

6 SYSTEM SUPPLIES

6.1 WATER SOURCES

Urban Water Management Planning Act Requirement:

10631 (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).

The Triunfo Sanitation District/Oak Park Water Service (District) utilizes both potable and recycled water. The District obtains its potable water from the Calleguas Municipal Water District (CMWD). The District purchased a total of 1,981 acre-feet (AF) of potable water for a population of approximately 12,200 in 2015. In addition to distributing potable water, the District also has an extensive recycled water system. The District delivered 1,036 AF of recycled water in 2015 for landscape and golf course irrigation. Due to the District's service area, which only includes the unincorporated community of Oak Park, being completely built out (resulting in no anticipated population growth) imported water needs are expected to remain stable from 2015 to 2035. Additionally, considering the planned expansions to the District's recycled water system, recycled water demands are expected to increase by approximately 10 percent during the planning horizon. More information comparing the projected water supply and demand can be found in Chapter 7.

The total current and projected potable and recycled water supplies available to the District are shown in Tables 6.1.1 and 6.1.2. The projected values are based on the estimated demands outlined in Table 4.1.5 for the next 20 years.

Table 6.1.1: Water Supplies - Actual

Water Supply	Additional Detail on Water Supply	2015	
		Actual Volume	Water Quality
Purchased or Imported Water	Purchased from CMWD (State Water Project / Colorado River Aqueduct)	1,981	Drinking Water
Recycled Water	TSD/CMWD/OPWS-TSD	1,036	Recycled Water
Total		3,017	

Note: Units are in acre-feet per year

Table 6.1.2: Water Supplies - Projected

Water Supply	Additional Detail on Water Supply	2020 Reasonably Available Volume	2025 Reasonably Available Volume	2030 Reasonably Available Volume	2035 Reasonably Available Volume	2040 Reasonably Available Volume
Purchased or Imported Water	SWP Deliveries	3,000	3,000	3,000	3,000	3,000
Recycled Water	CMWD (Assumes expansion)	1,360	1,360	1,360	1,360	1,360
Total		4,360	4,360	4,360	4,360	4,360

Note: Units are in acre-feet per year

Wholesale Water Supply

Water for use in the District is purchased through the CMWD. According to its annual Water Quality Report, July 2016, Calleguas’ primary drinking water supply is obtained from the Feather River Watershed, located in the northern Sierras, and conveyed through the State Water Project (SWP). Colorado River water serves as a secondary supply source for the District during water supply deficiencies and is transported through the Metropolitan Water District’s (MWD) Colorado River Aqueduct.

The majority of water supplied to CMWD is from MWD as part of the SWP. The SWP is a series of reservoirs, aqueducts, and pumping facilities that convey water from Northern to Southern California. The water for use within the District is collected and delivered to MWD via the SWP and is filtered and disinfected at MWD’s Joseph Jensen Filtration Plant in Granada Hills.

The Colorado River Aqueduct, which was built and is operated by MWD, consists of a 242-mile aqueduct delivering water from the Colorado River at Lake Havasu, where it is filtered and

disinfected at Metropolitan’s F.E. Weymouth Treatment Plant, located in the City of La Verne. In 2015, MWD delivered approximately 85,000 AF of water to CMWD, of which 1,981 AF was sold to the District for distribution. The quality of the imported water is shown in Table 6.1.3. For more information on the quality of SWP and Colorado River Aqueduct sources, refer to the MWD 2015 UWMP Update.

Table 6.1.3: Quality of Imported Water

Constituent	Colorado River Water (mg/L)	State Water Project Water (mg/L)
Chloride	81	80
Sulfate	217	48
Hardness (as CaCO ₃)	278	116
Total Dissolved Solids	569	295

Notes: Data taken from the West Basin FY 2013-2014 Watermaster Report

The District has provided the following estimates for water supplies in order to meet demands. The findings from the MWD 2015 UWMP Update have confirmed that projected supplies under the single dry-year and multiple dry-year conditions would be sufficient to meet expected demands from member agencies from 2020 through 2040.

