supply	Supply	3,217 AFY	3,651 AFY	3,867 AFY	4,082 AFY
	Demand	505 AFY	511 AFY	517 AFY	524 AFY
	Difference	***+2,713 AFY***	***+3,140 AFY***	***+3,349 AFY***	***+3,558 AFY***

Source: GCSD, 2010 UWMP (Table 5-3), 2013.

The SFPUC currently operates under a plan that anticipates three stages of response to water supply shortages. These responses range from voluntary customer actions, to enforced

rationing, to a third stage response strictly reserved for unprecedented drought periods. Due to the ongoing severe drought, the GCSD Board of Directors adopted a Phase IV Water Shortage Emergency and a *33% mandatory* conservation level on June 3, 2015 (GCSD, 2015).

Other Water Supplies. Two other water suppliers in Tuolumne County are the Twain Harte Community Services District (CSD) and the Lake Don Pedro CSD. The Twain Harte CSD, a water supplier for the community of Twain Harte, receives water from TUD. The Lake Don Pedro Community Services District (CSD) provides water service to the residents of Units 2 and 3 of the Lake Don Pedro Subdivision. Currently, their water supply is drawn from Lake McClure under an agreement with the Merced Irrigation District. Because the Lake Don Pedro Subdivision and CSD include property in both Tuolumne County and Mariposa County, only about one-third of the metered lots are within Tuolumne County. Quantifiable projections of water supply are not available for the Lake Don Pedro CSD, due to a lack of available data (TUD, 2013). The Lake Don Pedro CSD is forecasting that water levels in Lake McClure will drop substantially during the summer of 2015, in which the water level will be so low that the water pumps will no longer function and the District will run out of water in October 2015. Therefore, the agency has increased its mandatory water conservation from 30% to 50% for 2015. The agency also is drilling wells to augment the water supply from Lake McClure.

Groundwater is the only water supply source for many of the small water systems in Tuolumne County, particularly for rural residential development in outlying areas (TUD, 2013). The majority of small water systems that are regulated by the State Regional Water Quality Control Board rely exclusively on individual small capacity wells. Due to weather fluctuations and the nature of fractured rock, wells can prove unreliable during drought periods and difficult to establish in some parts of the County. The Tuolumne-Stanislaus Integrated Regional Water Management Plan of August 2013 determined that existing data are insufficient to quantify the total available sustainable groundwater supply (TUD, 2013). During the current drought, residents have reported more than 200 failing wells to the Tuolumne County Community Resources Agency as of May 2015.

b. Stormwater. Surface runoff of water during rainfall and snow events is defined as stormwater. If surface runoff overwhelms the capacity of stormwater conveyance systems, flooding can result. Due to the elevation gradient and existence of multiple upper watershed reservoirs, the Tuolumne-Stanislaus Regional Water Management Plan from August 2013 finds that severe flooding has not historically been a major concern in Tuolumne County (TUD, 2013). However, management and containment of localized flooding of creeks and tributaries, particularly in urban areas, and along some local roadways has been a challenge and many stormwater conveyance systems in Tuolumne County are in need of improvements to reduce the potential for catastrophic flooding. The Tuolumne County Community Resources Agency has identified areas of Sullivan, Sonora, Mormon, Woods, and Curtis Creeks to be problematic. Some more rural areas with county or ranch roads have low water fords which flood and prevent access at times.

c. Wastewater. Five wastewater collection and treatment systems operate in Tuolumne County: TUD, GCSD, Twain Harte Community Services District (CSD), Jamestown Sanitary District, and the Tuolumne Sanitary District.

