# Water Supply Assessment for the Twelve Oaks Resort, Winery and Residential Project

Prepared for

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# Rancho California Water District
# Water Supply Assessment for the
# Twelve Oaks Resort, Winery and Residential Project

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# Glossary of Abbreviations and Terms

## Agencies

| | |
|---|---|
| CALFED | State/Federal collaboration to improve San Francisco Bay/Sacramento-San Joaquin River Delta |
| CDPH | California Department of Public Health |
| CUWCC | California Urban Water Conservation Council |
| District | Rancho California Water District |
| DOF | California Department of Finance |
| DWR | California Department of Water Resources |
| EMWD | Eastern Municipal Water District |
| EVMWD | Elsinore Valley Municipal Water District |
| LAFCO | Local Agency Formation Commission |
| MCWD | Murrieta County Water District *(consolidated with WMWD in November 2005)* |
| Metropolitan | Metropolitan Water District of Southern California |
| MWDSC | Metropolitan Water District of Southern California |
| Pechanga | Pechanga Band of Luiseno Mission Indians |
| RCWD | Rancho California Water District |
| RWQCB | Regional Water Quality Control Board |
| SANDAG | San Diego Association of Governments |
| SAWPA | Santa Ana Watershed Project Authority |
| SCAG | Southern California Association of Governments |
| SDCWA | San Diego County Water Authority |
| SRRRA | Santa Rosa Regional Resources Authority |
| SWRCB | State Water Resources Control Board |
| USEPA | U.S. Environmental Protection Agency |
| WMWD | Western Municipal Water District |

## Facilities and Locations

| | |
|---|---|
| CRA | Colorado River Aqueduct |
| CVP | Central Valley Project |
| SARI | Santa Ana River Interceptor |
| SRWRF | Santa Rosa Water Reclamation Facility |
| SWP | State Water Project |
| TVRWRF | Temecula Valley Regional Water Reclamation Facility |
| VDC | Valle del los Caballos |

## Measurements

| | |
|---|---|
| AF | Acre feet |
| AFY or AF/Y | Acre-feet per year |
| cfs | Cubic feet per second |
| ged | Gallons per employee per day |
| gpcd | Gallons per capita (person) per day |
| gpd | Gallons per day |
| gpm | Gallon per minute |
| GWS | Gross water savings |
| HCF | Hundred cubic feet |
| MAF | Million acre feet |
| MCL | Maximum Contaminant Level |
| MG | Million gallons |
| mg/L | Milligram Per Liter ($10^{-3}$ gram per liter) |
| MGD | Million gallons per day |
| pCi/L | Picocuries Per Liter (A unit of measure of levels of radon gas) |
| µg/L | Microgram Per Liter ($10^{-6}$ gram per liter) or parts per billion |

# Glossary of Abbreviations and Terms

### Water Quality

| | |
|---|---|
| TDS | Total Dissolved Solids |
| Title 22 | California Title 22 Drinking Water Standards |
| TOC | Total Organic Carbon |
| VOC | Volatile Organic Compounds |

### Other

| | |
|---|---|
| Act | Urban Water Management Planning Act of 1983, as amended |
| AG | Agricultural |
| AG/D | Agricultural/domestic |
| AH/NR | Average Hydrology/Normal Replenishment |
| AWT | Advanced Water Treatment |
| Basin | Temecula Valley Groundwater Basin |
| BMP | Best Management Practice |
| Board | Board of Directors |
| BOD | Biochemical Oxygen Demand |
| CASGEM | California Statewide Groundwater Elevation Monitoring |
| CEQA | California Environmental Quality Act |
| CI | Commercial and industrial |
| CII | Commercial, industrial and institutional |
| DMM | Demand Management Measure |
| EOC | Emergency Operations Center |
| EIR | Environmental Impact Report |
| ESA | Endangered Species Act |
| ET or ETo | Evapotranspiration |
| FAR | Floor to Area Ratio |
| IAWP | Interim Agricultural Water Program |
| IRP | Regional Integrated Resources Plan |
| IRPP | Infrastructure Reliability and Protection Program |
| IRWM | Integrated Regional Water Management |
| IRWMP | Integrated Regional Water Management Plan |
| Judgment | Modified Final Judgment and Decree |
| LFSH | Low-Flow Showerhead |
| LPP | Local Projects Program |
| LRP | Local Resources Program |
| MF | Microfiltration |
| MND | Mitigated Negative Declaration |
| MOU | Memorandum of Understanding |
| O&M | Operation and maintenance |
| PAC | Project Advisory Committee |
| Project | Twelve Oaks Resort, Winery and Residential Project |
| PRISM | Precision Irrigation Scheduling Method |
| RGPR | Recommended Groundwater Production Report |
| RO | Reverse Osmosis |
| RUWMP | Regional Urban Water Management Plan |
| SB | Senate Bill |
| SDP | Seawater Desalination Program |
| SGMA | Sustainable Groundwater Management Act |
| TAZ | Transportation Analysis Zone |
| Twelve Oaks | Twelve Oaks Resort, Winery and Residential Project |
| UWMP | Urban Water Management Plan |
| WSA Plan | Water Supply Assessment |
| WFMP | Water Facilities Master Plan |
| WSC Plan | Water Shortage Contingency Plan |
| WSDM | Water Shortage and Demand Management |

# EXECUTIVE SUMMARY

The County of Riverside (County) is responsible for the preparation of the Twelve Oaks Resort, Winery and Residential Project (Twelve Oaks or Project) Environmental Impact Report (EIR) or Mitigated Negative Declaration (MND) under the California Environmental Quality Act (CEQA). The CEQA document includes an assessment of utilities, including water supply. Senate Bill 610 requires that a water supply assessment (WSA), based on specific criteria, be prepared by the public water system that will supply water to the Project. Rancho California Water District (RCWD or District) is the public water system for the proposed Project.

The WSA identifies water supply and reliability to the District, now and into the future, including a "sufficient water supply" for the Project. **The WSA does not, nor it is intended to, identify infrastructure needs related to the provision of water for the proposed Twelve Oaks Project.**

All future projects including the Twelve Oaks Project are subject to the rules and regulations in place at the time when meter installation is requested, including but not limited to, the District's Water Supply Contingency Plan.

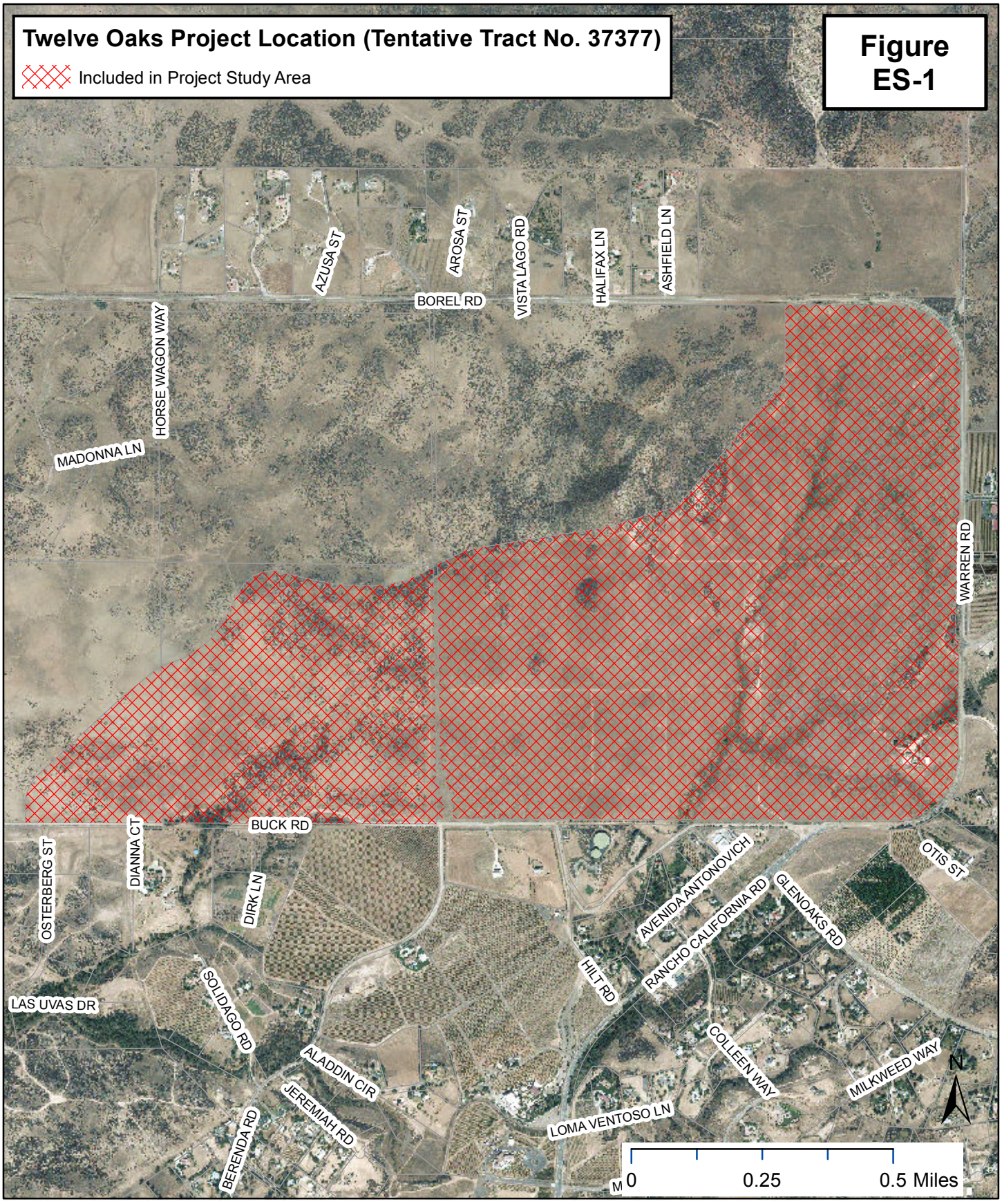
The WSA includes a discussion of the relevant legislation requiring the WSA, an overview of the proposed Project, analysis of water demands for the District's existing service area and the Project over a 25-year planning period consistent with build out of the Project, analysis of reliability of the District's water supplies, including each agency that impacts water supply and water quality to the region, and concludes with a sufficiency analysis of water supply during normal, single-dry, and multiple dry years over a 25-year planning period.

## *Twelve Oaks Resort, Winery and Residential Project*

The Project is located in the Wine Country Community Plan area of southwestern Riverside County, northeast of the City of Temecula. The Project proposes to develop 630.9 acres including a residential area and a resort area, as illustrated in Figure ES-1.

The Project's resort area consists of a 251-room Twelve Oaks Resort ("Resort"), with amenities consisting of a Class VI winery ("Resort Winery"), Conference/Event Center and Marketplace, will be located in the eastern portion of the Project site. The Resort and its amenities will be developed on 126 gross acres, with approximately, 87.1 acres of vineyards and 10.4 acres of orchards and other landscaping.

# Study Area





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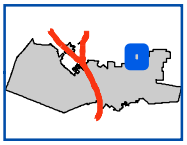


The Project's residential area in the western portion of the Project site includes the development of 76 single family lots or dwelling units (DU) for future custom-build homes ("Clustered Lots") and 21 larger, 10+ acre estate lots ("Estate Lots"). Each of the Estate Lots will include two building pads. On all 21 Estate Lots, one pad would be for a primary residence with "Cottage Inn" style lodging. On 18 of the 21 Estate Lots, the second pad would be for a Class II Winery, and on the remaining three (3) Estate Lots, the second pad would be for ancillary structures associated with farming, livestock and other allowed uses. This residential area of the Project will also include approximately 242 acres of vineyard area.

The build-out of the Project is anticipated to occur over a 4-year timeframe. Projected water demands are based upon the land use descriptions and phasing summarized in the *Twelve Oaks Proposed Water Demands Technical Memorandum (Twelve Oaks TM)*, prepared by Fuscoe Engineering, and submitted to the District on October 27, 2017. The *Twelve Oaks TM* has been included in Appendix A. The residential vineyard area in the *Twelve Oaks TM* was updated in an email from Fuscoe Engineering on January 25, 2018, which has also been included in Appendix A.

For the parcels contained within the proposed Project, there are currently two distinct County of Riverside General Plan Land Use Designations: Agriculture (AG) and Rural Residential. The entire Project is within the General Plan's Temecula Valley Wine Country Policy Area, Winery District Overlay. There are no recycled water meters or private groundwater wells providing service to the Study Area. In September 2015, the Project study area began receiving potable water through a 4-inch irrigation meter to support the planting of 53 acres of vineyard area (*Twelve Oaks TM*). As such, the existing potable water demand is attributed to the proposed Project, and not associated with existing land use demands that would be replaced by Twelve Oaks. Accordingly, the District's *2015 UWMP* had no existing potable or recycled water demands associated with the Twelve Oaks Study Area.

Utilizing the methodology from the District's *2015 Water Facilities Master Plan* (*2015 WFMP*), the build-out potable water demand for the existing land use of the parcels contained within the proposed Project area was projected, based on existing Riverside County General Plan Land Use Classifications. For each parcel within the area, the current Riverside County General Plan Land Use Classification was correlated to a District Land Use Classification. Based on the District Land Use Classification, the appropriate water demand duty factor was multiplied by a parcel's gross area in order to calculate the build-out water demand. It is this build-out water demand which was also utilized in projecting demands in the District's *2015 Urban Water Management Plan (UWMP)*. Build-out potable water demand is currently projected to be 715,490 gpd (802 AFY) with 35 residential dwelling units for the study area without the Twelve Oaks Project.

### *Water Supply*

The District currently obtains its water supplies from the following primary water sources: 1) local groundwater from the Temecula Valley Groundwater Basin; 2) imported State Water Project (SWP) and Colorado River water from the Metropolitan Water District of Southern California (MWDSC or Metropolitan) via Eastern Municipal Water District (EMWD) and Western Municipal Water District (WMWD); and 3) recycled water from both the District and EMWD.

The District receives its imported water (treated and untreated) directly through 6 MWDSC water turnouts: 3 in EMWD's service area and 3 in WMWD's service area. The District pumps groundwater from 53 District wells and recycles water at its SRWRF. Additional recycled water is available from EMWD's TVRWRF. The District owns and operates 43 storage reservoirs and 1 surface reservoir, Vail Lake. The storage capacity of Vail Lake is 45,207 AF, and it is used to help recharge groundwater, through the use of infiltration basins downstream from Vail Lake release.

Historically, groundwater has supplied between 25 to 40% of the District's total water supply and imported water has supplied between 60 to 70%. In 2015, recycled water comprised approximately 6% of the District's water supply portfolio. Current and planned improvements will increase the use of recycled water. Table ES-1 summarizes the District's current and projected water supplies under normal conditions. The Water Reliability Analysis of these supplies is presented in Section 5, Reliability of Water Supplies.

**Table ES-1**
**2015, Current and Projected Water Supplies**
**(AF)**

| Water Supply Sources | 2015 | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|---|
| Imported Water (MWD) | | | | | | | | |
| Treated - RCWD | 24,513 | 40,314 | 45,704 | 35,107 | 35,434 | 37,134 | 30,341 | 28,558 |
| Treated - Sale of Water to Others | 304 | 361 | 372 | 5,278 | 5,278 | 5,278 | 5,278 | 5,278 |
| Untreated – Groundwater Recharge | 12,254 | 14,000 | 15,084 | 23,085 | 24,438 | 24,438 | 33,571 | 35,854 |
| Untreated – Santa Margarita River Discharge | 2,954 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| Local Groundwater Pumping | 25,018 | 17,511 | 17,511 | 25,422 | 25,422 | 25,422 | 25,422 | 25,422 |
| Recycled Water | | | | | | | | |
| RCWD | 4,036 | 4,194 | 4,246 | 6,018 | 7,471 | 7,784 | 7,859 | 7,935 |
| Sale of Water to Others | 362 | 400 | 700 | 700 | 700 | 700 | 700 | 700 |
| Vail Lake Release[1] | 1,007 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 |
| **Total Supplies** | **70,448** | **83,780** | **90,617** | **102,610** | **105,743** | **107,756** | **110,171** | **110,747** |

Source: RCWD *2015 UWMP* Tables 6-14 and 6-15 ; RCWD Engineering and Operations Departments

[1] Vail Lake releases to the Valle de los Caballos spreading basins for native groundwater recharge, and is not a direct supply but rather is accounted for in native groundwater supply.

### *Water Use*

The District's projected water demands consider existing demand in the service area, land use development beyond 2018, and the quantity of recycled water use and agricultural water use. In 2015, the District's total potable water demand was approximately 62,325 AF, and the District's total recycled water demand was 4,013 AFY. The proposed Project will increase potable water demand in 2024 by 704 AFY, generating a net decrease build-out need of approximately 9 AFY or 7,613 gallons per day (gpd) of potable water compared to the projections in the *2015 WFMP*.

The Project will not receive recycled water. The primary water quality component that affects the beneficial use of recycled water in the District's service area is the level of TDS, which generally classifies how salty the water is. The recycled water produced by the SRWRF and the TVRWRF generally averages a TDS value of 730 mg/L. Within the District's service area, the San Diego Regional Water Quality Control Board's Basin Plan limits the use of recycled water to hydrologic subbasins with a TDS limit of 750 mg/L. For hydrologic subbasins with a TDS limit of 500 mg/L, the use of recycled water in these areas requires the demineralization of recycled water or an approved recycled water use plan based on the assimilative capacity of the subbasin. The Twelve Oaks Project overlays the Bachelor Mountain and Gertrudis hydrologic subbasins with TDS limits of 500 mg/L.

The water demand and supply analysis is discussed and shown in 5-year increments below. Table ES-2 shows the total water uses in the RCWD service area by customer classification and the additional water use for groundwater recharge.

The build-out of the Project is anticipated to occur over a 4-year timeframe. Projected water demands are based upon the land use descriptions and phasing summarized in *Twelve Oaks TM* (Appendix A).

### *Demand and Supply Projections*

Table ES-3 shows the current and projected water demand and supply for the District, including the net increase in demand the proposed Project will require through 2044 in normal water year conditions. Single dry and multiple dry year demand and supply analysis are shown in Chapter 5.

While SB 610 requires a 20-year planning period, 2044 represents a 25-year planning period from 2019, which is consistent with and exceeds the District's *2015 UWMP*, and satisfies the 20-year planning period for the WSA.

Demand and supply projections consider land use, in addition to water development programs and projects. A supply surplus is indicated demonstrating a sufficient water supply for the District and the proposed Project through the 25-year planning period.

**Table ES-2**
**2015, Current, and Projected Water Use by Sector**
**Including Twelve Oaks [1]**
**(AF)**

| | 2015 | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|---|
| **Potable** | | | | | | | | |
| Single Family Residential | 25,308 | 27,445 | 28,158 | 29,962 | 31,146 | 32,329 | 33,624 | 34,947 |
| Multi-Family Residential | 2,201 | 2,387 | 2,508 | 2,683 | 2,786 | 2,890 | 3,003 | 3,118 |
| Commercial | 3,393 | 3,680 | 3,785 | 4,046 | 4,205 | 4,365 | 4,540 | 4,719 |
| Institutional/ Governmental | 463 | 502 | 515 | 546 | 567 | 589 | 613 | 638 |
| Landscape | 5,601 | 6,074 | 6,247 | 6,616 | 6,879 | 7,143 | 7,431 | 7,725 |
| Agricultural irrigation | 21,940 | 23,906 | 24,692 | 26,464 | 27,448 | 28,432 | 29,508 | 30,608 |
| Other[2] | 75 | 83 | 85 | 88 | 92 | 95 | 99 | 103 |
| **Total Potable Demand** | **58,981** | **64,077** | **65,990** | **70,404** | **73,123** | **75,842** | **78,818** | **81,858** |
| Sale of Potable Water to Others[4] | 304 | 361 | 372 | 5,278 | 5,278 | 5,278 | 5,278 | 5,278 |
| Recycled & Non-Domestic Demand[3] | 3,477 | 3,875 | 4,007 | 4,140 | 6,860 | 7,464 | 7,582 | 7,637 |
| Sale of Recycled Water to Others[4] | 362 | 400 | 700 | 700 | 700 | 700 | 700 | 700 |
| **Total Water Demand** | **4,143** | **4,636** | **5,080** | **10,118** | **12,838** | **13,442** | **13,560** | **13,615** |
| Santa Margarita River Discharge[5] | 2,954 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| Unaccounted-For Water[6] | 3,214 | 3,443 | 3,521 | 3,710 | 3,986 | 4,156 | 4,315 | 4,474 |
| **Total Water Use** | **69,292** | **76,156** | **78,591** | **88,232** | **93,947** | **97,440** | **100,693** | **103,947** |

Sources: 1) RCWD 2015 UWMP Tables 4-4 and 4-5 for potable demands and Table 6-10 for recycled water demands.

[1] Total potable demand projections by sector for Twelve Oaks were developed based on project components and phasing presented in Chapter 3.

[2] Includes water to construction, miscellaneous, and other temporary water use including wetland restoration.

[3] Recycled water for agriculture, landscape, golf courses, construction and residential.

[4] Water wheeling agreements with EMWD and WMWD, and also to the Pechanga Reservation, which are shown in Tables 4.2-2 and 4.2-3; recycled water to Pechanga included in recycled demand total.

[5] Required Santa Margarita River flows.

[6] Equal to difference between total water production and total billed (sales) water. The District's 2016 Water Loss Audit completed in compliance with SB555 confirmed water loss below 5%; so water loss was assumed to be 5% and was extrapolated from the RCWD 2015 UWMP Tables 4-4 and 4-5.