Table 6.1.4: Wholesale Supplies — Existing and Planned Sources of Water

Wholesale Sources	Contracted Volume	2020	2025	2030	2035
CMWD	No	3,000	3,000	3,000	3,000

Note: Units are in acre-feet per year

Note: CMWD does not contract with its retail purveyors to limit or guarantee imported water availability. The volume entered is a reasonable, normal year estimate of imported water available from MWD through CMWD, but not a contractual supply.

Recycled Water Supply

The District provides recycled water for landscape and golf course irrigation throughout its service area. The District’s recycled water system is discussed in further detail in Section 6.5.

6.2 GROUNDWATER

Urban Water Management Planning Act Requirement:

10631 (b)(1) If groundwater is identified as an existing or planned course of water available to the supplier provide...a copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

10631 (b)(2) If groundwater is identified as an existing or planned course of water available to the supplier provide...a description of any groundwater basin or basins from which the urban water supplier pumps groundwater.

10631 (b)(2) For those basins for which a court or the board has adjudicated the rights to pump groundwater, provide a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

10631 (b)(2) For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

10631 (b)(3) (Provide a) detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

10631 (b)(4) (Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

Groundwater is not a source of potable water to the District, and therefore this section of the UWMP is not applicable. Table 6.2.1 is provided for completeness below; however, it is intentionally left blank as groundwater is not pumped by the District.

Table 6.2.1: Groundwater Volume Pumped

	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type	Location or Basin Name	2011	2012	2013	2014	2015
TOTAL		0	0	0	0	0

6.3 TRANSFER OPPORTUNITIES

Urban Water Management Planning Act Requirement:

10631 (d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

There are no short-term or long-term transfer opportunities available to the District.

6.4 DESALINATED WATER OPPORTUNITIES

Urban Water Management Planning Act Requirement:

10631 (i) Describe the opportunities for development of desalinated water, including but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

The District is not currently exploring the possibility of using desalinated water as a water source. However, CMWD is investigating desalinated water as part of its emergency supplies portfolio. The CMWD Board of Directors has adopted an update to its strategic plan in January 2016 that includes a focus on closely monitoring the permitting and implementation of ocean desalination projects being developed in California, with the consideration that such a project may be part of CMWD’s supply portfolio in the future. For more information, refer to the CMWD 2015 UWMP Update.

6.5 RECYCLED WATER OPPORTUNITIES

Urban Water Management Planning Act Requirement:

10633 Provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.

The District is committed to potable water conservation through the treatment and distribution of recycled water for non-potable uses. This decreases the amount of potable irrigation water utilized as landscape irrigation, and is a significant part in the statewide effort to conserve and manage potable water resources.

The District entered into a Joint Powers Authority with Las Virgenes Municipal Water District (LVMWD) in 1964 to treat wastewater at the Tapia Water Reclamation Facility (Tapia WRF), and recycling from the facility began in 1972. Since then, CMWD has joined the recycled water effort with LVMWD and the District by subsidizing the expense of pipe infrastructure for the District Service area to allow the area to utilize recycled water. Together, the three Districts are committed to maximizing the use of recycled water to conserve potable water resources through the treatment of wastewater and subsequent distribution as recycled water. Since 1972, the recycled water system of the Joint Powers Authority has evolved to distribute on average 6,200 AFY of water for non-potable use.

The current infrastructure consists of 4 tanks, 4 pumping stations, 3 reservoirs, and over 55 miles of pipeline. Each pumping station has between two and three pumps, with an individual pump capacity anywhere between 180 and 6,200 GPM. Due to the constant fluctuation in daily demand, reservoirs storing approximately 15 million gallons are filled with recycled water to help meet peak flows when the quantity from the Tapia WRF is not sufficient over the entire Las Virgenes and Triunfo use area. In the event that these reservoirs run dry, the system can also be supplemented with potable water to ensure the irrigation demands are met.