Tuolumne Utilities District. The largest wastewater system in Tuolumne County is TUD's Regional Wastewater Treatment Plant (WWTP) in the City of Sonora, which receives flow from both the TUD and Twain Harte Community Services District wastewater collection systems (TUD, 2013). The Regional WWTP has a design capacity of 2.6 million gallons per day (mgd). During the current drought, the plant treats an average of 1.3 mgd of sewage; within the last decade, peak inflow has been 1.7 mgd (David Boatright, TUD, personal communications, August 21, 2015). The Regional WWTP provides primary and secondary treatment of wastewater, using biological decomposers to rid effluent of living organisms (TUD, 2013). The secondary treated wastewater is comingled with secondary treated wastewater from Jamestown Sanitary District and reused for agricultural applications. Occasionally, treated wastewater is discharged to Woods Creek during wet weather conditions when there is insufficient remaining capacity in the wastewater storage reservoir, Quartz Reservoir.

Groveland Community Services District. GCSD operates a wastewater treatment plant that serves approximately 1,500 customers with a capacity of 500,000 gpd (GCSD, 2008). The plant consists of primary and secondary treatment and disposes of its effluent by storing it in two storage ponds then sending it either to the Pine Mountain Lake Golf Course or to 14 acres of spray fields.

Jamestown Sanitary District. This district operates a wastewater treatment plant that serves approximately 1,250 customers with a capacity of 280,000 gpd (TUD, 2013). The plant provides primary and secondary treatment of wastewater.

Twain Harte Community Service District. The Twain Harte CSD serves approximately 1,500 customers and sends wastewater to TUD's Regional WWTP for secondary treatment (TUD, 2013).

Tuolumne Sanitary District. This district operates spray evaporation ponds with a capacity of 360,000 gpd to dispose of wastewater from approximately 850 customers (TUD, 2013). Inflow of wastewater is an average of 160,000 gpd (MacLean, 2013).

Individual, on-site septic systems are also very common in Tuolumne County, as only a portion of the residents with community water service connections also have wastewater connections.

d. Solid Waste. Tuolumne County no longer has any operating landfills. There are several transfer stations and recycling centers located throughout the County. Cal Sierra Disposal, Inc., owned by Waste Management, is a franchise operator with a long-term contract that expires in 2022. Cal Sierra serves unincorporated Tuolumne County along the State Route 108 corridor from the western County line to Pinecrest, including but not limited to the communities of East Sonora, Jamestown, Columbia, and Twain Harte, and the City of Sonora (Tom Teach, Cal Sierra Disposal, personal communication, August 19, 2015). The Tuolumne and Groveland areas are served by other haulers.

The amount of solid waste generated in Cal Sierra Disposal's service area varies seasonally, from about 110 tons per day in the winter to between 170 and 180 tons per day in the summer. An average of 10 to 12 tons per day of this solid waste is diverted for recycling. Collected solid waste is processed at a transfer station and disposed of at the Highway 59 Disposal Site landfill,

which is operated by the Merced County Regional Waste Management Authority. This landfill has a maximum permitted throughput of 1,500 tons per day (CalRecycle, 2015). The estimated closure date of the Highway 59 landfill is the year 2080, and the Regional Waste Management Authority is currently permitting a project to extend the landfill's life by an additional 20 years (Brooks Stayer, Merced County Regional Waste Management Authority, personal communication, August 19, 2015).

The Moore Bros Scavenger Co., Inc. provides solid waste service for southern Tuolumne County, including Groveland, Big Oak Flats, Moccasin, and areas upcountry along the Highway 120 corridor (Eckhart, Moore Bros, personal communication, August 19, 2015). This provider is allowed to collect a maximum amount of 25 tons/day of solid waste. In 2014, approximately 12.9% of solid waste was diverted for recycling (Wilson, Moore Bros, personal communication, August 20, 2015). All solid waste collected by Moore Bros Scavenger Co. is brought to transfer stations in Groveland or East Sonora, where Cal Sierra Disposal transports it to the Highway 59 landfill in Merced.