**Table ES-3**

**2015, Current and Projected Water Demand and Supply**

**Including Twelve Oaks (AF)**

| Water Sources | 2015 | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|---|
| **DEMAND** | | | | | | | | |
| **Potable** | | | | | | | | |
| RCWD | 58,981 | 64,076 | 65,775 | 69,701 | 72,483 | 75,265 | 78,311 | 81,422 |
| Twelve Oaks* | 0 | 0 | 215 | 704 | 640 | 577 | 507 | 436 |
| Sale of Water to Others | 304 | 361 | 372 | 5,278 | 5,278 | 5,278 | 5,278 | 5,278 |
| Unaccounted-for Water | 3,040 | 3,251 | 3,321 | 3,503 | 3,643 | 3,783 | 3,936 | 4,092 |
| ***Total Potable Demand*** | ***62,325*** | ***67,688*** | ***69,683*** | ***79,186*** | ***82,044*** | ***84,903*** | ***88,032*** | ***91,228*** |
| **Untreated** | | | | | | | | |
| Santa Margarita River (SMR) Flows | 2,954 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| ***Total Untreated Demand*** | ***2,954*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** |
| **Recycled** | | | | | | | | |
| RCWD | 3,477 | 3,875 | 4,007 | 4,140 | 6,860 | 7,464 | 7,582 | 7,637 |
| Sale of Water to Others | 362 | 400 | 700 | 700 | 700 | 700 | 700 | 700 |
| Unaccounted-for Water | 174 | 194 | 200 | 207 | 343 | 373 | 379 | 382 |
| ***Total Recycled Demand*** | ***4,013*** | ***4,469*** | ***4,908*** | ***5,047*** | ***7,903*** | ***8,537*** | ***8,661*** | ***8,719*** |
| ***Total Water Demand*** | ***69,292*** | ***76,156*** | ***78,591*** | ***88,232*** | ***93,947*** | ***97,440*** | ***100,693*** | ***103,947*** |
| **RCWD SUPPLY** | | | | | | | | |
| **Potable** | | | | | | | | |
| Imported – Treated | 24,817 | 40,675 | 46,076 | 40,385 | 40,712 | 42,412 | 35,619 | 33,836 |
| Imported – Untreated – Groundwater Recharge | 12,254 | 14,000 | 15,084 | 23,085 | 24,438 | 24,438 | 33,571 | 35,854 |
| Local Groundwater | 25,018 | 17,511 | 17,511 | 25,422 | 25,422 | 25,422 | 25,422 | 25,422 |
| ***Total Potable Supply*** | ***62,325*** | ***72,186*** | ***78,671*** | ***88,892*** | ***90,572*** | ***92,272*** | ***94,612*** | ***95,112*** |
| **Untreated** | | | | | | | | |
| Santa Margarita River (SMR) Flows | 2,954 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| ***Total Untreated Supply*** | ***2,954*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** |
| Recycled | | | | | | | | |
| SRWRF (RCWD) | 1,902 | 1,975 | 1,999 | 2,085 | 2,166 | 2,215 | 2,264 | 2,335 |
| TVWRF (EMWD) | 2,496 | 2,619 | 2,948 | 4,634 | 6,006 | 6,269 | 6,295 | 6,300 |
| ***Total Recycled Supply*** | ***4,398*** | ***4,594*** | ***4,946*** | ***6,718*** | ***8,171*** | ***8,484*** | ***8,559*** | ***8,635*** |
| ***Total Water Supply*** | ***69,677*** | ***80,780*** | ***87,617*** | ***99,610*** | ***102,743*** | ***104,756*** | ***107,171*** | ***107,747*** |
| **SUPPLY SURPLUS** | **385** | **4,623** | **9,027** | **11,378** | **8,797** | **7,316** | **6,478** | **3,800** |
| **POTABLE SUPPLY SURPLUS** | **0** | **4,498** | **8,988** | **9,706** | **8,528** | **7,369** | **6,580** | **3,884** |

* - This is the net increase in potable water demand resulting from Twelve Oaks, as previously presented in Table 3.2-2

### *Reliability*

The reliability of the District's water supply is partially dependent on the reliability of its imported water supplies, which are managed and delivered by EMWD and WMWD, each a direct member agency of MWDSC. The District also overlies the Temecula Valley Groundwater Basin and is working in cooperation with the Santa Margarita River Watershed Watermaster and multiple stakeholders to achieve water supply reliability, water quality, and watershed management goals for the Upper Santa Margarita Watershed.

Section 5 in this WSA presents normal, single dry and multiple dry water year projections of District's water supplies and demands over the next 25 years. As shown in Section 5, supplies are expected to exceed demands in all years in all hydrologic conditions.

# 1.0 INTRODUCTION

The County of Riverside (County) is responsible for the preparation of the Twelve Oaks Resort, Winery and Residential Project (Twelve Oaks or Project) Environmental Impact Report (EIR) or Mitigated Negative Declaration (MND). The CEQA document includes an assessment of utilities, including water supply. Senate Bill 610 requires that a water supply assessment (WSA), based on specific criteria, be prepared by the public water system that will supply water to the Project. Rancho California Water District (RCWD or District) is the public water system for the proposed Project. The WSA includes a discussion regarding the sufficiency of available water supply during normal, single dry and multiple dry water years during a 20-year projection that will meet the projected water demand associated with the proposed Project, in addition to the District's existing and planned future water uses. **The WSA does not, nor it is intended to, identify infrastructure needs related to the provision of water for the proposed Project.**

Twelve Oaks (Tentative Tract Map No. 37377) is located in the Wine Country Community Plan area of southwestern Riverside County, northeast of the City of Temecula. The Project proposes to develop 630.9 acres including a resort area and a residential area.

The Project's resort area consists of a 251-room Twelve Oaks Resort ("Resort"), with amenities consisting of a Class VI winery ("Resort Winery"), Conference/Event Center and Marketplace, will be located in the eastern portion of the Project site. The Resort and its amenities will be developed on 126 gross acres, with approximately, 87.1 acres of vineyards and 10.4 acres of orchards and other landscaping.

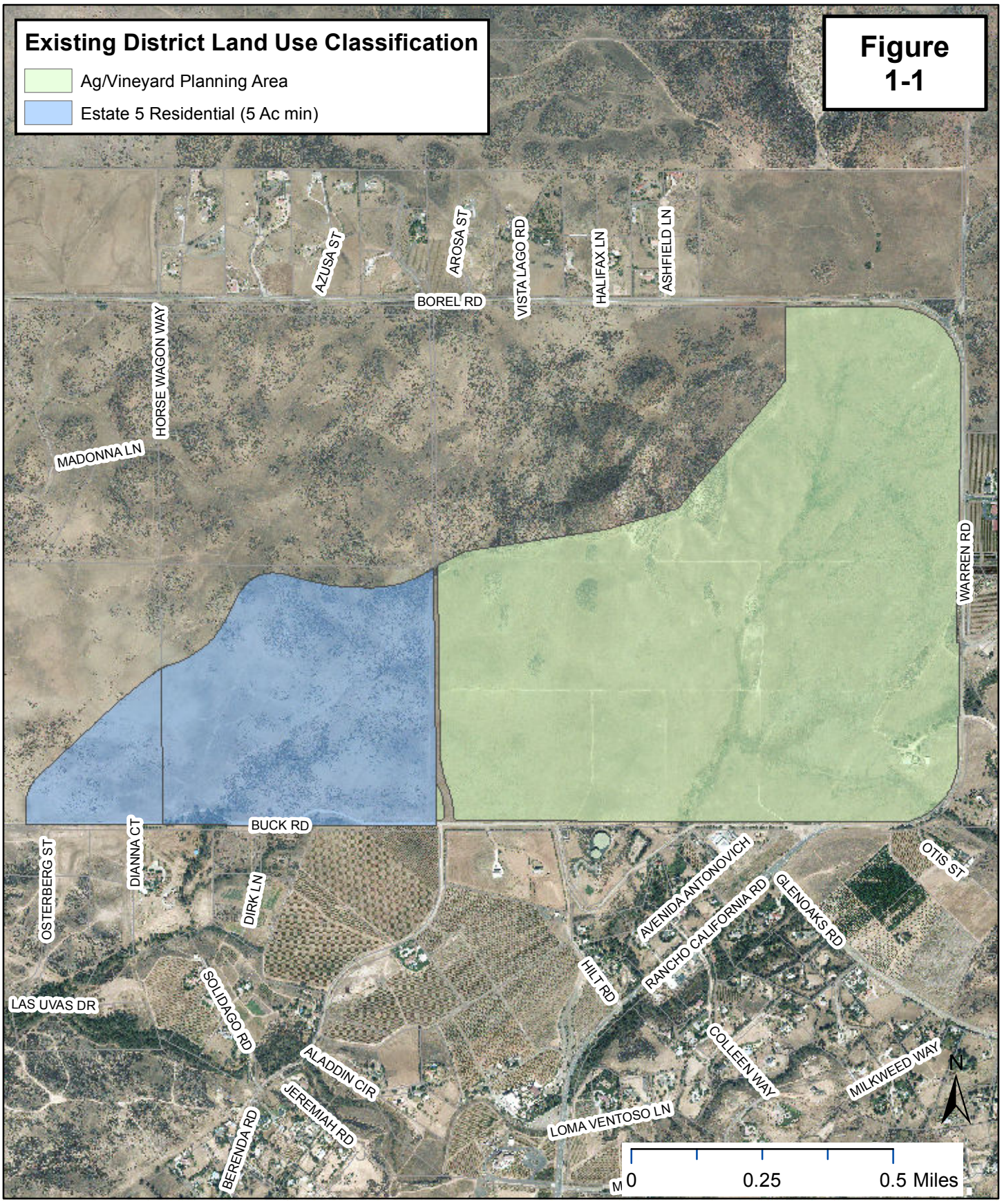
The Project's residential area in the western portion of the Project site includes the development of 76 single family lots or dwelling units (DU) for future custom-build homes ("Clustered Lots") and 21 larger, 10+ acre estate lots ("Estate Lots"). Each of the Estate Lots will include two building pads. On all 21 Estate Lots, one pad would be for a primary residence with "Cottage Inn" style lodging. On 18 of the 21 Estate Lots, the second pad would be for a Class II Winery, and on the remaining three (3) Estate Lots, the second pad would be for ancillary structures associated with farming, livestock and other allowed uses. This residential area of the Project will also include approximately 242 acres of vineyard area, as identified in an email from Fuscoe Engineering on January 25, 2018 (Appendix A).

The build-out of the Project is anticipated to occur over a 4-year timeframe. Projected water demands are based upon the land use descriptions and project phasing summarized in the *Twelve Oaks Proposed Water Demands Technical Memorandum (Twelve Oaks TM)*, prepared by Fuscoe Engineering, and submitted to the District on October 27, 2017. The *Twelve Oaks TM* has been included in Appendix A. The Project's general location is illustrated in Figure 1-1.

The WSA is considered at a point in time when known future projects of the District are considered. It is also understood that new and innovative programs and projects in concept are yet to be designed. Therefore, WSAs are a part of the ongoing planning efforts of the District to optimize its water resource program.

The WSA includes a discussion of the relevant legislation requiring the WSA (SB 610), an overview of the proposed Project, as well as an analysis of water demands for the District's existing service area and the Project over a 20-year or more planning period. The WSA also presents an analysis of the reliability of the District's water supplies, including each agency that impacts water supply and water quality to the region, and concludes with a sufficiency analysis of water supply during normal, single-dry, and multiple dry years over a 20-year or more planning period.

# Study Area - Existing Land Use of Parcels within Project





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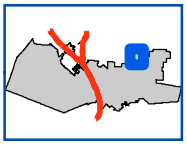

# 2.0 LEGISLATION

Due to the Project's potential impact on current and future water supplies, the State of California, through SB 610, requires that a WSA be completed for the proposed Twelve Oaks Project. Although the Project includes less than 500 dwelling units/hotel rooms, due to the irrigation demands of the 242 acres of vineyard area, it is anticipated that the Project will "demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project." RCWD is the proposed water provider for the Project, and therefore prepared this WSA.

The County has determined that the Project is subject to the California Environmental Quality Act (CEQA), and is preparing either an EIR or MND. It has also been determined that a WSA should be prepared to determine the sufficiency of water supply to the project and the District's existing water customers and for the planning period. The WSA information will be incorporated into the CEQA document. The following information outlines the requirements of SB 610.

## 2.1 SB 610 – Costa – Water Supply Planning

SB 610 was chaptered into law on October 9, 2001. SB 610 requires a city or county that determines a particular project is subject to CEQA, to identify any public water system that may supply water for the project and to request those public water systems to prepare a specified WSA. The assessment is to include the following if applicable to the supply conditions:

1. Discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing.
2. Identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project and water received in prior years pursuant to those entitlements, rights, and contracts.
3. Description of the quantities of water received in prior years by the public water system under the existing water supply entitlements, water rights or water service contracts.
4. Water supply entitlements, water rights or water service contracts shall be demonstrated supporting documentation such as by the following:
    a. Written contracts or other proof of entitlement to an identified water supply.
    b. Copies of capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.
    c. Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.

d. Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

5. Identification of other public water systems or water service contract holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system.
6. If groundwater is included for the supply for a proposed project, the following additional information is required:
   a. Review of any information contained in the Urban Water Management Plan (UWMP) relevant to the identified water supply for the proposed project.
   b. Description of any groundwater basin(s) from which the proposed project will be supplied. Adjudicated basins must have a copy of the court order or decree adopted and a description of the amount of groundwater the public water system has the legal right to pump. For non-adjudicated basins, information on whether the DWR has identified the basin as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of DWR that characterizes the condition of the basin, and a detailed description of the efforts being undertaken in the basin to eliminate the long-term overdraft condition.
   c. Description and analysis of the amount and location of groundwater pumped by the public water system for the past 5 years from any groundwater basin which the proposed project will be supplied. Analysis should be based on information that is reasonably available, including, but not limited to, historic use records.
   d. Description and analysis of the amount and location of groundwater projected to be pumped by the public water system from any groundwater basin which the proposed project will be supplied. Analysis should be based on information that is reasonably available, including, but not limited to, historic use records.
   e. Analysis of sufficiency of the groundwater from the basin(s) from which the proposed project will be supplied.
   f. The water supply assessment shall be included in any environmental document prepared for the project.
   g. The assessment may include an evaluation of any information included in that environmental document. A determination shall be made whether the projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses.

Additionally, SB 610 requires new information to be included as part of an Urban Water Management Plan (UWMP) if groundwater is identified as a source of water available to the supplier. The District's *2015 Urban Water Management Plan* (*2015 UWMP*) includes a comprehensive discussion of groundwater.

# 3.0 Twelve Oaks Resort, Winery and Residential Project

## 3.1 Project Description

Twelve Oaks is located in the Wine Country Community Plan area of southwestern Riverside County, northeast of the City of Temecula. The Project proposes to develop 630.9 acres including a resort area and residential area.

The Project's resort area consists of a 251-room Twelve Oaks Resort ("Resort"), with amenities consisting of a Class VI winery ("Resort Winery"), Conference/Event Center and Marketplace, will be located in the eastern portion of the Project site. The Resort and its amenities will be developed on 126 gross acres, with approximately, 87.1 acres of vineyards and 10.4 acres of orchards and other landscaping.

The Project's residential area in the western portion of the Project site includes the development of 76 single family lots or dwelling units (DU) for future custom-build homes ("Clustered Lots") and 21 larger, 10+ acre estate lots ("Estate Lots"). Each of the Estate Lots will include two building pads. On all 21 Estate Lots, one pad would be for a primary residence with "Cottage Inn" style lodging. On 18 of the 21 Estate Lots, the second pad would be for a Class II Winery, and on the remaining three (3) Estate Lots, the second pad would be for ancillary structures associated with farming, livestock and other allowed uses. This residential area of the Project will also include approximately 242 acres of vineyard area, as identified in an email from Fuscoe Engineering on January 25, 2018 (Appendix A).

The build-out of the Project is anticipated to occur over a 4-year timeframe. Projected water demands are based upon the land use descriptions and phasing summarized in the *Twelve Oaks Proposed Water Demands Technical Memorandum (Twelve Oaks TM)*, prepared by Fuscoe Engineering, and submitted to the District on October 27, 2017. The *Twelve Oaks TM* has been included in Appendix A.

The existing District land use classification of the parcels contained within the proposed Project are illustrated in Figure 1-1. There are currently no recycled water meters or private groundwater wells providing service to the Study Area. In September 2015, the Project study area began receiving potable water through a 4-inch irrigation meter to support the planting of 53 acres of vineyard area (*Twelve Oaks TM*). As such, the existing potable water demand is attributed to the proposed Project, and not associated with existing land use demands that would be replaced by Twelve Oaks. Accordingly, the District's 2015 UWMP had no existing potable or recycled water demands associated with the Twelve Oaks Study Area.

Utilizing the methodology from the District's *2015 Water Facilities Master Plan* (*2015 WFMP*), the build-out potable water demand for the existing land use of parcels contained within the proposed Project area was projected, based on existing Riverside County General Plan Land Use Classifications. For each parcel within the area, the current Riverside County General Plan Land Use Classification was correlated to a District Land Use Classification. Based on the District Land Use Classification, the appropriate water demand duty factor was multiplied by a parcel's gross area in order to calculate the build-out water demand presented in Table 3.1-1. It is this build-out water demand which was also utilized in projecting demands in the District's *2015 UWMP*. As shown, build-out potable water demand is currently projected to be 715,490 gpd (802 AFY) with 35 residential dwelling units for the study area without the Twelve Oaks Project.

**Table 3.1-1 - Projected Build-Out Water Demands in the 2015 Urban Water Management Plan for the Parcels Within the Twelve Oaks Resort, Winery and Residential Project Based on Existing Riverside County General Plan Land Use Designation**

| Riverside County General Plan | District Land Use Classification | APN(s) | Area (ac) | Water Demand Duty Factor (gpd/ac) | Projected Build-Out Water Demand (gpd) |
|---|---|---|---|---|---|
| Agriculture (AG) | Ag/Vineyard Planning Area | 964-160-004 and 964-160-005 | 455.8 | 1,339 | 610,322 |
| Rural Residential | Estate 5 Residential | 964-160-007 and 964-160-009 | 175.3 | 600 | 105,168 |
| ***TOTAL*** | | | ***631.1*** | **-** | ***715,490*** |

The residential dwelling units and potable water demand for the Study Area without the Twelve Oaks Project have been projected in 5-Year increments consistent with the potable water demand projections in the *2015 UWMP*. The Study Area residential dwelling units and potable water demand were assumed to develop at a similar rate as the potable water demands presented in the *2015 UWMP* (Tables 4-4 through 4-6), as summarized in Table 3.1-2.

**Table 3.1-2 - Projected Dwelling Units and Potable Water Demands in 5-Year Increments for the Study Area WITHOUT the Twelve Oaks Project**

| Year | Percent of the Increase in Potable Water Demand between 2019 and 2087 Anticipated in the 2015 UWMP | Number of Dwelling Units (du) | Potable Water Demand | |
|---|---|---|---|---|
| | | | gpd | AFY |
| 2019 | 0% | 0 | 0 | 0 |
| 2024 | 11% | 4 | 79,679 | 89 |
| 2029 | 19% | 7 | 136,342 | 153 |
| 2034 | 27% | 9 | 193,021 | 216 |
| 2039 | 36% | 12 | 255,045 | 286 |
| 2044 | 45% | 16 | 318,403 | 357 |
| 2087 | 100% | 35 | 715,490 | 802 |

Utilizing the methodology from the *2015 WFMP*, the potable water demand for the proposed Project was projected based on information provided in the *Twelve Oaks TM*. In addition to the *Twelve Oaks TM*, the following documents were utilized in developing the projected water demands and have also been included in Appendix A:

- Email from Fuscoe Engineering dated December 4, 2017, which includes a phasing exhibit and site plan (Figure 3.1-2), as we all service connection and buildable area information;

- Email from Fuscoe Engineering dated December 8, 2017, which includes net pad acreage for residential land uses; and

- Email from Fuscoe Engineering dated January 25, 2018, which revised the residential vineyard area.

The build-out of the Project is anticipated to occur over a 4-year timeframe. Projected water demands are based upon the land use descriptions and phasing summarized in the *Twelve Oaks Proposed Water Demands Technical Memorandum (Twelve Oaks TM)*, prepared by Fuscoe Engineering, and submitted to the District on October 27, 2017. The *Twelve Oaks TM* has been included in Appendix A.

The large-scale, 251-room Twelve Oaks Resort ("Resort"), with amenities consisting of a Class VI winery ("Resort Winery"), Conference/Event Center and Marketplace, will be located in the eastern portion of the Project site. The Resort and its amenities will be developed on 126 gross acres, with approximately, 87.1 acres of vineyards and 10.4 acres of orchards and other landscaping.

Table 3.1-3 identifies the land use description provided in the *Twelve Oaks TM*, as well as the relevant information obtained from Table 3, Table 4 and Appendix A from the *Twelve Oaks TM*, that was utilized in projecting build-out water demands for the Project. Residential information presented in Table 3.1-3 includes total number of dwelling units with associated lot areas. Commercial information includes buildable areas, while landscape projections are based on lot area.

**Table 3.1-3**
**Build-Out Development for Twelve Oaks Project**

| Description of Land Use identified by Fuscoe Engineering | Number of Residential Dwelling Units (DU) | Lot Area (ac.) | Buildable Area (sq. ft.) | Maximum Density (du/ac) | District Land Use Classification |
|---|---|---|---|---|---|
| Residential - Resort | 251 | 2.5* | - | Greater than 14.0 | Multi-Family Residential |
| Residential Lots - Clustered Division (less than 2.0 acres) | 29 | 43.5 | - | 1.0 | Low Density Residential |
| Residential Lots - Clustered Division (2.0 - 4.9 acres) | 46 | 161.0 | - | 0.5 | Estate 2 Residential |
| Residential Lots - Clustered Division (5.0 acres - 9.9 acres) | 1 | 6.0 | - | 0.2 | Estate 5 Residential |
| Residential - Cottage Inn | 126 | 1.4* | - | Greater than 14.0 | Multi-Family Residential |
| Residential Vineyard Areas | - | 242.0 | - | - | Ag/Vineyard Planning Area |
| Event Center (Resort Area) | - | - | 58,223 | - | Commercial |
| Marketplace (Resort Area) | - | - | 26,641 | - | Commercial |
| Resort Winery (Resort Area) | - | - | 33,402 | - | Commercial |
| Resort Vineyard Areas (Resort Area) | - | 87.1 | - | - | Ag/Vineyard Planning Area |
| Resort Orchard and Other Landscaped Areas (Resort Area) | - | 10.4 | - | - | Ag/Vineyard Planning Area |
| Class II Wineries | - | - | 456,285 | - | Commercial |
| ***TOTAL*** | ***453*** | **-** | **-** | **-** | **-** |

* - Lot areas for Residential - Resort and Residential Cottage Inn are the sum of the footprints of the rooms, as provided in an email from Fuscoe Engineering dated December 8, 2017, which includes net pad acreage for residential land uses. Information. These lot areas were solely utilized to confirm a room density greater than 14 du/ac.