Recycled water, used for irrigation purposes, is treated (as described below) and then distributed or disposed of as necessary. The recycled water system is designed to serve irrigation water for customers including golf courses, homeowner's association grounds, and public landscapes such as parks, schools, and highway medians.

Urban Water Management Planning Act Requirement:

10633 (a) (Describe) the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

Wastewater from the District is collected by the Triunfo Sanitation District (TSD) sewer system. Wastewater is sent to Tapia WRF where it is treated. Tapia WRF was constructed as part of the two district Joint Powers Authority described above, and treats wastewater for multiple service areas. The Tapia WRF was designed for a capacity of 16 million gallons per day (MGD). However, Tapia WRF has undergone modifications which have reduced its total capacity to around 12 MGD. These modifications, completed in 2010, improved the water treatment process to meet new regulations on the content of ammonia (set at 2.3 mg/L) and nitrate plus nitrite (set at 8 mg/L) in recycled water. When wastewater enters Tapia WRF, macroscopic materials are removed first. Large materials (e.g., rags and paper) are removed by passing the waste stream through a vertical slatted screen bar. Finer materials (e.g., eggshells and coffee grounds) are removed in a grit chamber. The flow is then slowed down and air is injected to keep small, organic particles suspended while allowing heavier, inert materials to fall to the bottom. These materials are removed from the wastewater and sent to landfill. At this point, the wastewater is 99% water and 1% solids. Following the initial treatment, the wastewater goes through primary treatment, which takes place in the primary sedimentation tanks. Most of the solids that remain suspended in the wastewater are allowed to settle to the bottom of the tank. At the same time, oil and grease float to the surface and are removed by skimming the surface. Waste collected from this portion of the process is sent to the Rancho Las Virgenes Composting Facility.

The water is then sent to secondary treatment. This process cleans the water through a biological process, utilizing beneficial microorganisms. These microorganisms remove contaminants as they feed, grow, and multiply. The process is accelerated by holding the water in an environment optimized for the microorganisms to thrive. This is done monitoring oxygen and feed contents in the water through the organic content of the water and injecting air into the tanks. The microorganisms are then allowed to settle out and are returned to the secondary treatment aeration tanks, while the treated water moves to its final, tertiary treatment stage. Chemicals are added to the water to allow small particles to coagulate so they can be removed by filters. The water is disinfected with chlorine. After four hours, the chlorine is neutralized, and the final product is safe and ready to be distributed as recycled water for non-potable use.

Urban Water Management Planning Act Requirement:

10633 (b) (Describe) the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

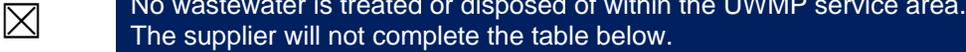
Currently, 100% of the wastewater collected by the District and sent to Tapia WRF is treated to recycled water standards, and available for use if necessary. However, the water that is not needed for recycled water use is either stored within the reservoirs or disposed. The total wastewater volume collected from the entire LVMWD service area for 2015 was 4,116 AF. Based on historical flow rates provided in the LVMWD, TSD, CMWD Recycled Water Master Plan 2014 Update, TSD accounts for 28.9% of the total contribution on average, or an estimated 1,190 AF in 2015. The estimated wastewater collected for 2015 is provided in Table 6.5.1.

Table 6.5.1: Wastewater Collected Within Service Area in 2015

Wastewater Collection			Recipient of Collected Wastewater		
Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area 2015	Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area?
JPA (LVMWD, TSD)	Metered	4,116	JPA (LVMWD, TSD)	Tapia WRF	No
Total Wastewater Collected from Service Area in 2015:		4,116			

NOTES: The value, 4,116 AF is the total amount collected from the entire LVMWD service area - as stated in the LVMWD DRAFT UWMP 2015.

Table 6.5.2: Wastewater Treatment and Discharge Within Service Area in 2015

										
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Method of Disposal	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level	Wastewater Treated	2015 volumes			
							Discharged Treated Wastewater	Recycle d Within Service Area	Recycle d Outside of Service Area	
Total						0	0	0	0	

NOTES: This table intentionally left blank.