Burns Refuse Service, Inc. provides solid waste service for the community of Tuolumne, Standard, Curtis Creek, Soulsbyville Road up to Soulsbyville Elementary School, Wards Ferry Road, and Old Wards Ferry Road (Burns, Burns Refuse Service, personal communication, August 19, 2015). This provider serves about 1,100 residential customers and from 100 to 155 commercial customers. In 2014, Burns Refuse Service collected 3,248 tons of solid waste and diverted 291.3 tons for recycling. Because trash is collected five days per week, the amount of solid waste generated is approximately 12.5 tons per day. Solid waste is brought to a transfer station operated by Waste Management in East Sonora and disposed of at the Highway 59 landfill.

4.16.2 Impact Analysis

a. Methodology and Significance Thresholds. According to Appendix G of the *State CEQA Guidelines*, the project would have a significant impact with respect to water provision, wastewater treatment, and solid waste disposal if it would:

- *Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;*
- *Require or result in the construction of new water or wastewater 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;*
- *Fail to have sufficient water supplies available to serve the project from existing entitlements and resources, or need new or expanded entitlements;*
- *Result in a determination that the wastewater treatment provider that it does not have adequate capacity to serve projected demand in addition to existing commitments;*
- *Result in not being served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs; or*
- *Comply with federal, state, and local statutes and regulations related to solid waste.*

b. Project and Cumulative Impacts.

Impact U-1 Development facilitated by the General Plan Update would result in an increase in water demand. However, it is projected that water supplies would remain adequate during multi-year droughts. Existing drought contingency plans and proposed policies would further ensure that new development is served by adequate water supplies. Therefore, impacts related to water supply would be Class III, *less than significant*.

The General Plan Update would facilitate new development in the unincorporated portion of Tuolumne County which would increase demand for water. It is estimated that the General Plan Update would accommodate 4,332 new single-family residences, 827 multi-family residential units, 938,000 square feet of commercial uses, and 196,000 square feet of industrial uses by the year 2040. Depending on its location, new development would receive water from TUD, GCSD, the Lake Don Pedro CSD, or groundwater.

Table 4.16-5 shows the estimated water demand that new development would place on TUD and GCSD. Because TUD would continue to provide water either directly or indirectly to most of the developed portions of Tuolumne County, and limited growth would occur in areas served by other water districts, the calculations of water demand assume that TUD would serve all new development under the General Plan Update. As discussed in Section 2.0, *Project Description*, the General Plan Update would accommodate an estimated net increase of 8,906 residents. This increase in population would result in an overall service population of approximately 52,906 for TUD in the year 2040. Table 4.16-5 estimates both near-term water demand (based on baseline, per capita water demand) and long-term water demand (based on projected decreases in per capita water demand).

Table 4.16-5.
Projected Additional Water Demand Under Buildout of General Plan Update

	Tuolumne Utilities District
Estimated Increase in Service Population	8,906 residents
Baseline Generation Factor	173 gallons per capita per day[1]
Near-Term Water Demand	1,540,738 gpd (1,725 AFY)
Future Generation Factor	165 gallons per capita per day[2]
Long-Term Water Demand	1,469,490 gpd (1,646 AFY)

Sources: TUD, 2011.
Notes: sf = square feet, gpd = gallons per day, AFY = acre-feet per year.
1. TUD's baseline generation factor is based on five years of historical water use from 2006 to 2010, as shown in Table 3-5 of TUD's 2010 Urban Water Management Plan.2. TUD's future generation factor is its selected target for compliance with SBX7-7 in the year 2020.