## 3.2 Project Water Demands

In order to determine water demand requirements for the Project development, a water demand analysis was performed and is presented in this section. The *Twelve Oaks TM* includes important assumptions regarding the water demand the Project will impose on the District's water system. These assumptions provide the rationale for the volume of estimated Project water demand.

Projected water demands were calculated for the proposed Twelve Oaks Study Area, utilizing the Proposed Land Use Count (rooms, dwelling units, buildable area and irrigated acreage) and Land Use summarized in Table 3 and Appendix A of the *Twelve Oaks TM*. As summarized in Table 3.2-1, each project land use type identified in the Twelve Oaks TM was assigned to the appropriate District land use classification, based on average dwelling unit density (du/ac). Consistent with the *2015 WFMP* and *2015 UWMP*, the number of dwelling units was multiplied by the appropriate District water demand duty factor (i.e. 210 gpd/du) to calculate the Build-out Residential Water Demand and Dwelling Unit projections for the proposed Twelve Oaks Study Area. Figure 3-1 illustrates the Project Land Use types.

The Project will not receive recycled water. The primary water quality component that affects the beneficial use of recycled water in the District's service area is the level of TDS, which generally classifies how salty the water is. The recycled water produced by the SRWRF and the TVRWRF generally averages a TDS value of 730 mg/L. Within the District's service area, the San Diego Regional Water Quality Control Board's Basin Plan limits the use of recycled water to hydrologic subbasins with a TDS limit of 750 mg/L. For hydrologic subbasins with a TDS limit of 500 mg/L, the use of recycled water in these areas requires the demineralization of recycled water or an approved recycled water use plan based on the assimilative capacity of the subbasin. The Twelve Oaks Project overlays the Bachelor Mountain and Gertrudis hydrologic subbasins with TDS limits of 500 mg/L.

Figure 3-2 illustrates the phasing of the Project, as submitted to the District by Fuscoe Engineering via email on December 4, 2017. Table 3.2-1 summarizes the phasing of each Project land use, as presented in Table 4 of the *Twelve Oaks TM*, which identified the following phasing:

- Phase 1A and 1B water demands start in 2019;
- Phase 2 water demands start in 2020;
- Phase 3A water demands start in 2021; and
- Phase 3B water demands (and Project build-out) start in 2022

Table 3.2-2 presents the residential water demands and dwelling units summarized by development phase, as referenced in the *Twelve Oaks TM*.

**Table 3.2-1 - Projected Residential Water Demands and Dwelling Units for Twelve Oaks**

| Project Land Use | Number of Dwelling Units (du) | Average Density (du/ac) | District Land Use Classification | 2015 WFMP Water Demand Duty Factor (gpd/du) | Projected Build-Out Water Demand (gpd) | Phase |
|---|---|---|---|---|---|---|
| Resort | 251 | Greater than 14 room/acre | Multi-Family Residential | 210 | 52,710 | 1A / 1B |
| Cottage Inn | 126 | Greater than 14 room/acre | Multi-Family Residential | 210 | 26,460 | 2 |
| Clustered Division (2.0 - 4.9 acres) | 46 | 0.2 - 0.5 du/ac (2 - 5 acre lots) | Estate 2 Residential | 2,000 | 92,000 | 3A (50%) And 3B (50%) |
| Clustered Division (5.0 acres - 9.9 acres) | 1 | 0.1 - 0.2 du/ac (5 - 10 acre lots) | Estate 5 Residential | 3,000 | 3,000 | 3A (50%) And 3B (50%) |
| Clustered Division (less than 2.0 acres) | 29 | 0.5 - 1.0 du/ac (1 - 2 acre lots) | Low Density Residential | 1,285 | 37,265 | 3A (50%) And 3B (50%) |
| ***Total*** | ***453*** | | | | ***211,435*** | |

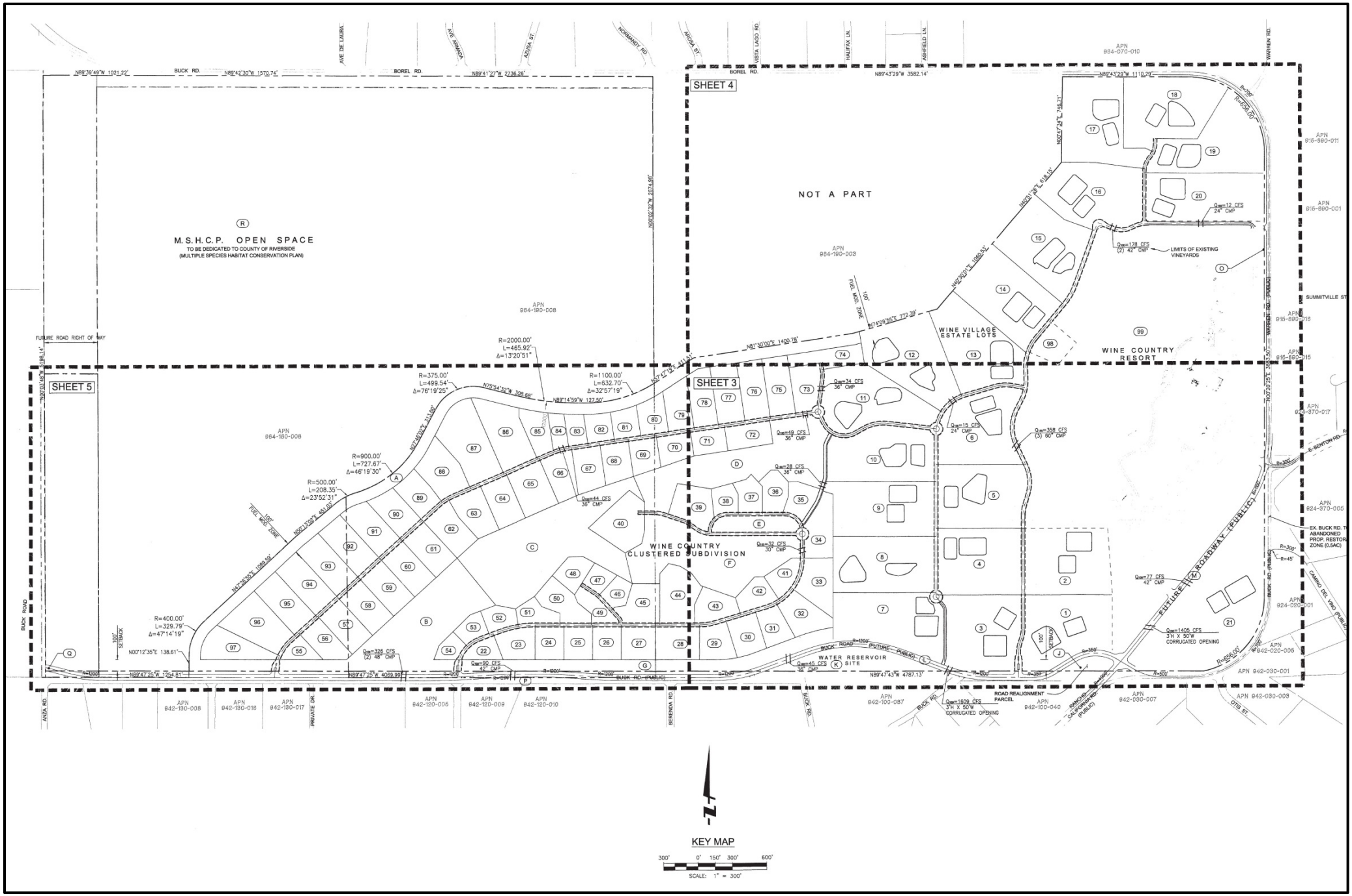


Figure 3-1 – Proposed Project Land Use (Tentative Tract Map No. 37377)

**Table 3.2-2 - Residential Dwelling Units and Associated Potable Water Demand by Phase for Twelve Oaks**

| Phase | Number of Dwelling Units (du) | Potable Water Demand (gpd) |
|---|---|---|
| 1A/1B | 251 | 52,710 |
| 2 | 126 | 26,460 |
| 3A | 38 | 66,133 |
| 3B | 38 | 66,133 |
| ***TOTAL*** | ***453*** | ***211,435*** |

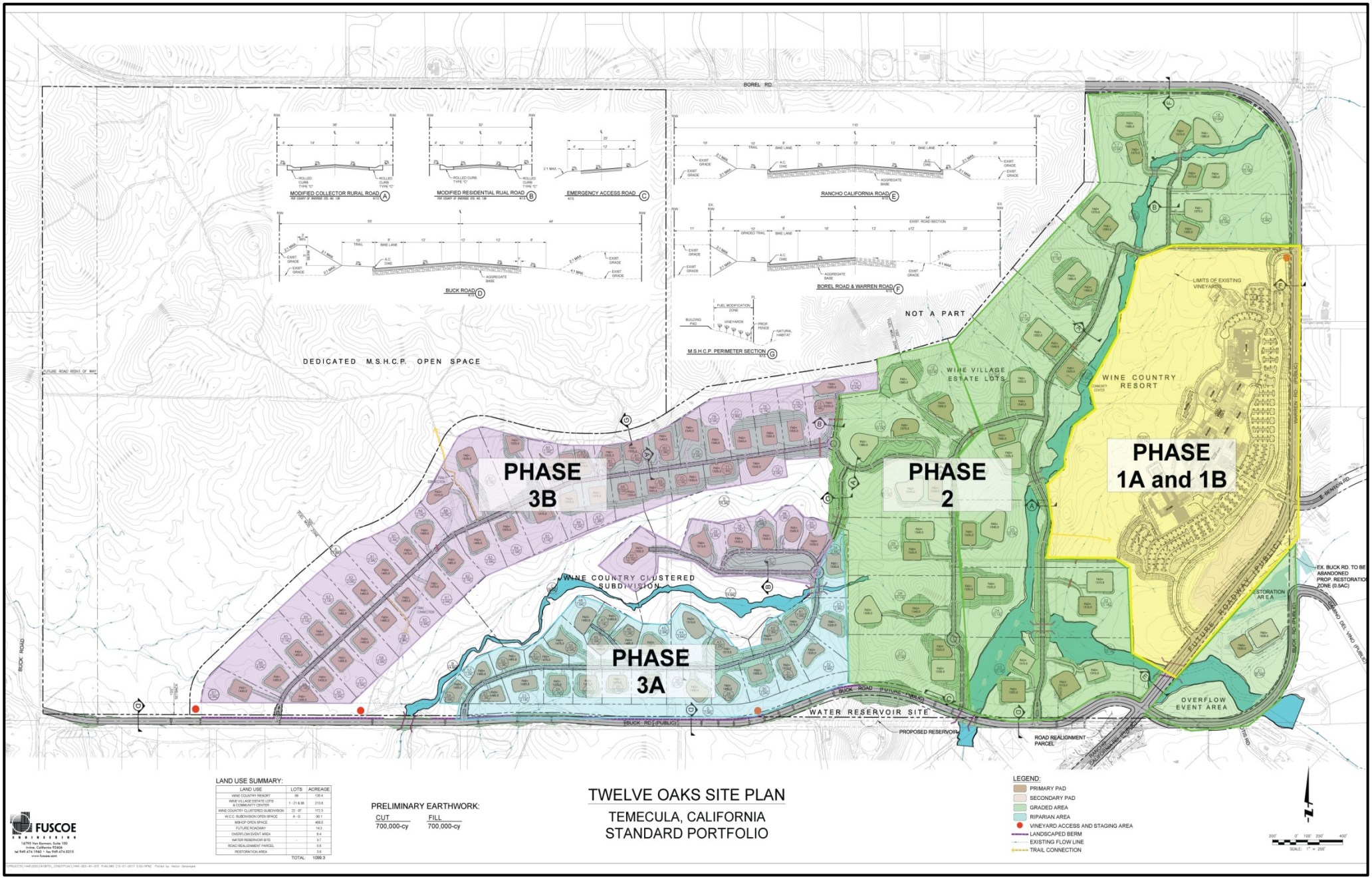


Figure 3-2 – Projected Project Phasing

Non-Residential water demand was determined utilizing the Proposed Land Use Count (buildable area and irrigated acreage) and Land Use classification summarized in Table 3 and Appendix A of the *Twelve Oaks TM*. The 242.0 acres of residential vineyard area was identified in an email from Fuscoe Engineering on January 25, 2018 (Appendix A). The buildable area of the Class II Wineries was provided via email on December 4, 2017 from Fuscoe Engineering. As summarized in Table 3.2-3, the gross acreage of the irrigated land use was multiplied by the appropriate *2015 WFMP* water demand duty factor (1,339 gpd/ac or 1.5 AFY/ac) to calculate the build-out non-residential water demand for the irrigated, landscaped Project areas.

Projected non-residential water demands for the commercial land use elements within the Project study area were developed based on the buildable area and appropriate *2015 WFMP* water duty factor. Accordingly, all commercial development was identified as Commercial land use with a duty factor of 1,585 gpd per gross acre. Consistent with previous District Water Supply Assessments (e.g. Uptown Jefferson Specific Plan WSA), a maximum Floor Area Ratio (FAR) for commercial development of 0.50 was assumed. The District's commercial water demands, which formed the basis for the duty factor calculation in the *2015 WFMP*, are predominately located within the City of Temecula. The development standard presented in the Temecula Municipal Code, Table 17.08.040A describes a maximum Target FAR of 0.50 for Commercial/Office/Industrial district areas. Utilizing 0.50 as the FAR associated with RCWD's Commercial water duty factor, the 1,500 gpd per gross acre would convert to 1,500 gpd per 21,780 square feet of buildable area or 73 gpd per 1,000 square feet of buildable commercial area.

Table 3.2-3 presents the non-residential water demands and land use classifications for the Project, with Table 3.2-4 summarizing the non-residential water demand by phase.

**Table 3.2-3- Projected Non-Residential Water Demands for Twelve Oaks**

| Project Land Use | District Land Use Classification | Lot Area (ac) or Buildable Area (sq. ft.) | Water Demand Duty Factor (gpd/ac or gpd/1,000 sq ft) | Projected Build-Out Water Demand (gpd) | Phase |
|---|---|---|---|---|---|
| Event Center (Resort Area) | Commercial | 58,223 sq. ft. | 73 gpd/ 1,000 sq. ft. | 4,237 | 1A/1B |
| Marketplace (Resort Area) | Commercial | 26,641 sq. ft. | 73 gpd/ 1,000 sq. ft. | 1,939 | 1A/1B |
| Resort Winery (Resort Area) | Commercial | 33,402 sq. ft. | 73 gpd/ 1,000 sq. ft. | 2,431 | 1A/1B |
| Resort Vineyard Areas (Resort Area) | Ag/Vineyard Planning Area | 87.1 ac | 1,339 gpd/ac | 116,637 | 1A/1B |
| Resort Orchard and Other Landscaped Areas (Resort Area) | Ag/Vineyard Planning Area | 10.4 ac | 1,339 gpd/ac | 13,927 | 1A/1B |
| Class II Wineries | Commercial | 456,285 sq. ft. | 73 gpd/ 1,000 sq. ft. | 33,205 | 2 |
| Residential Vineyard Areas* | Ag/Vineyard Planning Area | 242.0 ac | 1,339 gpd/ac | 324,066 | 3A (50%) and 3B (50%) |
| ***TOTAL*** | | | | ***496,442*** | |

* - Includes vineyard irrigation for the Cottage Inn

**Table 3.2-4 - Non-Residential Potable Water Demand by Phase**

| Phase | Potable Water Demand (gpd) |
|---|---|
| 1A/1B | 139,170 |
| 2 | 33,205 |
| 3A | 162,033 |
| 3B | 162,033 |
| ***TOTAL*** | ***496,442*** |

Table 3.2-5 presents the total build-out water demands for all land use types by phase anticipated for the proposed Twelve Oaks Project. Table 3.2-6 summarizes the residential population projections in 5-Year time increments. Populations for the Twelve Oaks Project were projected by assuming 3.24 persons per residential dwelling unit, consistent with the July 1, 2016 US Census for Riverside County Persons per Household, 2011 - 2015.

Table 3.2-7 presents the total service connections for the Twelve Oaks Project in 5-Year time increments, as provided via email from Fuscoe Engineering dated December 4, 2017. Both Tables 3.2-6 and 3.2-7 reflect Phase 1A/1B population and service connections in 2019, with Phases 2, 3A and 3B population and service connection projections included in 2024, and all subsequent years.

Table 3.2-8 summarizes the net increase in water demands and residential dwelling units by 5-Year time increment resulting from the proposed Twelve Oaks Project, when compared to the current County of Riverside General Plan Land Use for the Twelve Oaks Study Area. Accordingly, Table 3.2-8 presents the net increase in water demands and residential dwelling units, when compared to the District's *2015 UWMP*. This amount is calculated utilizing total projected potable water demand of the Project less the water demand for the study area without the Project.

Build-out water demands projected for the proposed Twelve Oaks Project would increase to 707,877 gpd (793 AFY). This represents a net decrease of build-out water demands of 7,613 gpd (9 AFY) to the District.

**Table 3.2-5**
**Total Projected Potable Water Demands for Twelve Oaks Based on Anticipated Development**

| Phase | Residential Dwelling Units | Acres with Permanent Irrigation (ac.) | Commercial Buildable Area (sq. ft.) | Potable Water Demand | |
|---|---|---|---|---|---|
| | | | | gpd | AFY |
| 1A/1B | 251 | 97.5 | 118,266 | 191,880 | 215 |
| 2 | 126 | - | 456,285 | 59,665 | 67 |
| 3A | 38 | 121.0 | - | 228,165 | 256 |
| 3B | 38 | 121.0 | - | 228,165 | 256 |
| **Total** | **453** | **340** | **574,551** | **707,877** | **793** |

*Note: Anticipated water demands within each 5-year increment are cumulative*

**Table 3.2-6 - Population Projections for Twelve Oaks by Year**

| Year | Residential Dwelling Units | Project Population |
|---|---|---|
| 2019 | 251 | 813 |
| 2024 | 453 | 1,468 |
| 2029 | 453 | 1,468 |
| 2034 | 453 | 1,468 |
| 2039 | 453 | 1,468 |
| 2044 | 453 | 1,468 |

**Table 3.2-7 – Projected Service Connections for Twelve Oaks Project by Year**

| Year | Domestic Service Connections | Fire Service Connections | Landscape Service Connections |
|---|---|---|---|
| 2019 | 4 | 6 | 4 |
| 2024 | 120 | 27 | 31 |
| 2029 | 120 | 27 | 31 |
| 2034 | 120 | 27 | 31 |
| 2039 | 120 | 27 | 31 |
| 2044 | 120 | 27 | 31 |

**Table 3.2-8**
**Projected Additional Potable Water Demands**
**for Twelve Oaks Based on Anticipated Development**

| Year | Residential Dwelling Units Net Increase | Potable Water Demand Net Increase | |
|---|---|---|---|
| | | gpd | AFY |
| 2019 | 251 | 191,880 | 215 |
| 2024 | 449 | 628,197 | 704 |
| 2029 | 446 | 571,534 | 640 |
| 2034 | 444 | 514,855 | 577 |
| 2039 | 441 | 452,832 | 507 |
| 2044 | 437 | 389,474 | 436 |
| 2087 | 418 | -7,613 | -9 |

*Note: Anticipated water demands within each 5-year increment are cumulative.*

## 4.0 RANCHO CALIFORNIA WATER DISTRICT DEMAND AND SUPPLIES

The Rancho California Water District (District) is located in the southwestern portion of Riverside County and its southwestern border lies along the line with the County of San Diego. The District total service area encompasses approximately 99,000 acres (154.7 square miles) and is comprised of the City of Temecula, portions of the City of Murrieta, and unincorporated territory in the County of Riverside. The location of the District is shown in Figure 4-1.


**Figure 4-1**
**RCWD Service Area**

## 4.1 Overview of Supply and Demand

The District currently obtains its water supplies from the following primary water sources: 1) local groundwater from the Temecula Valley Groundwater Basin; 2) imported SWP and Colorado River water from the MWDSC via EMWD and WMWD; and 3) recycled water from both the District and EMWD. Each of the sources of water for the District is more fully discussed beginning in Section 4.3.

The District receives its imported water (treated and untreated) directly through 6 MWDSC water turnouts: 3 in EMWD's service area and 3 in WMWD's service area. The District pumps groundwater from 53 District wells and recycles water at the Santa Rosa Water Reclamation Facility (SRWRF). Additional recycled water is available from EMWD's Temecula Valley Regional Water Reclamation Facility (TVRWRF). The District owns and operates 43 storage reservoirs and 1 surface reservoir, Vail Lake. The storage capacity of Vail Lake is 45,207 AF, and it is used to help supply native groundwater, through the use of infiltration basins downstream from Vail Lake.

### *Growth Rate*

The District's *2015 UWMP* included an analysis of the District's anticipated growth rate. The District's population projections for 2020 through 2040 are based on the residential growth rates developed by the Southern California Association of Governments (SCAG). SCAG is a regional planning agency that encompasses 6 counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) and 191 cities. SCAG has produced 2 sets of transportation analysis zones (TAZs) for the 2012-2035 Regional Transportation Plan, which include residential and employment population projections for 2008, 2020, and 2035. The District's service area is contained within 32 Tier 1 TAZs, whose boundaries are not identical to the service area boundaries. Accordingly, it is assumed that the geographic percentage of the TAZ within the service area represented the percentage of the residential and employment population within the service area. For example, if 35% of a TAZ is within the District's service area, then it was assumed that 35% of the residential and employment population of that TAZ is also within the District's service area. Table 4.1-1 summarizes the annual residential and employment population growth rates for the District's service area by Division.