Urban Water Management Planning Act Requirement:

10633 (c) (Describe) the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use

All reclaimed water use in the District's service area is subject to supply agreements through Calleguas and the Joint Powers Authority. Specifically, the District and LVMWD supply the reclaimed water from the Tapia WRF for distribution by CMWD to the District. Tapia WRF is the single source of reclaimed water for the District's water service system. The District offers discounting in a two-tier incentive system to encourage recycled water use when possible.

Under the Joint Powers Authority agreement, the District conveys reclaimed water at tertiary treatment quality levels. Current data suggests that the District uses about 0.8 MGD (910 AFY) in its service area each day (the remainder is supplemented with potable water). Reclaimed water is largely applied as landscape irrigation. A map showing the recycled water distribution system for the District is shown in Figure. 6.5.1 on the following page. Water purchased has historically been used to irrigate golf courses, school grounds, highway medians, parks and homeowner association grounds. The use of reclaimed water for irrigation reduced the need for potable water in the District by 35% (including Lake Sherwood).

Figure 6.5.1: TSD Joint Powers Authority Recycled Water System

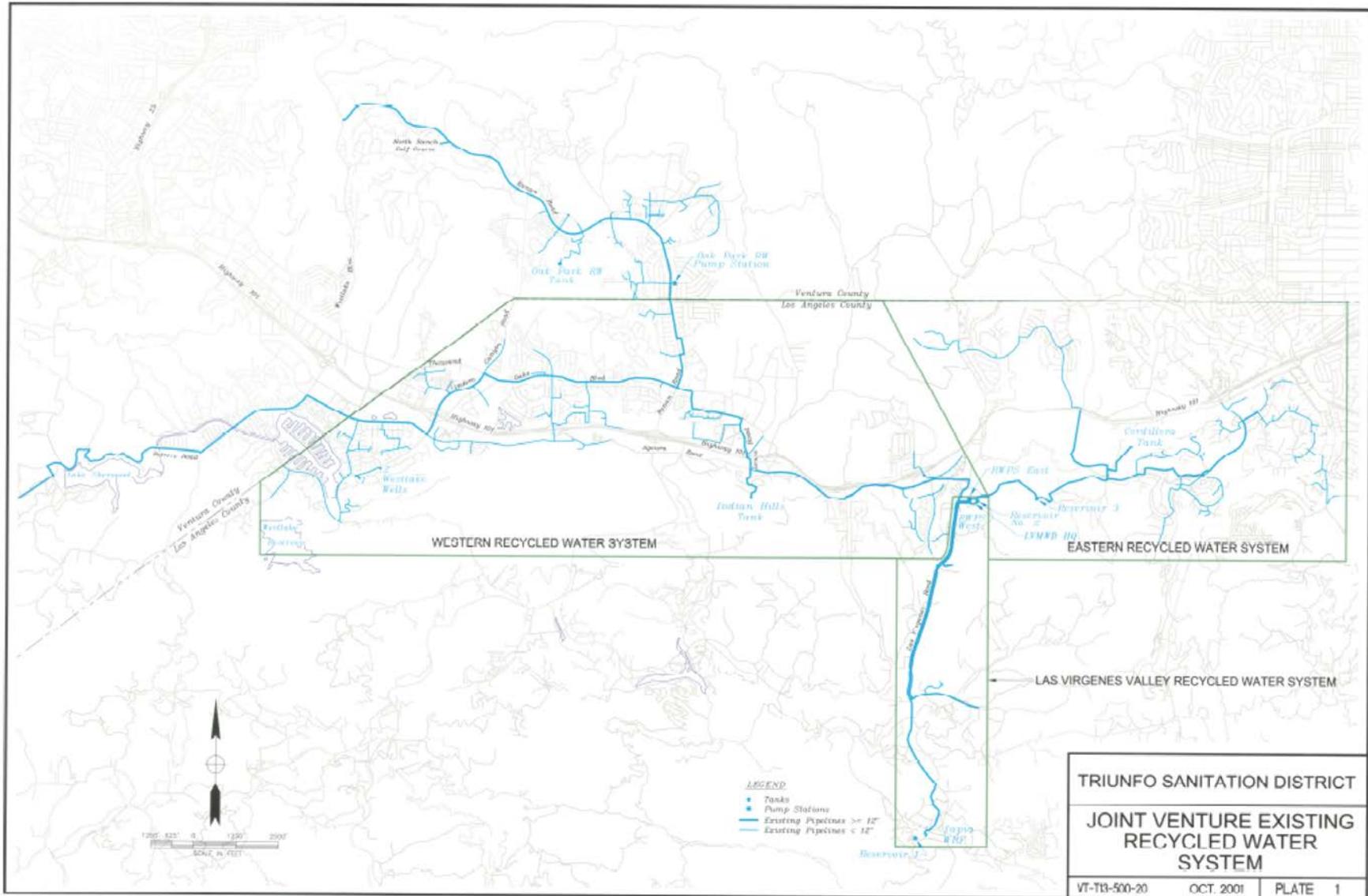


Table 6.5.4: Current and Projected Recycled Water Direct Beneficial Uses within Service Area

<input checked="" type="checkbox"/>	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.						
Name of Agency Producing (Treating) the Recycled Water:	JPA: LVMWD and TSD						
Name of Agency Operating the Recycled Water Distribution System:	JPA: LVMWD, TSD, CMWD						
Supplemental Water Added in 2015:							
Source of 2015 Supplemental Water:							