As shown in Table 4.16-5, it is projected that new development would generate additional demand for 1,725 AFY of water in TUD's service area using the baseline generation factor. Assuming a reduced generation factor under compliance with SBX7-7, which requires that all water suppliers in California increase their water use efficiency, new development would generate 1,646AFY of additional demand. This analysis compares additional demand under buildout of the General Plan Update to the water supply and demand projections in TUD's 2010 Urban Water Management Plan. Even during a multi-year drought scenario in the year 2035, TUD anticipates a surplus of 1,298 AFY in water supply. TUD's projections assume a future service population of 49,074 in the year 2035. Because the General Plan Update is projected to result in a higher service population of 52,906 in the year 2040 (3,832 more people than anticipated by TUD for the year 2035), it is possible that water demand may surpass TUD's projections. If the additional population of 3,832 consumed water at the projected long-term rate of 165 gallons per capita per day, it would generate additional demand for approximately 632,280 gpd, or 708 AFY. Accounting for this additional consumption, TUD would still have a surplus of 590 AFY in water supply. Furthermore, during periods of water shortage, TUD has the authority to manage water demand by implementing a three-phase rationing plan summarized in tables 4.16-2 and 4.16-3. Pursuant to Resolution 31-15, TUD's current water connection fee of $7,126 also includes money for the District to implement demand offset projects that would yield enough water to serve new connections. Therefore, water rationing if needed and demand offset projects would ensure that the agency has an adequate water supply to serve anticipated development.

In addition, proposed policies and implementation programs in the General Plan Update would seek to increase the water supply and reduce water demand in Tuolumne County. The updated Water Resources Element has the following relevant goals, policies, and implementation programs:

Goal 19.A	*Pursue adequate water supply for all Tuolumne County residents and visitors.*
Policy 19.A.1	*Pursue County Area of Origin Water Rights and gain access to other senior water rights.*
Policy 19.A.2	*Support the efforts of local water purveyors to increase water storage capacity, maintain and enhance infrastructure, and cross-connect water systems.*
Policy 19.A.3	*Work with other agencies in developing joint water policies supporting healthy watershed management.*
Policy 19.A.4	*Pursue access to all existing water storage not currently available for use within Tuolumne County.*
Policy 19.A.5	*Consider acquiring existing water rights held by others.*
Implementation	

Program 19.A.g	*Water Action Plan. Implement the Tuolumne County Water Action Plan: Developing a Plan for Our Future adopted by the Board of Supervisors on April 7, 2015, as it may be amended from time to time.*
Policy 19.B.4	*Encourage the conservation of water resources in a systematic manner that is sensitive to the maintenance of water quality, natural capacities, ecological values, and consideration of the many water related needs of the County.*
Implementation Program 19.B. d	*Provide for Greywater Irrigation. Provide for the irrigation of non-food plants from sinks, showers, washing machines, car washing bays and other nonsewage sources in areas where such systems are allowed by the jurisdictional water or sewer purveyor. Recognize that water or sewer purveyors may adopt regulations to prohibit or otherwise regulate greywater systems that could adversely affect the efficient operation of their systems. Provide educational materials in the proper use of greywater systems to property owners and the public.*
Implementation Program 19.B.f	*Require Confirmation of Water Availability for New Development. Continue to require new urban development needing discretionary entitlements to secure a letter from the jurisdictional public water agency stating that the proposed project can be served by that agency and that there is an available water supply. Continue to require water assessments that are required by the California Water Code, Senate Bill 221 and Senate Bill 610.*
Implementation Program 19.B.r	*Play Active Role in Water Resources. Prepare for potential climate change effects on water resources, such as prolonged drought and flooding, by working with water agencies to implement measures to reduce water consumption, expand water storage capacity, protect water quality, and explore and promote more diverse sources of water.*
Policy 19.E.1	*Require new commercial development to be served by public water systems, except for development in areas designated as Special Commercial on the General Plan land use diagrams where public water is not reasonably available.*
Policy 19.E.2	*Require urban residential development to be served by a public water system.*
Policy 19.F.2	*Ascertain that the water system serving a new development has an adequate and reliable supply and distribution system to meet present and future needs.*
Implementation Program 19.F.b	*Ascertain Water Supply. Consider whether the water system proposed to serve a new development has a reliable source of water, sized to serve their existing and future customer's' foreseeable demands. Projects shall only be approved where the water supply system has reliable sources of water capable of meeting present and future demands.*