**Table 4.1-1 - SCAG Residential Population Growth Rates for the District's Service Area by Division from the 2012-2035 Regional Transportation Plan**

| Period | Residential Population Annual Growth Rate (%) | |
|---|---|---|
| | Rancho Division | Santa Rosa Division |
| 2008 - 2020 | 0.80% | 0.90% |
| 2020 - 2035 | 0.42% | 0.87% |

The District's 2015 population figure was separated into the Rancho and Santa Rosa Divisions, based on the percentage of total population in each division utilizing the District's boundaries and the 2010 U.S. Census Bureau Tract residential populations. The appropriate residential growth rates in Table 4.1-1 were multiplied by the 2015 population in each service area to project the populations in Table 4.1-2.

District population in 2015 was estimated as 148,105 (Table 5-4 of the 2015 UWMP) and is projected to increase to more almost 175,000 by 2044. Table 4.1-2 shows the projected population for the District and the Project beginning in 2018 and ending in 2044. The Project is reflected as built out by 2024 in Table 4.1-2.

**Table 4.1-2**
**RCWD and Project Population – Current and Projected**

| Area | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|
| RCWD[1] | 151,775 | 152,999 | 157,300 | 161,226 | 165,249 | 169,372 | 173,515 |
| Twelve Oaks[2] | 0 | 813 | 1,455 | 1,446 | 1,437 | 1,427 | 1,417 |
| **Total RCWD Population** | **151,775** | **153,812** | **158,755** | **162,672** | **166,686** | **170,800** | **174,933** |

[1] Source: RCWD 2015 Urban Water Management Plan, June 2016
[2] Source: Table 3.2-2 in conjunction with 3.24 persons per household (July 1, 2016 US Census for Riverside County Persons per Household, 2011 - 2015)

### *Water Demand*

In 2015, the District's total potable water demand was approximately 62,325 AF, and the District's total recycled water demand was 4,013 AFY. The proposed Project will increase potable water demand in 2024 by 704 AFY, generating a net decrease build-out need of approximately 9 AFY or 7,613 gallons per day (gpd) of potable water compared to the projections in the *2015 WFMP*, as shown in Table 3.2-8. The Project will not receive recycled water, and therefore, will not increase recycled water demands. The water demand and supply analysis is discussed and shown in 5-year increments below.

***Demand and Supply Comparison***

Table 4.1-3 shows the current and projected water demand and supply for the District, including the net increase in demand the proposed Project will require through 2044 in normal water year conditions. Single dry and multiple dry year demand and supply analysis are shown in Chapter 5.

While SB 610 requires a 20-year planning period, 2044 represents a 25-year planning period from 2019, which is consistent with and exceeds the District's *2015 UWMP*, and satisfies the 20-year planning period for the WSA.

Demand and supply projections consider land use, in addition to water development programs and projects. A supply surplus is indicated demonstrating a sufficient water supply for the District and the proposed Project through the 25-year planning period. Demand and supply assumptions follow Table 4.1-3.

**Table 4.1-3**
**2015, Current and Projected Water Demand and Supply**
**Including Twelve Oaks (AF)**

| Water Sources | 2015 UWMP | Projected | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2015 | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
| **DEMAND** | | | | | | | | |
| **Potable** | | | | | | | | |
| RCWD | 58,981 | 64,076 | 65,775 | 69,701 | 72,483 | 75,265 | 78,311 | 81,422 |
| Twelve Oaks | 0 | 0 | 215 | 704 | 640 | 577 | 507 | 436 |
| Sale of Water to Others | 304 | 361 | 372 | 5,278 | 5,278 | 5,278 | 5,278 | 5,278 |
| Unaccounted-for Water | 3,040 | 3,251 | 3,321 | 3,503 | 3,643 | 3,783 | 3,936 | 4,092 |
| ***Total Potable Demand*** | ***62,325*** | ***67,688*** | ***69,683*** | ***79,186*** | ***82,044*** | ***84,903*** | ***88,032*** | ***91,228*** |
| **Untreated** | | | | | | | | |
| Santa Margarita River (SMR) Flows | 2,954 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| ***Total Untreated Demand*** | ***2,954*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** |
| **Recycled** | | | | | | | | |
| RCWD | 3,477 | 3,875 | 4,007 | 4,140 | 6,860 | 7,464 | 7,582 | 7,637 |
| Sale of Water to Others | 362 | 400 | 700 | 700 | 700 | 700 | 700 | 700 |
| Unaccounted-for Water | 174 | 194 | 200 | 207 | 343 | 373 | 379 | 382 |
| ***Total Recycled Demand*** | ***4,013*** | ***4,469*** | ***4,908*** | ***5,047*** | ***7,903*** | ***8,537*** | ***8,661*** | ***8,719*** |
| ***Total Water Demand*** | ***69,292*** | ***76,156*** | ***78,591*** | ***88,232*** | ***93,947*** | ***97,440*** | ***100,693*** | ***103,947*** |
| **RCWD SUPPLY** | | | | | | | | |
| **Potable** | | | | | | | | |
| Imported – Treated | 24,817 | 40,675 | 46,076 | 40,385 | 40,712 | 42,412 | 35,619 | 33,836 |
| Imported – Untreated – Groundwater Recharge | 12,254 | 14,000 | 15,084 | 23,085 | 24,438 | 24,438 | 33,571 | 35,854 |
| Local Groundwater | 25,018 | 17,511 | 17,511 | 25,422 | 25,422 | 25,422 | 25,422 | 25,422 |
| ***Total Potable Supply*** | ***62,325*** | ***72,186*** | ***78,671*** | ***88,892*** | ***90,572*** | ***92,272*** | ***94,612*** | ***95,112*** |
| **Untreated** | | | | | | | | |
| Santa Margarita River (SMR) Flows | 2,954 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| ***Total Untreated Supply*** | ***2,954*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** | ***4,000*** |
| Recycled | | | | | | | | |
| SRWRF (RCWD) | 1,902 | 1,975 | 1,999 | 2,085 | 2,166 | 2,215 | 2,264 | 2,315 |
| TVWRF (EMWD) | 2,496 | 2,619 | 2,948 | 4,634 | 6,006 | 6,269 | 6,295 | 6,320 |
| ***Total Recycled Supply*** | ***4,398*** | ***4,594*** | ***4,946*** | ***6,718*** | ***8,171*** | ***8,484*** | ***8,559*** | ***8,635*** |
| ***Total Water Supply*** | ***69,677*** | ***80,780*** | ***87,617*** | ***99,610*** | ***102,743*** | ***104,756*** | ***107,171*** | ***107,747*** |
| **SUPPLY SURPLUS** | **385** | **4,623** | **9,027** | **11,378** | **8,797** | **7,316** | **6,478** | **3,800** |
| **POTABLE SUPPLY SURPLUS** | **0** | **4,498** | **8,988** | **9,706** | **8,528** | **7,369** | **6,580** | **3,884** |

### *Demand Assumptions:*

1. **RCWD Potable Demand:** Year 2015 Potable Demand is actual demand as reported in Table 4-4 on the *2015 UWMP* after subtracting wheeled water, Santa Margarita River Flows and Losses; projections in five-year increments to 2044 are extrapolated from the RCWD *2015 UWMP* Table 4-5 in a similar manner.
2. **Twelve Oaks Potable Demand:** Water demands were presented in Table 3.2-8.
3. **Sale of Water to Others:** Water wheeling agreements with EMWD and WMWD for potable water, and also to the Pechanga Reservation for recycled water to convey water outside the RCWD service area. Year 2015 sales are actual sales as reported in Table 4-4 of the *2015 UWMP*, while future sales are extrapolated from the RCWD *2015 UWMP* Table 4-5. Pechanga projections were based on Page 276 of the *2015 UWMP*.
4. **Unaccounted-for Water:** Equal to the difference between total water production and total billed (sales) water. The District's 2016 Water Loss Audit completed in compliance with SB555 confirmed water loss below 5%; so water loss was assumed to be 5% and was extrapolated from the RCWD *2015 UWMP* Tables 4-4 and 4-5.
5. **Santa Margarita River Flows/Discharge:** Required Santa Margarita River flows in accordance with the *Cooperative Water Resource Management Agreement between Camp Pendleton and Rancho California Water District*, March 26, 2002.
6. **RCWD Recycled Demand:** Year 2015 Recycled Demand is actual demand as reported in Table 6-10 on the *2015 UWMP*; projections in five-year increments to 2044 are extrapolated from the RCWD *2015 UWMP* Table 6-10.

### *Supply Assumptions:*

1. **Imported Water - Treated:** Imported water is purchased from the Metropolitan Water District of Southern California through EMWD and WMWD directly from Metropolitan turnouts to supplement local water supplies. Imported water supply is anticipated to increase in relation to growth in the region, along with current and planned improvements to increase the use of local groundwater and recycled water. Metropolitan's supply reliability analysis indicates that the region will be able to meet 100 percent of its dry year demand under every hydrologic scenario through the year 2040. For supply projections beyond 2040, the same reliability is assumed through 2044. Data is extrapolated from the RCWD *2015 UWMP* Tables 6-14 and 6-15.
2. **Imported Water – Untreated – Groundwater Recharge:** Amount of untreated imported water used for groundwater recharge to increase the yield from the basin. Artificial recharge is projected to increase in 2015 to provide low-cost potable water in the RCWD service area. Data is extrapolated from the RCWD *2015 UWMP* Tables 6-14 and 6-15. 2018 and 2019 information based on anticipated *Recommended Groundwater Production for Fiscal Year 2018-2019.*
3. **Imported Water – Untreated – SMR Discharge:** Required Santa Margarita River flows in accordance with the *Cooperative Water Resource Management Agreement between Camp Pendleton and Rancho California Water District*, March 26, 2002, are satisfied by the purchase and release of untreated imported water.
4. **Local Groundwater:** Year 2015 is actual groundwater production as reported in the District's 2015 UWMP Table 6-14; projections in five-year increments to 2044 are based on projections extrapolated from the RCWD *2015 UWMP* Table 6-15. Local supply projected in 2018 and 2019 reflect a reduction of 7,000 AFY, as local production is limited due to multi-year drought impact on basin.
5. **Recycled Water:** Recycled water supply includes actual SRWRF 2015 production for RCWD of 1,902 AF, increasing based on recycled water projections developed as part of the District's *2018 Recycled Water Resources Plan* to an ultimate 3.0 MGD. In 2015 the District purchased an additional 2,496 AF from EMWD's TVRWRF, which is projected to increase based on recycled water projections developed as part of the District's *2018 Recycled Water Resources Plan* to an ultimate 5.0 MGD (5,600 AFY). TVRWRF supply projections also include recycled water to be wheeled to Pechanga.

Acting upon the District's Mission Statement to deliver reliable, high-quality water, wastewater, and reclamation services to its customers and communities in a prudent and sustainable manner, a series of water resource management goals and implementation strategies were documented in the *2015 WFMP*, as discussed in Section 4.3.6. These goals and strategies will help ensure that the District's existing water supply capacity, including Tier 2 treated MWDSC water, is adequate to meet the projected water demands at build-out.

The demand/supply analysis in Table 4.1-3 shows that as groundwater water and recycled water supplies increase, the increase in imported water demand will remain stable. Development of indirect potable reuse for the augmentation of groundwater supplies for potable use by 2025 will enhance reliability of local supplies. Recycled water otherwise discharged will be used for beneficial uses to supply new development and certain existing uses, such as landscape irrigation and industrial uses, currently supplied with potable water.

## 4.2 Water Demand

Affordable housing, relative to neighboring Los Angeles and Orange Counties, and a Mediterranean climate, has given reason for the cities of Murrieta and Temecula and the surrounding region in southwest Riverside County to be desirable places to live. As such, population within the District's service area has grown significantly. Even agriculture, which is mainly orchards, citrus, avocados, and vineyards has grown, unlike in many other areas in Southern California. This urban and agricultural growth has led to increases in water demands. In particular, summer peaking in demands has been an issue due to the region's semi-arid climate.

The Water Demands section describes the District's urban water system demands and quantifies the current water system demand by sectors and projects them over the twenty-five year planning horizon of the *2015 UWMP* plus an additional four years. These projections include water sales to other agencies, water requirements for the Santa Margarita River, system water losses, and water use target compliance.

### 4.2.1 Past, Current and Projected Water Use Among Sectors

Table 4-2.1 quantifies the water use per classification (sector) for the District. The projected water use by sector presented in the row entitled "Total Water Demand" reflects the total water demand projections shown in Table 5.3-2, Section 5 Water Reliability Planning, which does not present unaccounted-for water losses separately. The total water use presented in Table 4.2-1 presents unaccounted-for water losses separately from total District demands.

**Table 4.2-1**
**2015, Current, and Projected Water Use by Sector**
**Including Twelve Oaks [1]**
**(AF)**

| | 2015 | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|---|
| **Potable** | | | | | | | | |
| Single Family Residential | 25,308 | 27,445 | 28,158 | 29,962 | 31,146 | 32,329 | 33,624 | 34,947 |
| Multi-Family Residential | 2,201 | 2,387 | 2,508 | 2,683 | 2,786 | 2,890 | 3,003 | 3,118 |
| Commercial | 3,393 | 3,680 | 3,785 | 4,046 | 4,205 | 4,365 | 4,540 | 4,719 |
| Institutional/ Governmental | 463 | 502 | 515 | 546 | 567 | 589 | 613 | 638 |
| Landscape | 5,601 | 6,074 | 6,247 | 6,616 | 6,879 | 7,143 | 7,431 | 7,725 |
| Agricultural irrigation | 21,940 | 23,906 | 24,692 | 26,464 | 27,448 | 28,432 | 29,508 | 30,608 |
| Other[2] | 75 | 83 | 85 | 88 | 92 | 95 | 99 | 103 |
| **Total Potable Demand** | **58,981** | **64,077** | **65,990** | **70,404** | **73,123** | **75,842** | **78,818** | **81,858** |
| Sale of Potable Water to Others[4] | 304 | 361 | 372 | 5,278 | 5,278 | 5,278 | 5,278 | 5,278 |
| Recycled & Non-Domestic Demand[3] | 3,477 | 3,875 | 4,007 | 4,140 | 6,860 | 7,464 | 7,582 | 7,637 |
| Sale of Recycled Water to Others[4] | 362 | 400 | 700 | 700 | 700 | 700 | 700 | 700 |
| **Total Water Demand** | **4,143** | **4,636** | **5,080** | **10,118** | **12,838** | **13,442** | **13,560** | **13,615** |
| Santa Margarita River Discharge[5] | 2,954 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| Unaccounted-For Water[6] | 3,214 | 3,443 | 3,521 | 3,710 | 3,986 | 4,156 | 4,315 | 4,474 |
| **Total Water Use** | **69,292** | **76,156** | **78,591** | **88,232** | **93,947** | **97,440** | **100,693** | **103,947** |

Sources: 1) RCWD 2015 UWMP Tables 4-4 and 4-5 for potable demands and Table 6-10 for recycled water demands.

[1] Total potable demand projections by sector for Twelve Oaks were developed based on project components and phasing presented in Chapter 3.

[2] Includes water to construction, miscellaneous, and other temporary water use including wetland restoration.

[3] Recycled water for agriculture, landscape, golf courses, construction and residential.

[4] Water wheeling agreements with EMWD and WMWD, and also to the Pechanga Reservation, which are shown in Tables 4.2-2 and 4.2-3; recycled water to Pechanga included in recycled demand total.

[5] Required Santa Margarita River flows.

[6] Equal to difference between total water production and total billed (sales) water. The District's 2016 Water Loss Audit completed in compliance with SB555 confirmed water loss below 5%; so water loss was assumed to be 5% and was extrapolated from the RCWD 2015 UWMP Tables 4-4 and 4-5.

The difference between the water production and the total billed water is defined as unaccounted-for water, or the water losses within a system. Unaccounted-for water includes real losses (leaks or breaks) and apparent losses (unauthorized consumption, customer metering inaccuracies and systematic data handling. In 2016, the District's water loss audit confirmed that water loss was 2,487 AF or 4.6% of the 54,057 AF total water supplied. An average annual unaccounted-for water loss of 5.0 percent for potable water was therefore utilized, as was also done in the District's *2015 WFMP* and *2015 UWMP*.

Urban water demands have steadily increased in the District's service area since 1978 due to extensive growth. Agricultural water use increased in the early years and has remained relatively constant since 2007.

***Water Wheeling Agreements***

RCWD also provides water services to properties within the EMWD and WMWD retail water service areas. Water is provided by EMWD to RCWD on an annual basis for the wheeling of water to the following EMWD's water customers: Nakayama Park, Lake Skinner Park, and Glen Oaks. Similarly, water is provided by WMWD to RCWD on an annual basis for wheeling water to WMWD's water customer, Rock Mountain.

Direct water service (i.e., outside RCWD service area) are arranged pursuant to interagency agreements. The interagency agreements provide for and address specific issues and terms related to wheeling of water through RCWD's water distribution system from an imported water supply connection to the point of delivery. Table 4.2-2 provides an overview of these agreements. The historic and projected amounts of wheeled water (sale of water to other agencies) are shown in Table 4.2-3.

**Table 4.2-2**

**RCWD Water Wheeling Agreements**

| Property Served | Service Capacity | Supply Connection | Interagency Agreement | Term | Status |
|---|---|---|---|---|---|
| Lake Skinner Park | 360 gpm | EM-13 and/or EM-20 will be identified in agreement update to reflect the supply connection to compensate RCWD | Executed 4/21/81 between RCWD and EMWD; Amendment No. 1 dated 7/8/2013; and Amended and Reinstated on 2/24/2015 | 2030 (15 years) | Active |
| Nakayama Park: Parcel No. 1 of PM 10037/APN 957-080-023 | Undefined amount; inferred as amount used by property owner | Adjustment of EM-13 or EM-20 allocation to compensate RCWD | Executed 5/2/06 between RCWD and EMWD | 2036 (30 years) | Active |
| Pechanga Reservation | 1,050 AFY (50% of safe yield of the Wolf Valley Groundwater Basin) | Produce groundwater from Pechanga wells or through potable connection to RCWD | Executed 12/21/06 Groundwater Management Agreement between RCWD and Pechanga Band of Luiseno Mission Indians | Potable is 2031/2056 (25 years; auto-renew for 25 more), while Recycled is 2028 (20 years) | Active; Pechanga Band of Luiseno Mission Indians Water Rights Settlement dated 11/29/17, which states that the total Tribal Water Right is 4,994 AFY, and is to be made up of groundwater and MWDSC imported water (This does not include recycled water or local granitic wells). Wolf Valley groundwater basin is to be shared, with 75% going to Pechanga and 25% going to the District. Current safe yield capacity of the Wolf Valley basin is 2,100 AFY. |
| Rancho Glen Oaks | Average 600 gpd/parcel for a maximum 115 metered (parcels) connections | EMWD adjustment of EM-13 allocation or other appropriate delivery point to compensate RCWD | Executed 1/20/93 between RCWD and EMWD; and Amendment No. 1 dated 2/16/2006. | 2023 (30 years) | Active |
| Rock Mountain Area | 500 gpm. | WMWD adjustment of WR-26 or WR-28 allocation to compensate RCWD | Executed 1/19/05 between RCWD and WMWD | 2035 (30 years) | Active |

**Table 4.2-3**
**Historical and Projected Sale of Water to Other Agencies**
**(AF)**

| | 2015 | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|---|
| Lake Skinner Park – EMWD | 184 | 194 | 197 | 200 | 200 | 200 | 200 | 200 |
| Nakayama Park* – EMWD | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Pechanga Reservation – Potable | 78 | 100 | 100 | 4,994 | 4,994 | 4,994 | 4,994 | 4,994 |
| Rancho Glen Oaks – EMWD | 35 | 60 | 69 | 77 | 77 | 77 | 77 | 77 |
| Rock Mountain – WMWD | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| **Potable Subtotal** | **304** | **361** | **372** | **5,278** | **5,278** | **5,278** | **5,278** | **5,278** |
| Pechanga Reservation – Recycled | 362 | 400 | 700 | 700 | 700 | 700 | 700 | 700 |
| **Total** | **666** | **761** | **1,072** | **5,978** | **5,978** | **5,978** | **5,978** | **5,978** |

* - Parcel No. 1 of PM 10037/APN 957-080-023

Source: RCWD 2015 UWMP Table 4-3; RCWD Interagency Agreements

***Lower-Income Household Water Demand***

Water Code Section 10631.17 (SB 1087) requires that water use projections of an UWMP include the projected water use for single-family and multi-family residential housing for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier. The District's service area includes portions of the city of Temecula, portions of the city of Murrieta, and portions of unincorporated Riverside County.

The County of Riverside recently completed the 2017 Mid-Cycle Housing Element Update (General Plan Amendment No. 1218), which is an amendment to the 2013 – 2021 Housing Element (General Plan Amendment No. 1122), dated 12/6/2016. The housing element estimates that approximately 40% of all households in Riverside county are extremely low, very low, or low income households (County of Riverside Housing Element 2013 -2021, Page H-86).

The City of Murrieta updated its housing element in October 2013. The housing element estimates that 25% of all households in the city of Murrieta are extremely low, very low, or low income (City of Murrieta 2014-2021 Housing Element, Page 28).

The City of Temecula updated and adopted its housing element on January 28, 2014. The housing element estimates that 24% of all households in the city of Temecula are extremely low, very low, or low income (City of Temecula General Plan Housing Element, Page H-15).