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment	2015	2020	2025	2030	2035
Agricultural Irrigation	-	-	-	-	-	-	-
Landscape Irrigation (excludes golf courses)	Oak Park Water Service Area	Tertiary	694	720	720	720	720
Golf Course Irrigation	TSD (6) Accounts Only	Tertiary	342	400	420	420	420
Commercial Use	-	-	-	-	-	-	-
Industrial Use	-	-	-	-	-	-	-
Geothermal and Other Energy Production	-	-	-	-	-	-	-
Seawater Intrusion Barrier	-	-	-	-	-	-	-
Recreational Impoundment	-	-	-	-	-	-	-
Wetlands or Wildlife Habitat	-	-	-	-	-	-	-
Groundwater Recharge (IPR)*	-	-	-	-	-	-	-
Surface Water Augmentation (IPR)*	-	-	-	-	-	-	-
Direct Potable Reuse	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-
Total:			1,036	1,120	1,140	1,140	1,140

Notes: Values projected from 2020-2035 were for “normal years.”

Notes: Indirect Potable Reuse (IPR)

Notes: Units are in acre-feet

Urban Water Management Planning Act Requirement:

10633 (d) (Describe and quantify) the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

The District is currently discussing proposed extensions of the recycled water pipelines to serve common irrigation areas maintained by several homeowners associations and a few multi-family apartment complexes in the Capris and Hillcrest (Oak Park North) Tracts of the District's service area. The recycled water use from these projects is summarized in Table 6.5.5 and the proposed pipeline locations are shown in Figure 6.5.2 (borrowed from the LVMWD, TSD, and CMWD Recycled Water Master Plan 2014 Update). The LVMWD, TSD, CMWD Integrated Master Plan Update 2014 also examined the economic feasibility of these projects by estimating and evaluating how much additional recycled water would be sold annually. And, according to the report's feasibility threshold, both the Capris and Hillcrest Tracts were considered economically feasible.