Goal 19.J	*Maximize the efficient use and reuse of water supplies through water conservation, water recycling, and public education.*
Policy 19.J.1	*Support water districts in establishing conservation standards to reduce demand for water.*
Policy 19.J.2	*Increase water conservation efforts to maximize water use efficiency within Tuolumne County through conservation, recycling and education.*
Implementation Program 19.J.g	*Encourage Water Efficiency. Develop an outreach program, working with the water service providers in the region, to encourage development to be constructed with, or upgraded to, water-efficient plumbing fixtures, landscaping, and irrigation systems, and use greywater and/or recycled water for irrigation.*
Implementation Program 19.J.l	*Agricultural Water Reuse. Promote and facilitate the use of reclaimed wastewater for agricultural irrigation, in accordance with the guidelines published by the State Department of Public Health.*
Implementation Program 19.J.n	*Water Efficiency on County Property. Utilize water-efficient plumbing fixtures and irrigation systems on County property.*

In particular, Implementation Program 19.F.b would require that new projects "only be approved where the water supply system has reliable sources of water capable of meeting present and future demands." This program would ensure that any new development facilitated by the General Plan Update would have an adequate water supply.

The updated Tuolumne Community Plan also has an implementation program to support the use of recycled water for irrigation, which would reduce the use of potable water.

Implementation Program 17.F.k	*Support efforts to use tertiary treated water and grey water systems for irrigation, especially for golf courses.*

With implementation of the County's policies and implementation programs in the General Plan Update, impacts on water supply would be less than significant.

Mitigation Measures. No mitigation is required beyond implementation of goals, policies, and implementation programs in the General Plan Update.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Impact U-2 Development facilitated by the General Plan Update would increase wastewater generation above existing conditions. However, existing wastewater treatment facilities have adequate capacity to accommodate new development, and proposed policies in the General Plan Update would reduce potential impacts. Therefore, impacts would be Class III, *less than significant*.

The General Plan Update would facilitate new development in the unincorporated portion of Tuolumne County that would increase generation of wastewater It is estimated that the General Plan Update would accommodate 4,332 new single-family residences, 827 multi-family residential units, 938,000 square feet of commercial uses, and 196,000 square feet of industrial uses by the year 2040. Depending on its location, new development would generate wastewater in the service areas of TUD, GCSD, Tuolumne Sanitary District, or Jamestown Sanitary District. Table 4.16-6 shows projected wastewater generation from additional residential, commercial, and industrial development under buildout of the General Plan Update. As with the estimates of water demand in Impact U-1, this analysis makes the simplifying assumption that almost all growth would occur within TUD's service area. Wastewater generation factors were derived from Exhibit A in TUD's Wastewater Ordinance, as amended in April 2015, which presents them in terms of "equivalent single-family residential" demand factors. TUD estimates that an equivalent single-family residence generates from 159 to 165 gallons of wastewater per day (David Boatright, TUD, personal communications, August 21, 2015). This analysis conservatively assumes 165 gallons of wastewater per day. The wastewater generation factor used for commercial and industrial development is based on TUD's demand factor for medium retail outlets.

Table 4.16-6.
Projected Additional Wastewater Generation
Under Buildout of General Plan Update

	Tuolumne Utilities District
Single-Family Residential Development	
Additional Units	4,332 units
Generation Factor	165 gpd
Wastewater Generation	0.71 mgd
Multi-Family Residential Development	
Additional Units	670 units
Generation Factor	116 gpd
Wastewater Generation	0.10 mgd

Table 4.16-6.
Projected Additional Wastewater Generation
Under Buildout of General Plan Update

	Tuolumne Utilities District
Commercial Development	
Additional Space	759,780 sf
Generation Factor	297 gpd/10,000 sf
Wastewater Generation	0.03 mgd
Industrial Development	
Additional Space	158,760 sf
Generation Factor	297 gpd/10,000 sf
Wastewater Generation	<0.01 mgd
Total	***0.84 mgd***