Table 4.2-4 quantifies projected water use for new lower-income single-family and multifamily residential households within the RCWD service area. In addition to the housing elements of the cities and county, RCWD utilized the 2007 SCAG Regional Housing Need Allocation Plan to assist in estimating the number of new low income housing units that may be required within RCWD's service area. The projected demand for these units is included in total projected residential demand throughout this WSA. The projections assist in the water needed for lower income residential housing, as defined in Section 50079.45 of the Health and Safety Code. This requirement is intended to assist a water supplier in complying with the requirement of Government Code Section 65589.7 to grant priority to serve water to housing units affordable to lower income households. (Department of Housing and Community Development, Memorandum, May 22, 2006)

**Table 4.2-4**
**Projected Potable Water Demands of Low Income Housing Units within the District's Service Area (AF)**

| Service Area Location | 2015 | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|---|
| City of Murrieta | 4,288 | 4,648 | 4,769 | 4,972 | 5,077 | 5,185 | 5,294 | 5,405 |
| City of Temecula | 1,454 | 1,577 | 1,618 | 1,686 | 1,722 | 1,759 | 1,796 | 1,833 |
| Unincorporated Western Riverside County | 1,480 | 1,607 | 1,649 | 1,736 | 1,794 | 1,853 | 1,914 | 1,975 |
| **Total Lower-Income Household Potable Water Use** | **7,222** | **7,832** | **8,036** | **8,394** | **8,593** | **8,796** | **9,004** | **9,213** |

### 4.2.2 Water Demand Projections

Projecting water demands allows RCWD to determine future water supply investments needed to match expected demands. Water demand projections are used to schedule these investments to ensure they are online when needed thus minimizing cost impacts of idle facilities. The District's *2015 WFMP* included water demand projections, which were subsequently utilized in completing the District's *2015 UWMP*. Table 4.2-5 shows the comparison of RCWD's billing data classifications, *2015 WFMP* land use classifications, and those utilized in the *2015 UWMP*.

The District's projected water demands consider existing demand in the service area, land use development beyond 2015, and quantity of recycled water use and agricultural water use. Table 4.2-6 shows the total water uses in the RCWD service area by customer classification and additional water uses. Table 4.2-6 data is consistent with Table 4.2-1, Water Use by Sector, with the addition of Groundwater Recharge with Imported Water and Vail Lake Releases.

**Table 4.2-5**

**Billing Data Classifications, Land Use Categories and 2015 UWMP Classifications**

| 2018 Billing Data Classifications | 2015 WFMP Classifications | 2015 UWMP Classifications |
|---|---|---|
| Agricultural<br>Ag/Residential*<br>Vineyard | Ag/Vineyard Planning Area<br>Estate 20<br>Estate 10<br>Estate 5<br>Estate 2 | Agriculture Irrigation |
| Residential<br>Vineyard Residential | Open Space - Conservation<br>Low Density<br>Medium Density<br>Medium High Density<br>High Density<br>Altair Specific Plan**<br>Temecula Creek Inn Specific Plan**<br>Uptown Jefferson Specific Plan**<br>Vineyard Specific Plan** | Single Family Residential |
| Multiple Dwelling | Multi-Family | Multi-Family Residential |
| Golf<br>Landscape<br>Recycled Water: Golf Courses, Landscape Irrigation, Residential Irrigation, Agriculture Irrigation; Commercial Use; Construction | Open Space – Recreational | Landscape Irrigation<br>Wetlands or Wildlife Habitat<br>Recycled Water: Golf Courses, Landscape Irrigation, Agriculture Irrigation; Commercial l Use |
| Commercial | Commercial<br>Business Park<br>Industrial | Commercial |
| Government<br>School<br>- | Civic/Institutional<br>Right-of-Way<br>Open Space - Conservation Habitat<br>Open Space - Native | Institutional/Governmental |

* - 88.8% of Ag/Residential is considered Agricultural Irrigation, with the remainder classifies as Single Family Residential.

** - Specific Plans are a majority Single Family Residential, however they also contain elements from other land use categories.

**Table 4.2-6**
**Total Water Uses in RCWD Service Area**
**Including Twelve Oaks**
**Current and Projected - Normal Water Year**
**(AFY)**

| | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|
| Single Family Residential | 27,445 | 28,158 | 29,962 | 31,146 | 32,329 | 33,624 | 34,947 |
| Multi-Family Residential | 2,387 | 2,508 | 2,683 | 2,786 | 2,890 | 3,003 | 3,118 |
| Commercial | 3,680 | 3,785 | 4,046 | 4,205 | 4,365 | 4,540 | 4,719 |
| Institutional/Governmental | 502 | 515 | 546 | 567 | 589 | 613 | 638 |
| Landscape | 6,074 | 6,247 | 6,616 | 6,879 | 7,143 | 7,431 | 7,725 |
| Agricultural irrigation | 23,906 | 24,692 | 26,464 | 27,448 | 28,432 | 29,508 | 30,608 |
| Other[2] | 83 | 85 | 88 | 92 | 95 | 99 | 103 |
| **Total Potable** | **64,077** | **65,990** | **70,404** | **73,123** | **75,842** | **78,818** | **81,858** |
| Recycled – Golf Courses, Landscape Irrigation, Agriculture | 3,875 | 4,007 | 4,140 | 6,860 | 7,464 | 7,582 | 7,637 |
| **Total Recycled** | **3,875** | **4,007** | **4,140** | **6,860** | **7,464** | **7,582** | **7,637** |
| Sale of Water to Others - Potable | 361 | 372 | 5,278 | 5,278 | 5,278 | 5,278 | 5,278 |
| Sale of Water to Others – Recycled | 400 | 700 | 700 | 700 | 700 | 700 | 700 |
| **Total RCWD Consumptive Demand** | **761** | **1,072** | **5,978** | **5,978** | **5,978** | **5,978** | **5,978** |
| Groundwater Recharge with Imported Water | 14,000 | 15,084 | 23,085 | 24,438 | 24,438 | 33,571 | 35,854 |
| Santa Margarita River Discharge | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| Vail Lake Releases | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 |
| Unaccounted-for Water | 3,443 | 3,521 | 3,710 | 3,986 | 4,156 | 4,315 | 4,474 |
| **Total Water Use** | **93,156** | **96,675** | **114,317** | **121,385** | **124,878** | **137,264** | **142,801** |

Sources: Tables 4.1-2 and 4.2-1

## 4.3 Water Sources and Supplies

***Sources***

The District currently obtains its water supplies from the following primary water sources: 1) local groundwater from the Temecula Valley Groundwater Basin; 2) imported SWP and Colorado River water from the MWDSC via EMWD and WMWD; and 3) recycled water from both the District and EMWD.

The District receives its imported water (treated and untreated) directly through 6 MWDSC water turnouts: 3 in EMWD's service area and 3 in WMWD's service area. The District pumps groundwater from 53 District wells and recycles water at the SRWRF. Additional recycled water is available from EMWD's TVRWRF. The District owns and operates 43 storage reservoirs and 1 surface reservoir, Vail Lake. The storage capacity of Vail Lake is 45,207 AF, and it is used to help recharge groundwater, through the use of infiltration basins downstream from Vail Lake.

***Supplies***

Historically, groundwater has supplied between 25 to 40% of the District's total water supply and imported water has supplied between 60 to 70%. In 2015, recycled water comprised approximately 6% of the District's water supply portfolio. Current and planned improvements will increase the use of recycled water. Table 4.3-1 summarizes the District's current and projected water supplies under normal conditions. The Water Reliability Analysis of these supplies is presented in Section 5, Reliability of Water Supplies.

The District has documented the sources and volumes of water supplied in 2015 in Table 4.3-1. Table 4.3-1 also summarizes the volume of water by source that is forecasted as reasonably available through 2044, based on Tables 6-14 and 6-15 in the District's *2015 UWMP*, with one notable exception. 2018 and 2019 projections for local groundwater pumping reflect 7,000 AFY less than average year conditions. This is similar to the restriction that the District experienced in 2017, and which the District anticipates will continue through 2019 (for a total of three years). This diminished annual native groundwater production is required in order to mitigate the effects of the recent multiple-year drought. The District estimates that this restriction corresponds to a fifth, sixth and seventh year of a multiple-year drought.

**Table 4.3-1**
**RCWD Past, Current and Projected Water Supplies**
**(AF)**

| Water Supply Sources | 2015 | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|---|
| Imported Water (MWD) | | | | | | | | |
| Treated - RCWD | 24,513 | 40,314 | 45,704 | 35,107 | 35,434 | 37,134 | 30,341 | 28,558 |
| Treated - Sale of Water to Others | 304 | 361 | 372 | 5,278 | 5,278 | 5,278 | 5,278 | 5,278 |
| Untreated – Groundwater Recharge | 12,254 | 14,000 | 15,084 | 23,085 | 24,438 | 24,438 | 33,571 | 35,854 |
| Untreated – Santa Margarita River Discharge | 2,954 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| Local Groundwater Pumping | 25,018 | 17,511 | 17,511 | 25,422 | 25,422 | 25,422 | 25,422 | 25,422 |
| Recycled Water | | | | | | | | |
| RCWD | 4,036 | 4,194 | 4,246 | 6,018 | 7,471 | 7,784 | 7,859 | 7,935 |
| Sale of Water to Others | 362 | 400 | 700 | 700 | 700 | 700 | 700 | 700 |
| Vail Lake Release[1] | 1,007 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 |
| **Total Supplies** | **70,448** | **83,780** | **90,617** | **102,610** | **105,743** | **107,756** | **110,171** | **110,747** |

Source: RCWD 2015 UWMP Tables 6-14 and 6-15 ; RCWD Engineering and Operations Departments

[1] Vail Lake releases to the Valle de los Caballos spreading basins for native groundwater recharge.

### 4.3.1 Imported Water

Imported water is water that originated from outside of the Santa Margarita River Watershed (generally water from the Colorado River and the SWP). Imported water is acquired from the member agencies of the MWDSC. For the District, its member agencies are WMWD for the Santa Rosa Division and EMWD for the Rancho Division.

Imported water provided to the District is from MWDSC's Lake Skinner Reservoir and Water Treatment Facility, with back-up storage provided by Diamond Valley Lake. MWDSC has 6 pipeline facilities that depart from MWDSC's Lake Skinner Reservoir and Water Treatment Facility and convey water south towards San Diego county. These include 2 raw water pipelines (Pipeline Nos. 5 and 6) and 2 treated water pipelines (Bypass Pipeline No. 3 and Pipeline No. 4). Bypass Pipeline No. 3 is a treated water pipeline ultimately planned to connect to Pipeline No. 3 in a future conversion to potable water. EMWD and WMWD do not convey the water through their facilities to the District; rather, the District receives the water directly at these MWDSC turnouts.

Imported treated water flow rates vary seasonally at the District's turnouts. During winter months when demand is typically lower, the District relies mostly on local groundwater resources. During these periods, the District may turn off all the imported water turnouts. As demands increase throughout the year, groundwater sources are augmented with imported water supplies to meet daily demand variations.

Table 4.3-2 shows historical Metropolitan water purchases during the ten-year period from 2008 to 2017. During this period imported water purchases, including imported water used for groundwater recharge and flows to the Santa Margarita River under agreement with Camp Pendleton, have varied due to climatic and economic factors.

**Table 4.3-2**
**Historical Metropolitan Water Purchases 2008 - 2017**
**(AF)**

| Imported Water | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Treated | 38,858 | 34,289 | 26,993 | 22,792 | 22,376 | 27,614 | 31,467 | 24,817 | 17,829 | 21,820 |
| Untreated [1] | 12,003 | 16,223 | 12,187 | 12,371 | 16,301 | 12,034 | 11,722 | 12,254 | 10,089 | 13,155 |
| Untreated [2] | 2,604 | 2,806 | 3,939 | 4,143 | 4,197 | 2,432 | 3,864 | 2,954 | 4,030 | 3,925 |
| **Total** | **53,466** | **53,318** | **43,119** | **39,307** | **42,873** | **42,080** | **47,053** | **40,025** | **31,948** | **38,900** |

Source: RCWD 2015 UWMP Table 6-1, in conjunction with District Operations Records for 2016 and 2017.
[1] Used for groundwater recharge
[2] Used for flows to the Santa Margarita River under agreement with Camp Pendleton; began in 2003.

### *Metropolitan Water District of Southern California*

Metropolitan is a public agency formed in 1928 to bring imported water to the Southern California region. Collectively, the 13 charter members recognized the limited water supplies available within the region, and realized that continued prosperity and economic development of southern California depended on the acquisition and careful management of an adequate supplemental water supply. This foresight made the continued development of southern California possible.

The first function of Metropolitan was building the Colorado River Aqueduct (CRA) to convey water from the Colorado River. In 1960, Metropolitan contracted for additional water supplies from the SWP via the California Aqueduct, which is owned by the state of California and operated by DWR. Metropolitan current receives from both of these sources to supply water to most of southern California. As a wholesaler, Metropolitan has no retail customers, and distributes treated and/or untreated water directly to its 26 member agencies, including the EMWD and WMWD.

Metropolitan member agencies receive imported water at various delivery points on its system. Agencies pay for service through a rate structure made up of multiple components consisting widely of uniform volumetric rates, and the majority of revenue is collected through a tiered volumetric supply charge. The cost of maintaining existing supplies and developing additional supplies are recovered through a two-tiered pricing approach. The Tier 1 Supply Rate recovers the costs of maintaining a reliable amount of supply Each member agency has a predetermined amount of water that can be purchased at the lower Tier 1 Supply Rate. Purchases in excess of this limit will be made at the higher The Tier 2 Supply Rate reflects Metropolitan's cost of purchasing water transfers north of the Delta. The Tier 2 Supply Rate encourages the member agencies and their customers to maintain existing local supplies and develop cost-effective local supply resources and conservation. (Page 2-31 of Metropolitan's *2015 UWMP*)

Metropolitan owns and operates the CRA along with major reservoirs such as Diamond Valley Lake and Lake Skinner, five regional water treatment plants, and large transmission pipelines to move imported water to its 26 public member agencies, including EMWD and WMWD. Metropolitan is also the largest State Water Contractor, with a contract of 2.0 million acre-feet (MAF) for SWP supply, although recent cutbacks, discussed below, limit access to this water. CRA supply, historically providing over 1.2 MAF per year to the region, has been severely cut in recent years due to the implementation of *"California's Colorado River Water Use Plan"* or the *"California Plan"*, which characterizes how California would develop a combination of programs to live within its 4.4 MAF per year entitlement of Colorado River water.

Metropolitan augments its imported water from the CRA and SWP with stored water in water banks such as Semitropic and Arvin-Edison, conjunctive use storage in local groundwater basins, and voluntary water transfers during certain dry years. In addition, MWD's Diamond Valley Lake can store 800,000 AF of imported water, which is used to meet demands during dry years and emergencies.

The District currently has connected capacity for up to 205 cfs (peak flow) of treated water from Bypass Pipeline No. 3 and Pipeline No. 4. WR-26 and WR-28 are each designed to deliver 40 cfs via WMWD, and EM-13 is designed to deliver another 40 cfs via EMWD. Due to system constraints, WR-26 and WR-28 have a reduced summer peak capacity of 65 cfs. The District also has connected capacity for up to 95 cfs (peak flow) of untreated water from Pipeline No. 5 and Pipeline No. 6. WR-34 and EM-21 are designed to deliver 15 cfs via WMWD, and 80 cfs via EMWD, respectively. MWDSC's Division IV Water Service Policies place additional capacity limitations on the operation of the imported water turnouts. Section 4504 stipulates that flow changes at the turnout facilities are limited to a 10% limit above or below the previous 24-hour average. Accordingly, Tier 1 allocations do not represent available imported water supply limitations for the District, as significant quantities of Tier 2 imported water are also available for purchase at a higher cost, as needed.

As required by the CWC, the District communicated with its wholesale agencies regarding imported water supply available to the District during the development of the *2015 UWMP*. These water supply projections provided from the District's wholesale agencies were utilized as the District's source for reasonably available imported water supply data.

Federal regulations require the U.S. Environmental Protection Agency (EPA) to safeguard drinking water by establishing standards that limit the amount of substances in drinking water. In California, Title 22 Drinking Water Standards (Title 22) incorporates the federal requirements of the Safe Drinking Water Act (SDWA), and compliance with Title 22 is required by all water service providers. In California, the SWRCB's Division of Drinking Water (DDW) also safeguards drinking water by establishing standards that are as stringent as the EPA's. The District safeguards its water supply by collecting and analyzing more water samples than required by the EPA and DDW. As reported in the District's Annual Consumer Confidence Report for Calendar Year 2015, all water produced and delivered by the District meets or exceeds the standards for public drinking water.

Imported water provided to the District from MWDSC's Lake Skinner Reservoir and Water Treatment Facility is a blend of SWP and Colorado River water. The untreated water is affected by invasive species such as Quagga mussels. The treated water is chloraminated by MWDSC, based on 2.5 to 2.7 parts per million (PPM).

The reliability of MWDSC's water supply is dependent on a variety of factors. Per Section 4503 of MWDSC's Division IV Water Service Policies, the District should have sufficient resources (local reservoir storage, groundwater production capacity, system interconnections, or alternate supply sources) to sustain a 7-day interruption in MWDSC's deliveries from raw and treated turnout facilities based on average annual demands. Reliability of Metropolitan's supply is further discussed in Section 5.0, Water Reliability Planning.

***Western Municipal Water District and Eastern Municipal Water District***

WMWD is a public water agency formed in 1954 to bring supplemental water to growing Riverside County. WMWD is a member agency of Metropolitan and provides wholesale water to nine retail agencies with water from Metropolitan, which consists of water from the Colorado River and the SWP, as well as water from groundwater desalters. The retail agencies include RCWD, as well as the cities of Corona, Norco, and Riverside, Eagle Valley Mutual Water Company, Elsinore Valley Municipal Water District, Lee Lake Water District, and Jurupa Community Services District.

EMWD is a public water agency formed in 1950 to deliver imported water to supplement local groundwater for a small, mostly agricultural, community. Over time, EMWD evolved to include groundwater production, desalination, water filtration, wastewater collection and treatment, and regional water recycling. EMWD is a member agency of Metropolitan and receives imported water from the CRA and the SWP. EMWD provides wholesale water to the District as a sub-agency. Six other agencies also receive Metropolitan water through EMWD, including the cities of Hemet, Perris, San Jacinto, and Lake Hemet Municipal Water District, McCanna Ranch Water Company, and Nuevo Water Company. As a water wholesaler, MWDSC supplies supplemental imported water to WMWD and EMWD to meet the water needs of their service areas.

### 4.3.2 Groundwater

The District receives groundwater from the Temecula Valley Groundwater Basin (Basin), as identified in California's Groundwater Bulletin 118. The Basin underlies several valleys in southwestern Riverside County and a portion of northern San Diego County, within the Santa Margarita River Watershed.

The District overlies 2 major aquifers, the Temecula and the Pauba, which have been the subject of a number of studies over the years. The Pauba aquifer, covering approximately 18 square miles, is "comprised of younger alluvial sediments that occur along the principal streams of the watershed. Unconfined groundwater occurs within the sediments of the highly porous Pauba aquifer, and well yields typically range from 500 to 2,000 gpm. The Pauba aquifer reaches depths of up to 500 feet" (Local Agency Management Programs Recommendations to the County of Riverside for the Rancho California Water District Service Area, October 9, 2014, Page 14). The Pauba aquifer is underlain by the confined Temecula aquifer. The Temecula aquifer, approximately 100 square miles, "consists of unconsolidated sediments that extend from 500 feet in depth to depths exceeding 2,000 feet" (Local Agency Management Programs Recommendations to the County of Riverside for the Rancho California Water District Service Area, October 9, 2014, Page 14). The Temecula Valley Groundwater basin is an alluvial basin identified as Basin 9-5 in DWR Bulletin 118.

In addition to the District, other agencies pump from the basins including WMWD, Pechanga Band of Luiseño Mission Indians (Pechanga), and other private pumpers. Accounting for these users, the total natural yield available to the District varies, and is estimated to average approximately 25,000 AFY during average year conditions.

***Basin Governance and Management***

The Basin has been governed under court jurisdiction since 1928, as part of the Santa Margarita River Watershed system. In 1940, a Stipulated Judgment (1940 Judgment) was issued directing the use and allocation of groundwater in the region. Although considered an adjudicated basin, specific water rights have not been assigned. In 1963, a Final Judgment and Decree was issued further defining the use of groundwater in the region, and in April 1966, a Modified Final Judgment and Decree (Fallbrook Case) was entered incorporating interlocutory judgments and the 1940 Stipulated Judgment.

These judgments were followed by years of court cases and power struggles by multiple parties, including the federal government (U.S. Marine Corps Camp Pendleton) over water use in the watershed basins, citing the judgments did not fully meet the needs of the parties for effective water management. Finally, after many years, a settlement agreement, *"Cooperative Water Resource Management Agreement between Camp Pendleton and Rancho California Water District,"* was reached and executed in March 2002. This agreement supersedes the previous judgments (1940 Judgment and Fallbrook Case) and remains in place today to govern water flow in the Santa Margarita River and use of the Temecula Valley Groundwater Basin.

Further, in December 2006, a 'Groundwater Management Agreement between Rancho California Water District and the Pechanga Band of Luiseño Mission Indians' was executed to govern the management of groundwater pumping from the Wolf Valley Groundwater Basin in a manner not to exceed the safe yield that protects groundwater resources in the Wolf Valley Groundwater Basin for present and future uses. The annual supply capacity of the Wolf Valley subbasin is currently allocated equally between the District and the Pechanga Band of Luiseño Mission Indians, which is undergoing review at this time.

To further manage water in the region, a Watermaster was assigned by the court to oversee all uses within the Santa Margarita River Watershed, which include 3 groundwater basins: the Santa Margarita Groundwater Basin, the Anza Groundwater Basin, and the Temecula Valley Groundwater Basin. The Watermaster prepares the "Santa Margarita Watershed Annual Watermaster Report" (Annual Watermaster Report), providing annual reporting of water conditions in the watershed, but does not manage the groundwater basins. The Annual Watermaster Report, prepared pursuant to the U.S. District Court Order, March 13, 1989, includes information on surface and subsurface water, imports and exports, water rights, water production and use, threats to water supply, water quality, review of agreements, and a Watermaster 5-year projection of activities. The Court has retained jurisdiction over all surface flows of the Santa Margarita River Watershed and all underground waters determined by the Court to be subsurface flow of streams or creeks or which is determined by the Court to add to, support, or contribute to the Santa Margarita River stream system. Local vagrant groundwaters that do not support the Santa Margarita River stream system are outside the Court jurisdiction.