Figure 6.5.2: Oak Park Water Service Proposed Recycled Water System Extensions

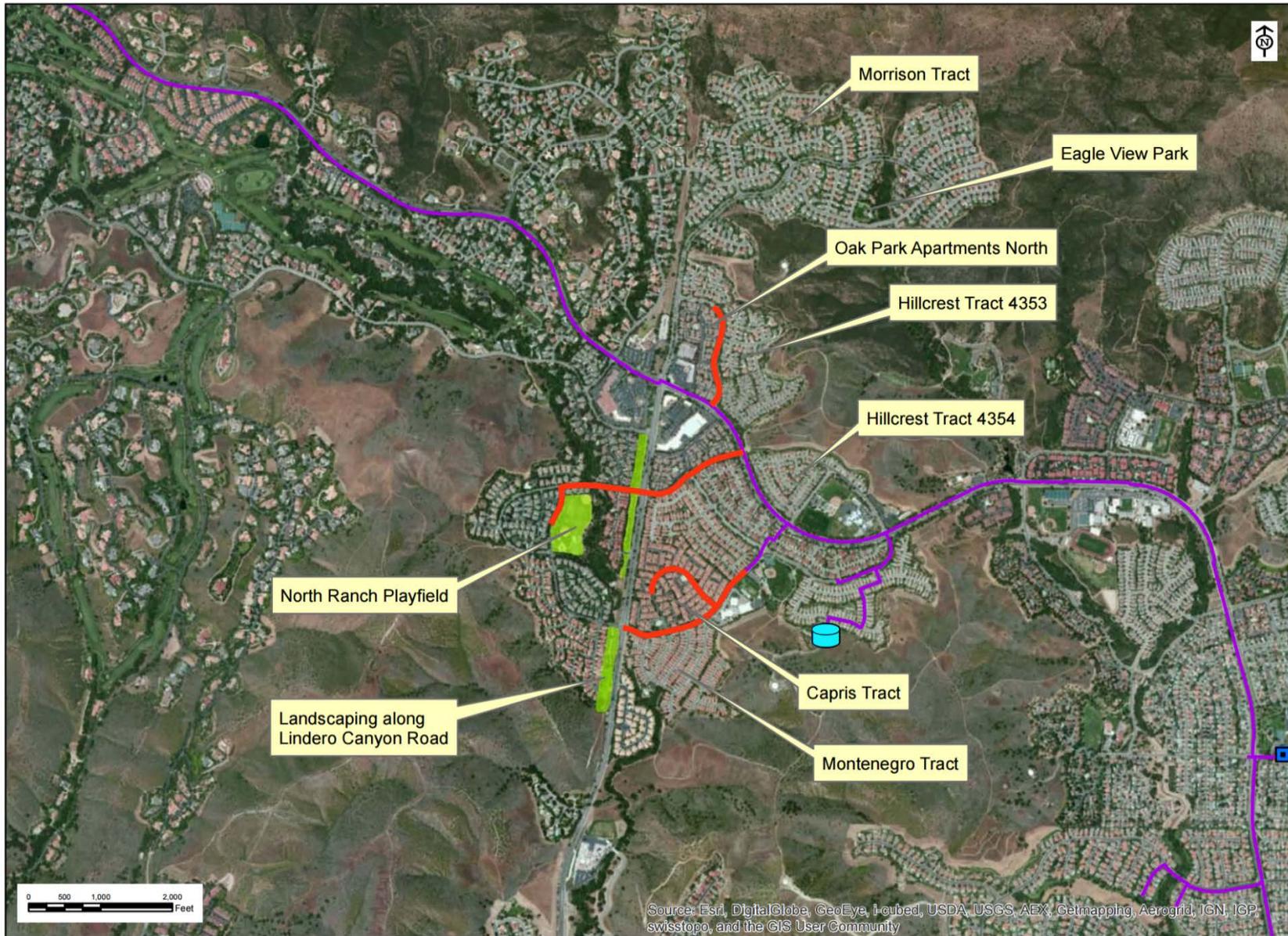


Table 6.5.5: Methods to Expand Future Recycled Water Use

<input type="checkbox"/>	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
6-13	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
Capris and Hillcrest/Oak Park North Tracts	Recycled water pipeline extensions for the Capris and Hillcrest Tracts of the Oak Park Water Service area to supply irrigation for homeowners' associations and multi-family complexes.	2016	324
Total			324

Notes: Units are in acre-feet per year

Urban Water Management Planning Act Requirement:

10633 (e) (Describe) the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

Table 6.5.6 compares the 2015 projected recycled water use from the 2010 UWMP to the actual 2015 use. Table 6.5.4 shows the current and projected recycled water uses within the District's service area. It can be seen that the actual use for 2015 surpassed the projected use; however, this is likely due to improved economic conditions and hotter, drier weather patterns.