Sources: TUD, Wastewater Ordinance, 2015; Boatright, TUD, personal communications, August 21, 2015.
Notes: sf = square feet, gpd = gallons per day, mgd = million gallons per day

As shown in Table 4.16-6, it is estimated that new development in TUD's service area would generate an additional 0.84 mgd of wastewater. With a design capacity of 2.6 mgd and a peak flow of 1.7 mgd in the last decade, the Regional WWTP has a remaining capacity of at least 0.9 mgd. Even accounting for new development anticipated under the General Plan Update, this plant would have sufficient capacity to accommodate 0.84 mgd of new flow.

Other wastewater service providers have adequate infrastructure to accommodate any minor increases in wastewater generation from development outside of TUD's service area. With a design capacity of 0.5 mgd, GCSD's wastewater treatment plant would have adequate capacity to accommodate an incremental increase in flow. The updated Jamestown Community Plan Element also states that the Jamestown Sanitary District currently has adequate capacity to serve new development within its service area in the community of Jamestown. In addition, the Tuolumne Sanitary District's spray evaporation ponds have an average inflow of 160,000 gpd and a remaining capacity of 200,000 gpd; wastewater inflow would have to more than double in order to exceed their capacity. Therefore, the Tuolumne Sanitary District can accommodate incremental growth in the community of Tuolumne during buildout of the General Plan Update.

The updated Water Resources Element also includes the following goals, policies, and implementation programs to reduce impacts related to wastewater:

Goal 19.H	*Promote the logical extension or expansion of sewer system infrastructure as development occurs in areas where the expansion of public sewer systems is feasible.*
Policy 19.H.1	*Encourage the installation of public sewage systems in existing communities which are experiencing repeated septic system failures.*
Policy 19.H.3	*Assist and cooperate in master planning sewer facilities and encourage the extension of additional public services through the installation of larger utility distribution lines and off-site improvements on new developments.*
Implementation Program 19.H.e	*Support Sewage System Extensions to Correct Problems. Promote the logical extension of sewer lines and infrastructure to areas of existing development where there are known limitations or problems associated with on-site underground sewage disposal.*
Policy 19.I.3	*Encourage new industrial and commercial development in areas having the capability of being served by a public sewer system, or require evidence that there is a capability of functioning on a private system without any adverse public health impact.*
Implementation Program 19.I.f	*Encourage Urban Development Within or Adjacent to Community Boundaries. Encourage the siting of new urban development either within or adjacent to the urban development boundaries to maximize the use of existing infrastructure and reduce the need for expansion of the public sewer system. Where new urban development is proposed to be located outside but adjacent to the urban development boundaries, it should be preferentially located in proximity to existing public sewer infrastructure.*
Policy 19.J.2	*Increase water conservation efforts to maximize water use efficiency within Tuolumne County through conservation, recycling and education.*
Implementation Program 19.J.i	*Composting Toilets. Explore the feasibility of reducing wastewater through the use of dry/composting toilets in new construction.*

Proposed policies to connect new development to public sewer systems, rather than to individual septic systems, would increase the volume of wastewater handled by public facilities. However, these policies would reduce water quality problems from the proliferation of septic tank systems. Service providers for wastewater in Tuolumne County would have adequate capacity to accommodate growth under the General Plan Update. Proposed policies to reduce water consumption also would minimize wastewater generation, and other policies to encourage the siting of new development within urban areas would reduce the need for expansions of sewer infrastructure. Therefore, impacts related to wastewater facilities would be less than significant.