The Temecula Valley Groundwater Basin noted above underlies the MWDSC member agency service areas of EMWD and WMWD, and the Pechanga Indian Reservation. The Temecula Valley Groundwater Basin is also included in MWDSC's Groundwater Assessment Study (September 2007), which the District also utilizes to help manage the Basin.

The following documents, as referred to in this section and attached as Appendix H, support the management of the Temecula Valley Groundwater Basin:

1. Santa Margarita River Watershed Annual Watermaster Report, Water Year 2014-2015, Charles W. Binder, Watermaster, September 2016.
2. Recommended Ground Water Production, Fiscal Year July 1, 2017 through June 30, 2018, Rancho California Water District, January 2017.
3. Permit for Diversion and Use of Water, Amended Permit 7032, Temecula Creek/Santa Margarita River for use in Vail Lake and District M&I by Rancho California Water District, April 22, 2009 and 1946 Application to Appropriate Unappropriated Water.
4. Cooperative Water Resource Management Agreement between Camp Pendleton and Rancho California Water District, Calendar Year 2014.

The Basin governing agencies and their roles are presented in Table 4.3-3.

**Table 4.3-3**
**Management Agencies in the Temecula Valley Groundwater Basin**

| Agency | Role/Responsibility |
|---|---|
| Santa Margarita River Watershed Watermaster | Court-appointed Watermaster for oversight and administration of water rights |
| Santa Margarita River Watershed Steering Committee | Assist the Court and the Watermaster in administering the water rights |
| Rancho California Water District | Prepare Groundwater Audit and a Recommended Groundwater Production Report for operation of District groundwater wells and recharge facilities |

The DWR, pursuant to the legislation, has developed the initial groundwater basin priorities. DWR's basin prioritization can be reviewed under the California Statewide Groundwater Elevation Monitoring (CASGEM) Program at the following website: www.water.ca.gov/groundwater/casgem/basin_prioritization.cfm.

DWR's final basin prioritization findings indicate that 127 of California's 515 groundwater basins and subbasins are high- and medium-priority basins. These basins account for 96% of California's annual groundwater pumping and supply 88% of the population, which reside over groundwater basins. The remaining 388 basins are low- and very low-priority basins and comprise 75% of the groundwater basins in the state. The Temecula Valley Basin Groundwater Basin 9-5 is a high-priority basin, as noted by DWR's web-based Water Management Planning Tool (https://gis.water.ca.gov/app/boundaries/).

The District is working in cooperation with the Santa Margarita River Watershed Watermaster and multiple stakeholders to achieve water supply reliability, water quality, and watershed management goals for the Upper Santa Margarita Watershed. The District's *Recommended Groundwater Production* report is an annual audit prepared for the District to recommend a groundwater production program for the upcoming FY. The recommended groundwater production program involves the operation of the groundwater basin within safe yield limits so as not to create permanent overdraft or other undesirable conditions that could degrade water quality or violate legal restrictions. The recommendation also includes information gained from workshops held amongst the District, WMWD, and consultant staff. Information includes discussion of previous audits, instantaneous yield, natural and artificial recharge, water quality, pump settings, and well construction factors.

In addition to the extraction of the natural yield of the basins, the District artificially recharges the Pauba Valley Basin with untreated imported water for enhanced groundwater production. The District's VDCR/RF features two groundwater recharge sites: the Upper VDC in the easternmost area of the Pauba Valley and the Lower VDC, approximately 2 miles to the west. Untreated MWDSC water and/or Vail Lake surface water are introduced into the VDCR/RF infiltration ponds for recharge into the ground. Over the past 10 years, this supplemental water provided an average of 13,875 AFY of artificial groundwater recharge through the VDC recharge basins.

The annual supply capacity of the District's groundwater sources is limited by the natural yield of the groundwater basin, in conjunction with the artificial groundwater recharge the District achieves at the VDC recharge basins. The District evaluates each groundwater well based on hydrogeologic subunit and aquifer, to determine an annual pumping budget.

The District currently maintains 53 production wells, including inactive and offline wells. Table 4.3-4 presents the District's current active wells and recommended production for FY 2017-2018. Production recommendations were based primarily on a review of individual well production and historical hydrographs, consideration of groundwater level elevations from all production and monitoring wells, information from hydrologic subareas and index wells representing water level changes in the subarea, and RCWD staff input. In accordance with sound groundwater basin management practices, the recommended production is considered a guide and is subject to revision as additional data is available.

**Table 4.3-4**
**RCWD Active Groundwater Wells**

| Well No. | Aquifer | Hydrologic Subunit | FY 2017-2018 Recommended Production (AF) |
|---|---|---|---|
| 101 | Temecula | S. Murrieta Valley | 0 |
| 102 | Temecula | S. Murrieta Valley | 400 |
| 106 | Combined | Santa Gertrudis | 100 |
| 108 | Combined | Santa Gertrudis | 500 |
| 109 | Pauba | Pauba | 400 |
| 113 | Temecula | Palomar | 400 |
| 118 | Temecula | S. Murrieta Valley | 0 |
| 119 | Pauba | Wolf Valley | 167 |
| 120 | Temecula | Pauba | 1200 |
| 121 | Temecula | S. Murrieta Valley | 0 |
| 122 | Temecula | Wolf Valley | 167 |
| 123 | Combined | Pauba | 0 |
| 124 | Temecula | Pauba | 300 |
| 125 | Temecula | Pauba | 0 |
| 126 | Temecula | Pauba | 700 |
| 128 | Temecula | Lower Mesa | 0 |
| 129 | Temecula | Lower Mesa | 0 |
| 130 | Temecula | Pauba | 800 |
| 131 | Temecula | Pauba | 1000 |
| 132 | Combined | Pauba | 400 |
| 133 | Temecula | Pauba | 350 |
| 135 | Temecula | N. Murrieta Valley | 25 |
| 138 | Temecula | Lower Mesa | 1,600 |
| 139 | Temecula | Lower Mesa | 700 |
| 140 | Temecula | Lower Mesa | 800 |
| 141 | Pauba | Pauba | 400 |
| 143 | Temecula | Pauba | 500 |
| 144 | Temecula | N. Murrieta Valley | 400 |
| 145 | Temecula | N. Murrieta Valley | 350 |
| 146 | Pauba | N. Murrieta Valley | 15 |
| 149 | Temecula | Pauba | 0 |
| 151 | Temecula | Upper Mesa | 600 |
| 152 | Pauba | Pauba | 2,300 |
| 153 | Pauba | Pauba | 1,600 |

**Table 4.3-4**

**RCWD Active Groundwater Wells**

| Well No. | Aquifer | Hydrologic Subunit | FY 2017-2018 Recommended Production (AF) |
|---|---|---|---|
| 154 | Pauba | Pauba | 500 |
| 155 | Temecula | N. Murrieta Valley | 20 |
| 156 | Temecula | N. Murrieta Valley | 800 |
| 157 | Pauba | Pauba | 1,200 |
| 158 | Pauba | Pauba | 1,800 |
| 161 | Pauba | Pauba | 1000 |
| 164 | Pauba | Pauba | 1300 |
| 201 | Temecula | Upper Mesa | 0 |
| 203 | Temecula | Pauba | 500 |
| 205 | Temecula | Santa Gertrudis | 600 |
| 208 | Temecula | Upper Mesa | 0 |
| 209 | Temecula | Upper Mesa | 0 |
| 211 | Temecula | Wolf Valley | 167 |
| 217 | Temecula | Pauba | 650 |
| 231 | Pauba | Pauba | 0 |
| 232 | Combined | Pauba | 700 |
| 233 | Pauba | Pauba | 500 |
| 234 | Combined | Pauba | 0 |
| 235 | Temecula | Lower Mesa | 900 |
| 236 | Pauba | Pauba | 1,200 |
| 237 | Temecula | Upper Mesa | 300 |
| 238 | Temecula | Lower Mesa | 0 |
| 309 | Temecula | Santa Gertrudis | 1,500 |
| **Total Recommended Production** | | | **29,811** |

Source: RCWD Recommended Ground Water Production, Fiscal Year July 1, 2017 through June 30, 2018

The District safeguards its water supply by collecting and analyzing more water samples than required by the EPA and DDW. The District collects more than 2,000 samples a year for analysis of 120 different contaminants including bacteria, metals, organic chemicals, pesticides, and aesthetic-related substances.

Each year, the District's FY CIP includes recommendations for well improvements to provide for system reliability and continued groundwater pumping. Construction of new wells to replace existing, older wells is anticipated, as well as additional wells for increased groundwater pumping. Evaluation of required wells was conducted as part of the Upper VDCR/RF Optimization Study. The study identified specific projects that provide low-cost potable water in the District's service area through increased groundwater basin recharge and recovery. Table 4.3-5 presents the District's anticipated future wells and associated capacities. Table 4.3-6 provides the historic amount of groundwater pumped from the Basin.

**Table 4.3-5**
**RCWD Future New Groundwater Wells – 2015 and Beyond**

| Project | Description | Est. Start Date | Est. Completion Date | Total Capacity (AFY) |
|---|---|---|---|---|
| Upper VDC Conjunctive Use Optimization | Ten new groundwater wells for recovery of increased basin water from enhanced groundwater recharge at the Upper VDC. Purchase more untreated water from MWDSC, and deliver it to the Valle de los Caballos (VDC) recharge basins. Pumping would occur year round. The recharge goal under this alternative is 35,854 AFY by 2040. | 2017 | 2040 | 22,695 |

Source: RCWD 2015 UWMP Table 6-13

**Table 4.3-6**
**Historic Amount of Groundwater Pumped from the Temecula Valley Groundwater Basin (AF)**

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|
| Total | 23,627 | 27,393 | 26,951 | 25,018 | 23,852 | 17,473 |

Source: RCWD *2015 UWMP* Table 6-6 for values through 2015. 2016 and 2017 values from July 2016 and July 2017 Engineering and Operations Committee Operations Reports.

The Sustainable Groundwater Management Act of 2014 (SGMA) (Water Code §§ 10720 et seq.) went into effect on January 1, 2015. SGMA established a new structure for managing California's groundwater resources at a local level. For the Temecula Valley Groundwater Basin, the Watermaster submitted to DWR a copy of a governing final judgment, or other judicial order or decree, in 2016. Also, in 2016, and annually thereafter in April, the Watermaster will submit to DWR a report containing the following, per Water Code Section 10720.8 (f) (3):

- Groundwater elevation data;
- Annual aggregated data identifying groundwater extraction;
- Surface water supply used;
- Total water use; and
- Change in groundwater storage.

Considering historic pumping, recommended production for FY 2017-2018, and proposed future well development, Table 4.3-7 shows the projected amount of groundwater production through the years 2040. Well production for the 20-year planning period is projected to increase as a result of supplemental recharge from imported water.

**Table 4.3-7**
**Total Projected Amount of Groundwater Pumping by RCWD from the Basin**
**(AF)**

| Water Supply | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Artificial Groundwater Recharge of Temecula Valley Groundwater Basin (9-5) Supplied with Imported, Untreated Water | 17,671 | 24,438 | 24,438 | 24,438 | 35,854 |
| Native Groundwater from the Temecula Valley Groundwater Basin (9-5). Does Not Include Artificial Recharge. | 25,422 | 25,422 | 25,422 | 25,422 | 25,422 |
| **Total** | **43,093** | **49,860** | **49,860** | **49,860** | **61,276** |

Source: RCWD 2015 UWMP Table 6-15

### 4.3.3 Recycled Water

Recycled water is municipal wastewater that is purified for beneficial reuse. The State of California has declared that recycled water is safe and is a reliable and cost-effective resource to meet California's water supply needs. In California, about 414 thousand acre-feet (TAF) per year of recycled water is used for landscape irrigation, industrial processes, and groundwater recharge applications in the region. A few inland treatment plants (in Riverside and San Bernardino counties) irrigate feed and fodder crops with recycled water. While this use is considered beneficial, it is not necessarily the highest and best use for recycled water. Higher value uses of recycled water include landscape or agricultural irrigation, commercial and industrial applications, groundwater recharge, seawater intrusion barrier, and other uses such as street sweeping and dust control, etc. (Metropolitan's *2015 UWMP*, Page 3-48).

Recycled water used by the District is produced at the Santa Rosa Regional Resources Authority's (SRRRA's) SRWRF or purchased from EMWD's TVRWRF. The SRRRA is constituted of 3 member agencies including WMWD, EVMWD, and the District, all of which generate wastewater that is ultimately treated at the SRWRF. Both the TVRWRF and the SRWRF produce disinfected tertiary recycled water meeting the State of California Title 22 regulations for such uses as recreational impoundments and surface irrigation for landscaping, golf courses, agriculture, parks and playgrounds, as well as certain industrial processes. In 2015, the District was supplied with 4,036 AFY of recycled water.

*Santa Rosa Water Reclamation Facility*

The SRWRF has a current capacity of 5 MGD, or approximately 5,598 AFY. The plant collects flow from areas within portions of the District's service area, WMWD, and EVMWD. The SRRRA owns the SRWRF, as well as approximately 17 miles of gravity mains and the Cal Oaks Lift Station. The SRWRF, gravity mains, and lift station are operated by contract through the District. The SRWRF produced 2,772 AF of recycled water in 2015, of which 1,902 AF was utilized by the District and 870 AF was utilized by EVMWD for retail recycled water demands outside of the District's service area.

*Temecula Valley Regional Water Reclamation Facility*

The TVRWRF treats wastewater from a service area that includes the "Golden Triangle" region between Interstates 15 and 215, the Murrieta Hot Springs area, and portions of the Rancho Division of the District. The TVRWRF also receives and treats wastewater generated within the WMWD and EVMWD service areas. The District purchased approximately 2,134 AFY of recycled water from EMWD in 2015.

***Recycled Water System***

The District's recycled water distribution system provides water through 4 pressure zones, ranging from 1181 to 1481 feet. The District operates 6 recycled water pump stations and 5 active recycled groundwater production wells. The District maintains 4 recycled water storage reservoirs with a combined capacity of 7.5 MG, and 5 recycled water storage ponds with a total of 1,495 AF of storage. The recycled water system includes 58.9 miles of water pipelines that convey water from its source to water customers. The 2015 WFMP identifies the recycled water distribution system's existing capacity, as well as future CIP projects to ensure the future capacity is available.

The District and EMWD entered into an agreement in February 2008 for the District to deliver (wheel) recycled water produced by EMWD for use by the Pechanga Band of Luiseño Mission Indians (Pechanga). The District uses its recycled water distribution system facilities to convey up to 1,000 AFY (with a corresponding minimum flow rate of 800 GPM and a maximum flow rate of 1,300 GPM). Historically, Pechanga has averaged an annual use of 370 AFY, with a 2013 usage of 405 AFY. EMWD and Pechanga have amended their Recycled Water Agreement, dated August 2009, to allow Pechanga to transfer its unused recycled water allocation (estimated to be 300 to 475 AFY) to a third party, such as the District.

***Recycled Water Demand***

Historically, recycled water has provided less than 5% of total water supply for the District, while groundwater has supplied between 25% to 40% and imported water has supplied between 60% to 70%. In 2015, the total recycled water utilized for direct beneficial use was 3,909 AF. With the exception of Superior Ready Mix, recycled water within the District is utilized solely for outdoor irrigation.

The variability of recycled water provided is primarily due to the impact of weather on the customer's use of recycled water. Thus, the District utilizes seasonal storage ponds for recycled water in order to balance the fluctuations between recycled water supply and demand.

Water quality regulations in the Santa Margarita River Watershed prevent the District from discharging recycled water (Title 22) to the local streams. Titles 22 and 17 of the California Code of Regulations (California Department of Public Health's Recycled Water Regulations, January 2009) describes the treatment requirements for recycled water, as well as the approved uses based on the level of treatment. Also included in Title 22 are the use area requirements.

The primary water quality component that affects the beneficial use of recycled water in the District's service area is the level of TDS, which generally classifies how salty the water is. The recycled water produced by the SRWRF and the TVRWRF generally averages a TDS value of 730 mg/L. Within the District's service area, the San Diego Regional Water Quality Control Board's Basin Plan limits the use of recycled water to hydrologic subbasins with a TDS limit of 750 mg/L. For hydrologic subbasins with a

TDS limit of 500 mg/L, the use of recycled water in these areas requires the demineralization of recycled water or an approved recycled water use plan based on the assimilative capacity of the subbasin. Other constituents that the District monitors in the recycled water produced at the SRWRF include:

- Biochemical Oxygen Demand (BOD)
- Boron
- Chloride
- Color
- Iron
- Manganese
- Methylene Blue-Activated Substances (MBAS)
- Nitrate
- Nitrogen
- Percent Sodium
- pH
- Title 22 Modal Contact Time (CT) for Chlorine Residual
- Total Coliform
- Total Suspended Solids (TSS)
- Turbidity

Table 4.3-8 shows projected recycled water use from all users, excluding sales to others outside the District, through 2044. Table 4.3-9 summarizes the type of recycled water used in the District in 2015. Both Tables 4.3-8 and 4.3-9 are based on the District's 2015 UWMP Table 6-10.

**Table 4.3-8**
**RCWD Current, Estimated, and Projected Recycled Water Use**
**(AF)**

| | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|
| All Users Excluding Groundwater Recharge | 3,875 | 4,007 | 4,140 | 4,140 | 4,140 | 4,140 | 4,140 |
| Groundwater Recharge | 0 | 0 | 0 | 2,720 | 3,324 | 3,442 | 3,497 |
| **Total Recycled Demand** | **3,875** | **4,007** | **4,140** | **6,860** | **7,464** | **7,582** | **7,637** |

**Table 4.3-9**
**2015 RCWD Recycled Water Demand**
**(AF)**

| Current Recycled Water Use | 2015 Demand |
|---|---|
| Agricultural irrigation | 125 |
| Landscape irrigation (excludes golf courses) | 1,440 |
| Golf course irrigation | 1,861 |
| Commercial use | 19 |
| Construction | 32 |
| **Total Recycled Water Use** | **3,477** |

The District recognizes the potential uses of recycled water in its service area, such as landscape irrigation, parks, industrial, and other uses, and is working to develop the needed recycled water infrastructure to support use of additional recycled water. Potential recycled water user categories that the District supports include the following:

- Landscape Irrigation: The greatest number of primary recycled water users in the region;
- Industrial Reuse: Limited opportunities due to small amount of industrial customers;
- Agricultural Irrigation: Limited opportunities due to small degree of recycled water infrastructure; and
- Groundwater Recharge: Opportunity for over 3,000 AFY for groundwater recharge and indirect potable reuse.

Potential recycled water uses in the RCWD service area as of 2015 are shown in Table 4.3-10. The quantity of potential recycled water use in the District's service area is recognized to be greater, although is under study at this time. The District is currently completing a Recycled Water Resource Plan to address future beneficial uses of recycled water. The Recycled Water Resource Plan effort will further refine the District's planned Indirect Potable Reuse (IPR) concept to verify its economics, including preliminary engineering and discussions/agreements with partnering agencies. The study results will provide potential recycled water uses identified in the future independent of water quality requirements or availability of recycled water supply.

**Table 4.3-10**
**Potential Recycled Water Uses**
**(AF)**

| User type | Treatment Level | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|---|
| Groundwater Recharge[1] | MF/RO[2] | 0 | 0 | 0 | 2,720 | 3,324 | 3,442 | 3,497 |
| Landscape, agriculture, commercial | Title 22 | 3,875 | 4,007 | 4,140 | 1,420 | 816 | 698 | 643 |
| **Total** | | **3,875** | **4,007** | **4,140** | **4,140** | **4,140** | **4,140** | **4,140** |

Source: RCWD 2015 UWMP Table 6-10

[1] Recycled water from EMWD for groundwater recharge for indirect potable reuse.

[2] MF/RO = microfiltration/reverse osmosis

Through potable water retrofits and public outreach to encourage new types of industrial reuse, the District anticipates increasing water use via the recycled water distribution system. Further expansion of recycled water use will occur in 2025, when the IPR project is anticipated to be operational.

***Actions to Encourage and Optimize Future Recycled Water Use***

The District is encouraging recycled water use by potential recycled water users through a variety of measures. To ensure that recycled water continues to be used to the fullest extent possible, the District uses several methods to expand the use of recycled water within its service area. These methods include the following:

- 2017 Strategic Plan: The District's Strategic Business Plan, Guiding Principal 1 (Reliability) states that the District will "provide a level of water reliability that ensures customers' water needs are met." Specifically, Strategy 2 of Guiding Principle 1 is to "optimize the use of recycled water in the service area," including the following objectives:
    - Process onsite recycled water conversions; and
    - Coordinate recycled service opportunities with area agencies.
- Mandatory Recycled Water Use Policy (Resolution 2007-10-5): The District adopted a policy requiring the use of recycled water for landscape irrigation for new development projects, as well as the retrofit of existing landscape irrigation sites under specific criteria when recycled water is available and permitted.
- Water Supply Assessments: The District's Water Supply Assessments place conditions on all qualifying new developments to use recycled water as a condition of service where it is available and permitted.
- Rate Incentives: Recycled water is currently priced significantly below the cost of potable water for both municipal and agricultural use.
- Financing Policy (Resolution 2007-10-5): The District adopted a financing policy for recycled water retrofits, which defines District-sponsored financing for both voluntary and mandatory recycled water retrofits. The District will assist private parties to arrange financing for construction of facilities needed to convert potable demands to recycled water.
- Public Education: the District actively promotes the use of recycled water within its water education program. The District also places prominent signage at public recycled water use sites promoting the benefits of water recycling.

The District does not have current data to support a projection of how much increased recycled water sales will result from each of the listed methods of encouraging recycled water use. Historically, the low cost of recycled water was the primary inducement for

customers to use recycled water in-lieu of potable water. As growth continues within the District's service area, it is reasonable to assume that reliability of the resource and the mandatory provision of the District's Recycled Water Use Policy will play a major role in program expansion.