Table 6.5.6: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual

Use Type		2010 Projection for 2015	2015 Actual Use
Agricultural irrigation		-	-
Landscape irrigation (excludes golf courses)		-	694
Golf course irrigation		-	342
Commercial use		-	-
Industrial use		-	-
Geothermal and other energy production		-	-
Seawater intrusion barrier		-	-
Recreational impoundment		-	-
Wetlands or wildlife habitat		-	-
Groundwater recharge (IPR)		-	-
Surface water augmentation (IPR)		-	-
Direct potable reuse		-	-
Other	<i>Net RW Use</i>	790	-
Total		790	1,036

NOTES: 'Other' is a combined use (uses not detailed separately: golf course/landscape) 587 AF projection in the 2010 UWMP, Table 3.2.8. Projection submitted in the Calleguas UWMP 2010 was 790 AF combined use (Normal Year Scenario, uses not detailed separately).

Urban Water Management Planning Act Requirement:
10633 (f) (Describe the) actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

TSD, LVMWD, and CMWD all encourage recycled water use among their customers through financial incentives and assisting with the installation and adoption of recycled water for landscape users. For TSD, recycled water is available at a 10% discount to customers who use water, allowing financial savings while encouraging water conservation. In addition, the District provides technical support to landscape users interested in switching to recycled water. This encourages users to retrofit previous potable water systems with recycled water systems while educating them regarding the requirements and regulations of proper recycled water use and maintenance.

Quantification of the results of the potential impact of the incentives is estimated below in Table 6.5.7. The numbers reported are based on the expected increase in recycled water use from the planned recycled water system expansions of the Capris and Hillcrest Tracts.

Table 6.5.7: Methods to Encourage Recycled Water Use

Actions	Projected Results			
	2020	2025	2030	2035
Financial Incentives	324	324	324	324
Total	324	324	324	324

Notes: Units are in acre-feet per year

In addition to the District’s incentives, MWD also has an extensive incentive program for encouraging the use of recycled water among its member agencies. Please refer to the MWD 2015 UWMP update for more information.

Urban Water Management Planning Act Requirement:

10633 (g) (Provide a) plan for optimizing the use of recycled water in the supplier’s service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

The TSD/LVMWD recycled water system was implemented in 1972. Since then, the system has become sophisticated and efficient in terms of the treatment, delivery, and disposal of recycled water. The District includes in its annual budget funds specifically for maintaining, repairing, and expanding the recycled water system. Funds for this are provided solely through the revenue generated by recycled water sales. In addition, capital improvement projects identified in the LVMWD, TSD, and CMWD Recycled Water Master Plan 2014 Update include:

- Construction of a seasonal storage reservoir to reduce the need for supplementing the recycled water supply with potable water during peak demand periods.
- Improvements to Reservoir No. 2 to conform to permit provisions and improve customer water quality.
- Upgrades to the air-gap facility at the Morrison Pump Station to improve the supply and pumping capacity within the District’s service area.

6.6 FUTURE WATER PROJECTS

Urban Water Management Planning Act Requirement:
 10631 (h) (Describe) all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635.

Due to the fact that the District’s service area is at build out and the population is not expected to increase over the planning horizon, there are no capital projects in progress or planned to increase the quantity of water supply to the area.

Table 6.6.1: Expected Future Water Supply Projects or Programs

<input checked="" type="checkbox"/>	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.
<input type="checkbox"/>	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.
6-18	Provide page location of narrative in the UWMP

Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency
	Yes or No?	<i>If Yes, Agency Name</i>				
-	-	-	-	-	-	-

Note – Oak Park Water Service area at built out