Mitigation Measures. No mitigation is required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Impact U-3 Development facilitated by the General Plan Update would incrementally increase the amount of impervious surfaces within the County, which could result in increased stormwater runoff and the need for additional stormwater infrastructure. However, the County's existing Water Quality Plan and policies and implementation programs in the General Plan Update would reduce potential impacts. Therefore, impacts would be Class III, *less than significant.*

The General Plan Update would facilitate additional development – 4,332 new single-family residences, 827 multi-family residential units, 938,000 square feet of commercial uses, and 196,000 square feet of industrial uses – which would incrementally increase the amount of impervious surface area in the unincorporated portion of Tuolumne County. The potential increase in stormwater runoff from new development could place greater demand on the existing stormwater conveyance infrastructure. The Tuolumne County Community Resources Agency has identified existing stormwater infrastructure as in need of improvement in the areas of Sullivan, Sonora, Mormon, Woods, and Curtis Creeks. New development under the General Plan Update would increase the need for improvements to new or expanded infrastructure.

However, as discussed under Impact HWQ-3 in Section 4.9, *Hydrology and Water Quality*, the majority of new development facilitated under the General Plan Update would occur on vacant and underutilized properties in existing communities where impervious surfaces already occupy a portion of the land. The General Plan Update would not facilitate large areas of greenfield development, as it implements the Distinctive Communities Growth Scenario which focuses development within existing communities. Therefore, the proposed General Plan update would not substantially increase the amount of impervious surfaces within the County.

Furthermore, continued implementation of the Tuolumne County Water Quality Plan adopted by the Board of Supervisors in February 2007 would minimize impacts on stormwater infrastructure. This plan is intended to improve the quality of the County's water resources over a 20-year planning horizon. Chapter 3 of the Water Quality Plan includes programs to develop a comprehensive map of the County's storm sewer system, to control non-permitted discharges into this system, and to stencil messages at storm drain inlets to educate the public about stormwater runoff pollution. In addition, the Water Quality Plan includes requirements for best management practices (BMPs) to reduce the discharge of stormwater runoff from new development during and after construction. It is anticipated that as development under the General Plan Update occurs, stormwater infrastructure would be upgraded on a project-specific basis in accordance with the Water Quality Plan's requirements. These projects would be subject to subsequent environmental review and would be required to comply with the County's General Plan Update policies as they relate to stormwater infrastructure, as well as State requirements for stormwater management.

In addition, the General Plan Update includes a number of policies and implementation programs that would reduce impacts on stormwater infrastructure, both countywide and in individual communities. In the updated Water Resources Element, the following policies and implementation programs would reduce the volume of off-site stormwater runoff from new development:

Policy 19.B.1 — *Protect the quality of the County's water resources by supporting the efforts of local districts to maintain infrastructure and cross-connect sewer systems and ensuring Tuolumne County's development standards are adequate to protect surface and groundwater resources from contamination.*

Implementation Program 19.B.j — *Implement Grading and Surface Runoff Standards. Implement grading and surface runoff standards, such as retention and detention, permeable surfaces and recharge, necessary to protect water resources in compliance with State and Federal water quality regulations and with the County's water conservation program referenced in Implementation Program 19.B.a.*

The Jamestown Community Plan includes the following implementation program which reduces potential impacts related to stormwater infrastructure.

Implementation Program 14.F.b — *Require Filtration of Surface Runoff Entering Woods Creek. Require as a condition of approval of discretionary entitlements for new development that surface runoff from the development be filtered through sedimentation basins, or similar devices, as needed, prior to discharge into downstream drainages to minimize degradation, related to the water quality and quantity, of downstream water bodies.*

The Columbia Community Plan includes the following implementation program which reduces potential impacts related to stormwater infrastructure.

Implementation Program 15.E.f — *Water Quality and Quantity of Runoff. Require as a condition of approval of discretionary entitlements for new development that surface runoff from that development be filtered through sedimentation basins, or similar devices, as needed, prior to discharge into downstream drainages to minimize degradation, related to the water quality and quantity of downstream waterbodies.*

The East Sonora Community Plan includes the following implementation program which reduces potential impacts related to stormwater infrastructure.

Implementation Program 16.C.d — *Require Filtration of Surface Runoff. Require as a condition of approval of discretionary entitlements for new development that surface runoff from that development be filtered through sedimentation basins, sand/oil separator or*

similar devices prior to discharge into Sullivan, Sonora and Curtis Creeks to minimize degradation of their waters.