The District's existing recycled water distribution system will be expanded through the implementation of the District's *2015 WFMP*. Recycled water use is projected to be 4,599 AFY in 2020, and will be supplied from the District's recycled water distribution system. Over a 25-year planning horizon, recycled water use projections show that municipal and agricultural use will remain relatively constant. However, additional steps are being taken to increase recycled water use to maximize available supplies beyond the capacity of the recycled water distribution system.

In 2013, the District's Board of Directors approved both the IPR Feasibility Study Report and the IPR Conceptual Design Study. The IPR Feasibility Study Report is available online in the Water Resource Planning Document Library located at http://ranchowater.com/DocumentCenter.

Based on this evaluation, the District is considering proceeding with efforts to develop and permit an IPR project that would utilize available additional recycled water for reservoir and groundwater recharge. The IPR technique is one of the recycled water applications that have developed in recent years, largely as a result of advances in treatment technology and regulatory achievements that enable the production of extremely high quality recycled water at increasingly reasonable costs and reduced energy inputs. In IPR, tertiary treated recycled water is further treated through reverse osmosis (RO), ozone, and ultraviolet disinfection and utilized as a high-quality, low-salinity water source for groundwater or reservoir recharge with the intent of augmenting drinking water supplies. IPR is a feasible option for the sustainable management of water because it is a water supply alternative not dependent on rainfall and it is possible to achieve high-quality recycled water in compliance with regulatory standards and guidelines. Based on the analysis and evaluation of alternatives conducted, a recommended approach was identified for implementation of an IPR project. The 3 main goals and objectives established by the District for the IPR project are:

- Increase Water Supply Reliability;
- Maximize Recycled Water Use; and
- Improve Water Quality in the Santa Margarita River Watershed.

The IPR project would make use of all of the available effluent from both the SRWRF and the TVRWRF. Additional treatment for salinity reduction is required for any expanded recycled water project, which also results in improved water quality within the watershed. The additional local water supply created by the expanded recycled water project would increase water supply reliability for the District. The project concept recommended from the IPR Conceptual Study is summarized as follows:

- Surface spreading of at least 2,000 AFY at the Lower VDC recharge basins;
- Injection of up to 2,000 AFY in the Lower Mesa or Pauba Valley groundwater basins, if surface spreading capacity is limited;
- Partial RO followed by Soil Aquifer Treatment (SAT) for surface spreading;
- Full Advanced Treatment (FAT) for injection;
- Advanced Water Treatment (AWT) located at or near the SRWRF site;
- A separate pipeline for conveyance of advanced treated water to surface spreading or injection;
- Brine minimization facilities at SRWRF; and
- Ocean disposal of brine through Fallbrook system.

In addition, the District plans to take a variety of other actions to facilitate the use and production of recycled water within the District's service area to increase potential recycled water use. These actions include:

- Apply for state and federal grant funding as available;
- Encourage agencies to participate in studies that will benefit recycled water production;
- Support agencies in deriving solutions to regulatory issues related to recycled water use; and
- Consider implementing a Recycled Water Site Retrofit Program with the following objectives: optimize existing and potential recycled/non-potable water supplies; expand and maximize the District's recycled water user base; establish a program structure that facilitates recycled water retrofits in a proactive manner; and establish a prioritized implementation strategy for near-term and future recycled water site retrofits.

The District is in the process of completing the Recycled Water Resources Plan, which will provide guidance on future recycled water supply project for the District. The Recycled Water Resources Plan is anticipated in 2018.

### 4.3.4 Desalted Water Opportunities

In times of water scarcity and an ever-growing demand for fresh water due to population growth, and given current climate trends, water resources will become even more unevenly distributed as water-scarce regions experience more frequent and prolonged droughts. Desalination is the process of removing dissolved salts from water, thus producing fresh water from seawater or brackish water, and can be a reliable water supply alternative and a part of the solution for meeting current and future water needs.

Desalination began in California in 1965. The past 10 years have seen a rapid rise in installed capacity. The 56 thousand acre-feet (TAF) Carlsbad Project in San Diego County started operations in December 2015 and represents the largest seawater desalination project in the country, with 56,000 AFY of capacity (Draft MWDSC 2015 UWMP, Table 3-10). Additional projects planned within MWDSC's Member Agencies' service areas include the Long Beach Seawater Desalination Project, the Doheny Desalination Project, and the West Basin Seawater Desalination Project. These projects represent a projected increase in future desalination capacity of 45,000 AFY – 86,000 AFY for the region (Draft MWDSC 2015 UWMP, Table 3-10).

Aside from the recycled water IPR project previously presented in Section 4.3.3, the District does not operate, nor have plans to construct, any desalination facilities for ocean water, brackish surface water, and/or brackish groundwater. The District is currently capable of extracting and utilizing a sustainable natural yield from the groundwater basin, without the need for energy intensive desalination; however, the District continuously evaluates the potential for water transfer opportunities, including those from existing and future desalination projects. Economic and hydrological conditions can change significantly over time, which can affect not only the price to purchase water, but also the need to treat water to changing standards in order to protect the groundwater basin. As such, the District will continue to evaluate the benefits and costs of transfers, exchanges, and/or sales opportunities with desalinated water.

### 4.3.5 Transfer and Exchange Opportunities

Water transfers and water exchanges are water management concepts with great potential for helping to alleviate water shortages in the region and Santa Margarita Watershed. The concept is that 2 agencies, 1 willing seller of water and 1 willing buyer, can enter into an exchange agreement that is mutually beneficial from a water management point of view. Water transfers allow an agency to "move" water from one service area to another, even when the 2 agencies are not connected by any pipelines.

As a water management tool, water transfers can be effective during periods of severe drought or emergencies. Water transfers can take multiple forms to increase water supply reliability among agencies.

The District could engage in water transfers to increase their water supply. Water transfers are the voluntary exchange of water between a willing buyer and a willing seller. There are 2 kinds of transfers to consider: wet year transfers, which would only be

available during normal and wet hydrology year types, and dry year transfer options, which would be available in years when deliveries of imported water might be reduced. Types of water transfer vary and include:

- Spot Transfers - a one-time purchase of water, usually purchased on an as-needed basis to offset the effects of drought.

- Option Transfers - buyers purchase a certain amount of water anytime during the life of the agreement, paying costs only in those years in which the water is needed.

- Core Transfers - multi-year contracts designed to make a specific amount of water available to the purchaser annually. Buyers must normally pay the costs of transfer every year whether the water is needed or not.

- Storage Transfers - purchasers can place water into storage for future delivery. Storage transfers can be accomplished through either core or option contracts.

In 2017 the District entered into a Cyclic Storage Agreement with MWDSC and EMWD. MWDSC's Cyclic Storage Program offers an opportunity during periods of abundant and surplus water to supplement and improve local water supplies. The Cyclic Storage Agreement has a 10-year term, and allows for 10,000 AF maximum balance in the District's cyclic storage account. To date, the District has committed to a 3-year purchase schedule with a minimum 1,000 AFY water purchase, for a total three-year anticipated amount of 3,000 AF.

Previously, the District evaluated the cost of purchase water from water districts north of the Sacramento-San Joaquin Delta or the Southern Central Valley, as well as the estimated cost of purchasing desalinated water from a future Desalination Project. Water could be acquired by either stored water purchases, groundwater substitution, or crop idling agreements. The District would then negotiate a price, transfer amount, and delivery schedule with the seller. Prices for water transfers vary depending on the size and location of the transfer.

Delivering the transferred water may require use of SWP, CVP, and/or MWDSC conveyance facilities, also known as wheeling. California state law requires that an agency must allow wheeling if excess capacity is available, given that fair compensation is paid for use of the system. MWDSC has developed wheeling rates, based on their unbundled water rate schedule. Member agencies (and sub-agencies such as the District) will pay MWDSC's system access charge, water stewardship charge, and system power charge.

Additionally, local water agencies have the ability to enter into contracts between each other to provide water on an annual basis or on an as-needed basis. 2 emergency interconnections between the District and EMWD were recently installed, and are to be operated during periods of system failure. These interconnections will not function to

provide water on an annual basis. 1 connection currently exists with EMWD and could provide a nominal supply, but flow rate would not suffice for any significant emergency. Water is also provided by EMWD to the District on an annual basis for the wheeling of water to the following EMWD water customers: Nakayama Park, Lake Skinner Park, and Glen Oaks. Similarly, water is provided by WMWD to the District on an annual basis for wheeling water to WMWD's water customer, Rock Mountain.

Untreated MWDSC imported water is also purchased by the District from WMWD, and conveyed through an outfall pipeline to release makeup water into the Santa Margarita River at the Gorge, pursuant to the Cooperative Water Resource Management Agreement.

Economic and hydrological conditions can change significantly over time, which can affect not only the price to purchase water, but also the need to treat water to changing standards in order to protect the groundwater basin. As such, the District will continue to evaluate the benefits and costs of water transfers, exchanges, and/or sales opportunities.

### 4.3.6 Planned Water Supply Projects and Programs to Meet Projected Water Use

Acting upon the District's Mission Statement to deliver reliable, high-quality water, wastewater, and reclamation services to its customers and communities in a prudent and sustainable manner, the following water resource management goals and implementation strategy were developed in the *2015 WFMP*.

Goal No. 1: To enhance water use efficiency in order to comply with state regulations (SB X7-7 20x2020 Water Conservation Plan & the governor's current drought declaration). District actions to implement this goal include:

- Continue the implementation of the District's Blueprint for Water Use Efficiency; and

- Continue monitoring compliance with state regulations and revise the District's policies and programs, as necessary, to ensure compliance.

Goal No. 2: To use fiscal responsibility to minimize the cost of purchased water supplies. District actions to implement this goal include:

- Minimize the purchase of MWDSC Tier II imported treated water by increasing recharge/recovery at the Upper VDC; and

- Continue to monitor opportunities to purchase economically advantageous water supplies, such as:

    - MWDSC replenishment water or other MWDSC reduced-price water supply

- Water transfers
- Future desalination projects

Goal No. 3: Enhance the water quality of the District's water supply sources. District actions to implement this goal include:

- Continue compliance with federal and state water quality regulations;
- Continue the implementation of the District's Salt & Nutrient Management Plan; and
- Consider the demineralization of the District's groundwater and/or recycled water supply sources to reduce salt loading within the watershed:
  - Acquire capacity rights for future brine waste disposal
  - Evaluate the potential for groundwater demineralization and optimization
  - Consider the implementation of the District's Conceptual Design Study for Indirect Potable Reuse

Goal No. 4: Enhance the reliability/sustainability of the District's water supply. District actions to implement this goal include:

- Minimize the purchase of MWDSC Tier II imported treated water due to potential climate change impacts, uncertainty of the SWP and Colorado River water supply, and potential long-term drought scenarios;
- Maximize the use of local water supplies, approximately 5,300 AFY of recycled water capacity:
  - Develop opportunities to assist with the conversion of existing potable water customers to recycled water use (currently underway)
  - Consider the implementation of the District's Conceptual Design Study for Indirect Potable Reuse; and
- Maximize the storage/banking of water in the groundwater basin and in Vail Lake:
  - Implement the VDC water supply improvement project;
  - Develop a storage/banking operations plan for both Vail Lake and the groundwater basin (future plan document, date TBD); and

- Monitor the storage capacity of Vail Lake and the rate of sedimentation and make provisions for a future sedimentation removal project (future project, date TBD).

The District is currently in Phase III of the Upper VDC Conjunctive Use Optimization Project. This project includes purchasing more untreated water from MWDSC, and delivering it to the VDC recharge basins. 10 new wells will be installed at the Upper VDC to increase groundwater production through artificial recharge; pumping would occur year-round. The recharge goal under this alternative is 35,854 AFY by 2040, representing an increase of 22,695 AFY over current artificial recharge capacity. Vail Lake and the groundwater basin can be utilized for storage, which allows the District to lower imported water costs by taking advantage of MWDSC's replenishment rates, when available. This also provides a level of reliability, as Vail Lake water or banked groundwater may be available for release or extraction during dry weather periods when MWDSC imposes mandatory reductions. MWDSC requires any replenishment water to remain in Vail Lake for a minimum of 1 year.

In 2013, the District's Board of Directors approved both the IPR Feasibility Study Report and the IPR Conceptual Design Study. Based on this evaluation, the District is considering proceeding with efforts to develop and permit an IPR project that would utilize available additional recycled water for groundwater recharge. The IPR technique is one of the recycled water applications that have developed in recent years, largely as a result of advances in treatment technology and regulatory achievements that enable the production of extremely high quality recycled water at increasingly reasonable costs and reduced energy inputs. In IPR, tertiary-treated recycled water is further treated through reverse osmosis, ozone, and ultraviolet disinfection and utilized as a high-quality, low-salinity water source for groundwater or reservoir recharge, with the intent of augmenting drinking water supplies. IPR is a feasible option for the sustainable management of water because it is a water supply alternative not dependent on rainfall and it is possible to achieve high-quality recycled water in compliance with regulatory standards and guidelines. Based on the analysis and evaluation of alternatives conducted, a recommended approach was identified for implementation of an IPR project with a project capacity of 4,000 AFY in 2040.

Recommended system improvements to ensure the reliability of the potable water supply and for sustainable supply to meet future demands are listed in Table 4.3-11. These projects are currently in planning stages for subsequent design and construction.

**Table 4.3-11**

**RCWD Planned Water Supply Projects, Programs and Studies**

| Project | Description | Est. Start Date | Est. Completion Date | Total Capacity (AFY) |
|---|---|---|---|---|
| Upper VDC Conjunctive Use Optimization | Ten new groundwater wells for recovery of increased basin water from enhanced groundwater recharge at the Upper VDC. Purchase more untreated water from MWDSC, and deliver it to the Valle de los Caballos (VDC) recharge basins. Pumping would occur year round. The recharge goal under this alternative is 35,854 AFY by 2040. | 2017 | 2040 | 22,695 |
| Indirect Potable Reuse | Use Recycled Water purchased from EMWD to increase recharge and recovery for the groundwater basin. | 2025 | 2062 | 4,000 |

Source: 2015 UWMP Tables 6-12 and 6-13

***Metropolitan Water District of Southern California***

As two of Metropolitan's 26 member agencies, EMWD and WMWD receive supplemental imported water from Northern California through the SWP and the Colorado River through the CRA. As a water wholesaler, Metropolitan has no retail customers, and distributes treated and untreated water directly to its member agencies. Metropolitan currently provides between 45 and 60 percent of the municipal, industrial, and agricultural water used in its service area.

Metropolitan's primary purpose is to provide a supplemental supply of water for domestic and municipal uses at wholesale rates to its member public agencies. Metropolitan's principal sources of water are the SWP and the Colorado River. Metropolitan's robust planning strategy continues to balance available local and imported water resources and member agencies' demands within Metropolitan's service area.

Table 4.3-12 summarizes total Metropolitan programs and water supply capabilities, presenting both current programs and the programs that are still under development (as presented in Metropolitan's *2015 UWMP* Table 1-6.

**Table 4.3-12**
**Metropolitan 2015 Regional Urban Water Management Plan**
**Supplies for Average and Dry Years (AF)**

| Local Supplies | 2020 | | 2030 | | 2040 | |
|---|---|---|---|---|---|---|
| | Average Year[1] | Dry Year[2] | Average Year[1] | Dry Year[2] | Average Year[1] | Dry Year[2] |
| Local Groundwater | | | | | | |
| From Natural Recharge | 1,011,000 | 1,007,000 | 1,004,000 | 1,005,000 | 1,005,000 | 1,006,000 |
| Replenishment | 292,000 | 298,000 | 297,000 | 297,000 | 297,000 | 297,000 |
| Local Projects | | | | | | |
| Groundwater Recovery | 143,000 | 139,000 | 163,000 | 162,000 | 167,000 | 167,000 |
| Recycling | 436,000 | 427,000 | 486,000 | 482,000 | 509,000 | 507,000 |
| Seawater Desalination | 51,000 | 56,000 | 51,000 | 56,000 | 51,000 | 56,000 |
| Local Runoff Stored | 110,000 | 102,000 | 110,000 | 102,000 | 110,000 | 102,000 |
| Los Angeles Aqueduct | 261,000 | 113,000 | 264,000 | 125,000 | 268,000 | 133,000 |
| IID-SDCWA Transfer and Canal Linings | 274,000 | 274,000 | 282,000 | 282,000 | 282,000 | 282,000 |
| **Total** | **2,578,000** | **2,416,000** | **2,657,000** | **2,511,000** | **2,689,000** | **2,550,000** |

[1] Average Year is based on 1922 through 2012.

[2] Dry Year is based on Multiple Dry Years (1990-92)

In Section 1 of the Metropolitan *2015 UWMP*, Metropolitan evaluated the short-term supply outlook during each of the next three years from 2016 through 2018 and determined the minimum water supplies available based on the driest three-year historic sequence of 1990 through 1992. This analysis incorporates the actual storage levels at the beginning of 2015 and the forecasted supplies and demands under a multiple dry-year sequence. This evaluation of supply capabilities also takes into account the actual storage program conveyance constraints.

For this supply capability evaluation, SWP supplies are estimated using the 2015 SWP Delivery Capability Report distributed by DWR in July 2015. The 2015 Capability Report base scenario represents the current DWR estimate of the amount of water deliveries for current conditions. These estimates incorporate restrictions on SWP and Central Valley Project (CVP) operations in accordance with water quality objectives established by the State Water Resources Control Board and the biological opinions of the U.S. Fish and Wildlife Service and National Marine Fisheries Service issued on December 15, 2008, and June 4, 2009, respectively.

Metropolitan's forecast shows that under a multi-dry year hydrology, Metropolitan could face reduced supply capability during the next three years. This places considerable emphasis on developing robust short-term actions that will increase supply reliability to Metropolitan's service area.

# 5.0 RELIABILITY OF WATER SUPPLIES

RCWD and all southern California communities and water agencies are facing increasing challenges and opportunities in their role as stewards of water resources in the region. Increased environmental regulations and competition for water from outside the region have resulted in reduced supplies of imported water. Continued regional population and economic growth increase water demand, putting an even larger burden on local supplies.

The Twelve Oaks Project is located in the Wine Country Community Plan area of southwestern Riverside County, northeast of the City of Temecula. The Project proposes to develop 630.9 acres including a residential area and a resort area.

The reliability of the District's water supply is partially dependent on the reliability of its imported water supplies, which are managed and delivered by EMWD and WMWD, each a direct member agency of MWDSC. The District also overlies the Temecula Valley Groundwater Basin and is working in cooperation with the Santa Margarita River Watershed Watermaster and multiple stakeholders to achieve water supply reliability, water quality, and watershed management goals for the Upper Santa Margarita Watershed.

The following sections describe the roles of various agencies in water supply reliability, and the near and long-term efforts they are involved with to ensure future reliability of water supplies to the District and the region as a whole.

## 5.1 Constraints on District Water Sources

The District's water system is currently sufficient to supply water to its existing customers. As mentioned in Section 1.0, this WSA does not identify specific infrastructure needs related to the provision of water for the Project, nor does the District have a specific capital improvement or outlay program representing this project.

The District currently obtains its water supplies from the following primary water sources: 1) local groundwater from the Temecula Valley Groundwater Basin; 2) imported SWP and Colorado River water from MWDSC via EMWD and WMWD; and 3) recycled water from both the District and EMWD.

There are no known water quality concerns that will significantly impact water supply reliability; therefore, there is no projected reduction in water supplies due to water quality constraints during the 25-year planning period. Imported water treated and delivered from MWDSC is consistently of good quality, resulting in a reliable supply of imported water. MWDSC has identified water quality issues that are of concern and has implemented water management strategies to minimize the impact on water supplies. The groundwater quality in the Temecula Valley Groundwater Basin is considered good, especially where recharge occurs. Early monitoring and implementation of programs are intended to help producers

maintain the groundwater production ability, in accordance with the Basin agreements. Recycled water meets or exceeds stringent water quality standards.

If water quality does impact the District's water supply in the future, the District will continue to implement its Water Facilities Master Plan, which provide for system redundancy and enhanced reliability of supply. For example, if groundwater becomes unusable (without treatment) due to water quality concerns, more imported water will be utilized and/or treatment could be applied to the affected groundwater. If imported water becomes limited due to diminished water quality, then additional treatment could be applied.

### 5.1.1 Groundwater

The District works in cooperation with the Santa Margarita River Watershed Watermaster and multiple stakeholders to achieve water supply reliability, water quality, and watershed management goals for the Temecula Valley Groundwater Basin. The District's *Recommended Groundwater Production* report is an annual audit prepared for the District to recommend a groundwater production program for the upcoming FY. The *Recommended Groundwater Production* report was last developed in January 2017 for production recommendations for FY 2017-2018. The recommended groundwater production program involves the operation of the groundwater basin within safe yield limits so as not to create permanent overdraft or other undesirable conditions that could degrade water quality or violate legal restrictions. The recommendation also includes information gained from workshops held among the District, WMWD, and consultant staff. Information includes discussion of previous audits, instantaneous yield, natural and artificial recharge, water quality, pump settings, and well construction factors.

The annual supply capacity of the District's groundwater sources is limited by the natural yield of the groundwater basin, in conjunction with the artificial groundwater recharge the District achieves at the VDC recharge basins. The District evaluates each groundwater well, based on hydrogeologic subunit and aquifer, to determine an annual pumping budget. The sustainable yield of the District's groundwater basin (including artificial recharge allotments) averaged to 38,365 AFY from 2011-2015. (2015 UWMP Table 6-6) This amount includes an average 13,875 AFY of artificial recharge water over the same 5-year period.

The underlying philosophy guiding the District's *Recommended Groundwater Production* report has been, and continues to be, one of sound basin management. This involves operating the groundwater basin within safe yield limits to avoid creating a permanent overdraft or other undesirable condition, such as water quality degradation, reduction of long-term production capacity, or land subsidence. Determination of the amounts of groundwater hydrologically available to the District is an ongoing process of evaluation and review.

The FY groundwater production recommendations are based primarily on review of individual well production and historical hydrographs, as well as consideration of water level elevations from all production and monitoring wells. This information is used to formulate a recommendation for groundwater production for the next FY. The recommendation also includes information gained from workshops held among the District, WMWD, and consultant staff. Information includes discussion of previous audits, instantaneous yield, natural and artificial recharge, water quality, pump settings, well construction factors, and the projected production from WMWD's wells in the northern Murrieta Valley area.