The Tuolumne Community Plan includes the following implementation program to upgrade stormwater facilities.

Implementation Program 17.G.g — *Upgrade Stormwater Facilities – Funding. Seek funds to improve stormwater drainage facilities throughout the Tuolumne Planning Area.*

With implementation of the County's Water Quality Plan and policies and implementation programs in the General Plan Update, impacts on storm drainage facilities would be less than significant.

Mitigation Measures. No mitigation is required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Impact U-4 Development facilitated by the General Plan Update would result in an overall increase in the amount of solid waste generated. However, existing landfills would adequately serve development throughout the planning horizon of the General Plan Update, and policies in the Natural Resources Element would further reduce solid waste. Therefore, impacts would be Class III, *less than significant* impact.

By the year 2040, the General Plan Update would accommodate an estimated increase of 4,332 single-family residences, 827 multi-family residential units, 938,000 square feet of commercial uses, and 196,000 square feet of industrial uses in the unincorporated portion of Tuolumne County. As shown in Table 4.16-7, projected growth under the General Plan Update would generate an estimated additional 26.1 tons per day of solid waste for disposal at landfills.

Table 4.16-7.
Net Increase in Solid Waste Generation

Land Use	Units	Generation Factor	Solid Waste Generation[1]
Single-Family Residential	4,332 du	9.8 lbs/du/day	19.7 tons/day
Multi-Family Residential	827 du	8.6 lbs/du/day	3.3 tons/day
Commercial	938,000 sf	0.006 lbs/sf/day	2.6 tons/day
Industrial	196,000 sf	0.006 lbs/sf/day	0.5 tons/day
		Total	***26.1 tons/day***

Source: CalRecycle, Estimated Solid Waste Generation and Disposal Rates, December 2011.
1. Includes 7 percent reduction based on current recycling rates for Cal Sierra Disposal, Inc., which serves the majority of Tuolumne County.
sf = square feet
lbs = pounds
du = dwelling units

All solid waste that is collected by Tuolumne County's three solid waste providers – Cal Sierra Disposal, Burns Refuse Service, and Moore Bros Scavenger Co. – and not diverted for recycling is disposed of at the Highway 59 landfill in Merced. Tuolumne County's current contract for hauling solid waste to the Highway 59 landfill runs through June 30, 2018. Currently, the Highway 59 landfill has a maximum permitted throughput of 1,500 tons per day and receives 677.6 tons per day during the six days per week on which it operates. This landfill has a remaining capacity of 822.4 tons/day. Assuming that buildout under the General Plan Update contributes an addition 26.1 tons/day to the Highway 59 landfill, it would still have a remaining capacity of 796.3 tons per day. Furthermore, the Merced County Regional Waste Management Authority estimates that the Highway 59 landfill will have remaining capacity at least until the year 2080, which is four decades beyond the planning horizon of the General Plan Update. Therefore, this landfill can accommodate solid waste from development facilitated by the General Plan Update.

In addition, the updated Natural Resources Element has the following goals and policies that would minimize the generation of solid waste and promote recycling:

Goal 4.F	*Encourage reduced consumption of energy, products and resources, by promoting recycling and reuse.*
Policy 4.F.2	*Encourage the development of new and expansion of existing businesses which reuse products and materials, recycle waste materials or convert waste products to energy.*
Policy 4.F.3	*Encourage the recycling of products and materials and support the efforts of agencies, businesses and the general public to reduce the waste stream.*

Because applicable landfills have capacity to accommodate solid waste generated under the life of the General Plan Update, and implementation of the above goals and policies in the Natural Resources Element would further reduce the amount of solid waste disposed of at landfills, impacts related to solid waste would be less than significant.

Mitigation Measures. No mitigation is required.

Significance after Mitigation. Impacts would be less than significant without mitigation.