Recommendations are consistent with the District's groundwater management plan and are verified using the calibrated surface and groundwater model of the Temecula Valley Groundwater Basin.

Native groundwater allocations are intended to maintain the sustainability of the groundwater basin, and consider the quantities of surface water from Vail Lake, which are drafted and allowed to percolate into the Temecula Valley Groundwater Basin as native groundwater. In the third and fourth multi-dry years, the quantity of rainfall, infiltration, and draft from Vail Lake decreases and, as such, decreases the amount of native groundwater available to the District. Based on historical records, the District estimates that a 6% reduction of native groundwater is experienced in the third dry year, with a 12% reduction experienced in the fourth year. Reductions of the native groundwater supply can be compensated for by increased short-term conservation efforts (e.g. Water Shortage Contingency Plan), by utilizing water previously banked by the District in either Vail Lake or the groundwater basin, and/or by increasing the amount of imported water.

As previously presented in Table 4.1-3, 2018 and 2019 are not anticipated to be average years for native groundwater supply for the District. Similar to 2017, a 7,000 AFY reduction in the average year native groundwater supply is assumed, resulting in a lower 17,511 AFY of native groundwater supply. This lower yield is a result of the recent multiple-year drought experienced throughout Southern California. As such, the District correlates 2017, 2018 and 2019 native groundwater level production to the 5$^{th}$, 6$^{th}$ and 7$^{th}$ years of a multiple-year drought. While the wet 2016 winter replenished storage and sources for imported supplies, as well as for recycled water supplies, the wet winter did not replenish the previous four-year multiple drought impacts on the Basin.

Artificial recharge allocations are dependent on the quantity of untreated, imported water available to the District. In 2015, this quantity was decreased by 15% by MWDSC during the District's fourth multi-dry year. Accordingly, the District estimates a 15% reduction in artificial recharge in a fourth multi-dry year, which can be compensated for by increased short-term conservation efforts (e.g. WSC Plan) and/or by utilizing water previously banked by the District in either Vail Lake or the groundwater basin.

Groundwater provides a local and independent water supply source for the District. Groundwater levels are dependent on natural factors such as precipitation and natural recharge. District-controlled factors include groundwater management activities, such as scheduled pumping and monitoring water quality, levels, and subsidence.

The District safeguards its water supply by collecting and analyzing more water samples than required by the EPA and SWRCB DDW. The District collects more than 2,000 samples a year for analysis of 120 different contaminants including bacteria, metals, organic chemicals, pesticides, and aesthetic-related substances.

### 5.1.2 Imported Water

Imported water is water that originated from outside of the Santa Margarita River Watershed (generally water from the Colorado River and the SWP). Imported water is acquired from the member agencies of the MWDSC. For the District, its member agencies are WMWD for the Santa Rosa Division and EMWD for the Rancho Division.

Imported water provided to the District is from MWDSC's Lake Skinner Reservoir and Water Treatment Facility, with back-up storage provided by Diamond Valley Lake. Imported treated water flow rates vary seasonally at the District's turnouts. During winter months, when demand is typically lower, the District relies mostly on local groundwater resources. During these periods, the District may turn off all the imported water turnouts. As demands increase throughout the year, groundwater sources are augmented with imported water supplies to meet daily demand variations.

Imported water provided to the District from MWDSC's Lake Skinner Reservoir and Water Treatment Facility is a blend of SWP and Colorado River water. The untreated water is affected by invasive species such as Quagga mussels. The treated water is chloraminated by MWDSC based on 2.5 to 2.7 Parts Per Million (PPM).

The reliability of MWDSC's water supply is dependent on a variety of factors. Per Section 4503 of MWDSC's Division IV Water Service Policies, the District should have sufficient resources (local reservoir storage, groundwater production capacity, system interconnections or alternate supply sources) to sustain a 7-day interruption in MWDSC's deliveries from raw and treated turnout facilities, based on average annual demands.

There are no other significant interconnections that exist between the District and either EMWD or WMWD for alternative sources of imported water beyond the existing turnout connections.

MWDSC's primary goal is to provide reliable water supplies to meet the water needs of its service area at the lowest reasonable cost. The reliability of MWDSC's water supply has been stressed, as existing imported water supplies from the Colorado River and SWP face increasing challenges.

MWDSC evaluated the dependability of these supplies and concluded that the combination of imported water storage and expanding local resource programs would ensure its service area's demands would be met in the future. EMWD and WMWD and their member agencies, including the District, expressly rely upon MWDSC's 2015 UWMP in estimating future imported water availability to its service area. Specifically, MWDSC has concluded that it has supply capabilities that would be sufficient to meet expected demands from 2020 through 2040 under the single-dry year and multiple-dry year conditions (2015 MWDSC UWMP, Page ES-5).

On April 14, 2015, MWDSC announced a 15% reduction in wholesale deliveries to its 26-member public agencies, as part of the current WSAP. This is the fourth time MWDSC has restricted imported supplies in response to drought conditions, the last being a 10% cutback from July 2009 to April 2011. Imported supplies from MWDSC will reflect a 15% reduction in the fourth dry year of all multi-dry year analysis performed as part of this UWMP. Reduced supplies from imported water can be compensated for by increased short-term conservation efforts (e.g. WSC Plan) and/or by utilizing water previously banked by the District in either Vail Lake or the groundwater basin.

***State Water Project (SWP)***

The reliability of the SWP impacts MWDSC's member agencies' abilities to plan for future growth and supply. In December 2017, the DWR published *The State Water Project Draft Delivery Capability Report 2017* (*2017 Draft SWP Report*) which provides information on the reliability of the SWP to deliver water to its contractors assuming historical precipitation patterns. The report updates the DWR's estimate of current (2015) SWP water delivery reliability. As in previous reliability reports, SWP deliveries are based upon operation simulations in DWR's CalSim II model. Many of the same specific challenges to operations described in the 2015 Report remain in 2017. Most notably, the effects on the timing and the amount of SWP and Central Valley Project (CVP) Delta diversions, by operating the system to meet the constraints spelled out in the 2008 and 2009 federal biological opinions. The resulting differences between the 2015 and Draft 2017 reports can be attributed primarily to inputs on operating assumptions that result in realistic simulation study, with the least amount of foresight on the historical hydrology (October 1921 – September 2003) used in the updated simulation.

The *2017 Draft SWP Report* represents the state of affairs if no Delta improvements are made. It shows the continued erosion of SWP water delivery reliability under the current method of moving water through the Delta. The average Table A water delivery was about 62% (of maximum Table A amount) for 2015 conditions and about 62% for 2017 conditions (*2017 Draft SWP Report*, Page 24). Most of the reduced reliability is caused by the export limitations resulting from the 2 Biological Opinions—a factor identified above.

These estimates incorporate restrictions on SWP operations, in accordance with the biological opinions of the U.S. Fish and Wildlife Service and National Marine Fisheries Service issued on December 15, 2008 and June 4, 2009, respectively. Under the *2017 Draft SWP Report*, with existing conveyance and low outflow requirements scenario, the delivery estimates for the SWP for 2020 conditions as percentage of Table A amounts are 8%, equivalent to 336 TAF, under a single-dry year (1977) condition. In dry, below-normal conditions, MWDSC has increased the supplies received from the California Aqueduct by developing flexible CVP/SWP storage and transfer programs. Over the last few years under the pumping restrictions of the SWP, MWDSC has worked collaboratively with the other contractors to develop numerous voluntary CVP/SWP storage and transfer programs. The goal of these storage/transfer programs is to develop additional dry-year supplies that can be conveyed through the California Aqueduct during dry hydrologic conditions and regulatory restrictions (2015 MWDSC UWMP, Page ES-4).

On an annual basis, each of the 29 SWP contractors, including MWDSC, request an amount of SWP water based on their anticipated yearly demand. In most cases, MWDSC's requested supply is equivalent to its full Table A amount. After receiving the requests, DWR assesses the amount of water supply available based on precipitation, snow pack on northern California watersheds, volume of water in storage, projected carry-over storage, and Sacramento-San Joaquin Bay Delta regulatory requirements. Due to the uncertainty in water supply, contractors are not typically guaranteed their full Table A amount, but instead a percentage of that amount based on the available supply.

On November 29, 2017, DWR announced it would only be able to deliver 15% of requested Table A SWP water in 2018 (DWR Notice Number 17-10). This is up down from 85% of requested deliveries after April 2017, as well as the 60% of requested deliveries prior to that. However it is greater than the 5% of requested deliveries in 2014.
The Bay-Delta Conservation Plan would reduce harm to fish from altered stream flows caused by the south Delta pumps serving the SWP and CVP. Pumping there at times causes reverse flows that may disorient or entrain fish. The Bay-Delta Conservation Plan's large-scale habitat restoration would also improve Delta conditions for fish and wildlife. More detail on the Bay-Delta Conservation Plan follows this section.

Much of California's water comes from the mountainous country from Shasta Lake in the north to the American River in the south. The November and December 2015 storms built California's snowpack water content to over 130% of normal by January 1, 2015. Since then, manual surveys and electronic readings have recorded the water content decline since dry weather set it. Statewide, the December 28, 2017 manual snowpack survey found the snowpack water content at 27% of normal (Statewide Summary of Snow Water Content, December 28 2017).

The Monterey Agreement, an accord intended to address SWP allocations during drought conditions, states that SWP contractors will be allocated part of the total available project supply in proportion to their Table A amount. Water is allocated to urban and agricultural

purposes on a proportional basis, eliminating a previous initial supply reduction to agricultural contractors. The agreement further defines and permits permanent sales of SWP Table A amounts and provides for transfer of up to 130,000 AF of annual Table A amounts from agricultural use to municipal use. The agreement also allows SWP contractors to store water in another agency's reservoir or groundwater basin, resulting in flexibility for SWP contractors to use their share of storage in SWP reservoirs; facilitates the implementation of water transfers; and provides a mechanism for using SWP facilities to transport non-project water for SWP water contractors.

To strengthen the reliability of SWP water from the Bay-Delta, the Bay-Delta Conservation Plan (BDCP) sets out a comprehensive conservation strategy for the Delta designed to restore and protect ecosystem health, water supply, and water quality within a stable regulatory framework. The BDCP reflects the outcome of a multiyear collaboration between public water agencies, state and federal fish and wildlife agencies, nongovernment organizations, agricultural interests, and the general public. The BDCP is intended to result in a permit decision concerning long-term regulatory authorizations under state and federal endangered species laws for the operations of the SWP and the CVP. The BDCP will further provide the basis for durable regulatory assurances and the basis for a biological assessment. On July 21, 2017 DWR certified the final EIR, adopted Findings and a Statement of Overriding Considerations, adopted the Mitigation Monitoring and Reporting Program, approved the California WaterFix (alternative 4a), and filed the Notice of Determination with the Governor's Office of Planning and Research for the California WaterFix project.

***Colorado River Aqueduct (CRA)***

MWDSC also depends on Colorado River water to meet its service area demands. The CRA is owned and operated by MWDSC to transport water from the Colorado River approximately 242 miles to its terminus at Lake Mathews in Riverside County. CRA supplies include supplies that would result from existing and committed programs and from implementation of the Quantification Settlement Agreement (QSA) and related agreements. The QSA establishes the baseline water use for each of the agreement parties and facilitates the transfer of water from agricultural agencies to urban uses. Colorado River Water Management Programs are potentially available to supply additional water up to the CRA capacity of 1.2 million acre-feet (MAF) on an as-needed basis (2015 MWDSC UWMP, Page ES-4).

In October 2003, the QSA, a critical component of California's Colorado River Water Use Plan and the Interim Surplus Guidelines, was authorized defining Colorado River water deliveries, commitments, and transfers. The QSA is a landmark agreement, signed by the 4 California agencies that use Colorado River water and the U.S. Secretary of the Interior. The amount of Colorado River water available to MWDSC's service area was augmented with the long-term transfer agreement between the Imperial Irrigation District (IID) and the San Diego County Water Authority (SDCWA). The transfer agreement provides up to

200,000 AF of water per year from IID to SDCWA for a 75-year term. The transfer agreement is dependent upon the QSA, which was invalidated on January 14, 2010 when a Sacramento Superior Court Judge issued a final ruling. In 2011, California's Third District Court of Appeals reversed the Superior Court ruling remanding several issues, including whether the agreement was properly processed under California Environmental Quality Act (CEQA). In June 2013, after an appeal was heard before the court, the QSA was upheld in a decision issued by a Sacramento Superior Court Judge. On May 19, 2014 the 9th U.S. Circuit Court of Appeals also upheld the agreement. Remaining intact, the QSA will guide reasonable and fair use of the Colorado River by California through the year 2037, with a 45-year renewal for a total of 75 years.

### 5.1.3 Recycled Water

Recycled water is municipal wastewater that is purified for beneficial reuse. The State of California has declared that recycled water is safe and is a reliable and cost-effective resource to meet California's water supply needs. Recycled water used by the District is produced at the SRRRA's SRWRF or purchased from EMWD's TVRWRF. Both the TVRWRF and the SRWRF produce disinfected tertiary recycled water meeting the State of California Title 22 regulations for such uses as recreational impoundments and surface irrigation for landscaping, golf courses, agriculture, parks and playgrounds, as well as certain industrial processes.

The primary water quality component that affects the beneficial use of recycled water in the District's service area is the level of TDS, which generally classifies how salty the water is. The recycled water produced by the SRWRF and the TVRWRF generally averages a TDS value of 730 mg/L. Within the District's service area, the San Diego Regional Water Quality Control Board's Basin Plan limits the use of recycled water to hydrologic sub-basins with a TDS limit of 750 mg/L. For hydrologic sub-basins with a TDS limit of 500 mg/L, the use of recycled water in these areas requires the demineralization of recycled water or an approved recycled water use plan based on the assimilative capacity of the sub-basin.

The variability of recycled water provided is primarily due to the impact of weather on the customer's use of recycled water. Thus, the District utilizes seasonal storage ponds for recycled water in order to balance the fluctuations between recycled water supply and demand.

There are indirect constraints on recycled water during multiple-dry years that reduce the amount of recycled water available in a fourth dry year. The lower use in 2015 is attributed to the public outreach effort for water conservation, performed by the District and other agencies, and motivated as part of California's multi-year drought. So, while there is no direct constraint on recycled water, the District estimates a 5% reduction in availability in a fourth multi-dry year, as general conservation efforts begin to decrease indoor water usage, and thus decrease the amount of recycled water available.

## 5.2 Reliability by Type and Year

The available supplies and water demands for the District's water service area were analyzed to assess the District's ability to satisfy demands during 3 hydrologic scenarios: a normal water year, single-dry water year, and multiple-dry water years. The District has identified 2001 as an average year and 2013 as the single-dry year, due to precipitation recorded and available supplies during these years. DWR has interpreted "multiple-dry years" to mean 3 dry years; however, water agencies may project their water supplies for a longer time period. The District has elected to include a fourth dry year as well, as the District has experienced 4 dry years from 2012-2015 during California's unprecedented drought during this time period. Average year, single-dry year, and multi-dry years are the same for all sources of the District's water supply. The tables in the following sections present the supply-demand balance for each of the hydrologic scenarios for the 25-year planning period 2019 to 2044. It is expected that the District will be able to meet 100% of its dry-year demand under every scenario.

### 5.2.1 Imported Water and Artificial Groundwater Recharge

As previously noted, the District is a member agency of EMWD and WMWD, which are member agencies of MWDSC. Although only a portion of the District's total water supply is imported by MWDSC, that portion does have an impact on the District's water reliability and is therefore discussed in this section.

In its 2015 UWMP, MWDSC chose the year 1977 as the single-driest year since 1922, and the years 1990-1992 as the multiple-driest years over that same period. These years have been chosen because they represent the timing of the least amount of available water resources from the SWP, a major source of MWDSC's supply. As presented in MWDSC's 2015 UWMP, MWDSC "can provide reliable water supplies under both the single-driest year and the multiple-driest year hydrologies" (*2015 MWDSC UWMP*, Page 2-13).

On April 14, 2015, MWDSC announced a 15% reduction in wholesale deliveries to its 26-member public agencies, as part of the current WSAP. This is the fourth time MWDSC has restricted imported supplies in response to drought conditions, the last being a 10% cutback from July 2009 to April 2011. Imported supplies from MWDSC will reflect a 15% reduction in the fourth dry year of all multi-dry year analysis performed as part of this WSAP.

MWDSC's 2015 UWMP includes a supply reliability analysis that indicates the region will be able to meet 100% of its dry-year demand under every hydrologic scenario through the year 2040. Based on historical supply reliability data consistent with MWDSC, the District has identified supply reliability for imported water as 100 for normal, single-dry, and the first 3 multi-dry years. During the fourth multi-dry year, a 15% reduction in MWDSC imported supplies is anticipated. MWDSC imported supplies are summarized in Table 5.3-1. As imported untreated water is utilized for the District's artificial recharge of the

Temecula Valley Groundwater Basin, a 15% reduction in the fourth dry year also reduces the amount of artificial recharge by 15% in a fourth dry year.

**Table 5.3-1**
**Supply Reliability as a Percentage of Normal Water Year Supply**

| Water Sources | Average Year | Single Dry-Year | Multiple Dry-Year | | | |
|---|---|---|---|---|---|---|
| | | | Year 1 | Year 2 | Year 3 | Year 4 |
| **Potable** | | | | | | |
| Imported – Treated | 100% | 100% | 100% | 100% | 100% | 85% |
| Imported – Untreated – Groundwater Recharge | 100% | 100% | 100% | 100% | 100% | 85% |
| Local Groundwater | 100% | 100% | 100% | 100% | 94% | 88% |
| **Untreated**[1] | | | | | | |
| Santa Margarita River (SMR) Flows | 100% | 100% | 100% | 100% | 100% | 85% |
| **Recycled** | | | | | | |
| SRWRF (RCWD) | 100% | 100% | 100% | 100% | 100% | 95% |
| TVRWRF (EMWD) | 100% | 100% | 100% | 100% | 100% | 95% |

1 - Imported untreated water utilized for the District's Groundwater Recharge is included in the Potable classification.

Source: 2015 UWMP Tables 7-1 through 7-3

### 5.2.2 Native Groundwater

Groundwater pumping has historically provided a significant portion of the overall District water demand. The District receives groundwater from the Temecula Valley Groundwater Basin (Basin), as identified in California's Groundwater Bulletin 118. The District's *Recommended Groundwater Production* report is an annual audit prepared for the District to recommend a groundwater production program for the upcoming FY. The *Recommended Groundwater Production* was last developed in January 2017 for production recommendations for FY 2017-2018. The recommended groundwater production program involves the operation of the groundwater basin within safe yield limits so as not to create permanent overdraft or other undesirable conditions that could degrade water quality or violate legal restrictions. The recommendation also includes information gained from workshops held among the District, WMWD, and consultant

staff. Information includes discussion of previous audits, instantaneous yield, natural and artificial recharge, water quality, pump settings, and well construction factors.

The District's current native groundwater extraction capacity is approximately 25,422 AFY and is anticipated to remain consistent in a single-dry water year; however, historically, the Basin has been drawn down over multiple-dry water years and extraction is reduced in years 3 and 4 of a multiple-dry year by about 6% and 12%, respectively, as the available draft from Vail Lake is diminished.

As previously presented in Table 4.1-3, 2018 and 2019 are not anticipated to be average years for native groundwater supply for the District. Similar to 2017, a 7,000 AFY reduction in the average year native groundwater supply is assumed, resulting in a lower 17,511 AFY of native groundwater supply. This lower yield is a result of the recent multiple-year drought experienced throughout Southern California. As such, the District correlates 2017, 2018 and 2019 native groundwater level production to the 5$^{th}$, 6$^{th}$ and 7$^{th}$ years of a multiple-year drought. While the wet 2016 winter replenished storage and sources for imported supplies, as well as for recycled water supplies, the wet winter did not replenish the previous four-year multiple drought impacts on the basin.

The District owns and operates 1 surface water reservoir (Vail Lake), located approximately 10 miles east of Temecula, having a watershed area of 318 square miles. Water releases from Vail Lake are discharged into Temecula Creek, which either percolate into the groundwater basin or continue downstream to the Santa Margarita River and ultimately the Pacific Ocean. The contribution of the Vail Lake water supply is reflected in the native groundwater produced from the Temecula Valley Groundwater Basin. During the third and fourth multi-dry years, the draft from Vail Lake has been historically reduced, thereby reducing the amount of native groundwater available to the District. Native groundwater supplies during average, single-dry, and multi-dry years are summarized in Table 5.3-1.

### 5.2.3 Recycled Water

Recycled water used by the District is produced at the SRRRA's SRWRF or purchased from EMWD's TVRWRF. Both the TVRWRF and the SRWRF produce disinfected tertiary recycled water meeting the State of California Title 22 regulations for such uses as recreational impoundments and surface irrigation for landscaping, golf courses, agriculture, parks and playgrounds, as well as certain industrial processes.

During multiple-dry years, the amount of recycled water available to the District decreases in a fourth dry year. This lower supply, which was experienced by the District in 2015, is attributed to the public outreach effort for water conservation. The District estimates a 5% reduction in availability in a fourth multi-dry year, as general conservation efforts begin to decrease indoor water usage, and thus decrease the amount of recycled water available.

Recycled water supplies during average, single-dry, and multi-dry years are summarized in Table 5.3-1.

## 5.3 Supply and Demand Assessment

The available supplies and water demands for the District's water service area were analyzed to assess the District's ability to satisfy demands during 3 hydrologic scenarios: a normal water year, single-dry water year, and multiple-dry water years. The tables in this section present the supply-demand balance for each of the hydrologic scenarios for the 25-year planning period 2019 to 2044, and include the net change in water demands resulting from the proposed Twelve Oaks Project.

It is expected that the District will be able to meet 100% of its demand under every hydrologic scenario. MWDSC's 2015 UWMP only addressed MWDSC's imported water reliability through 2040. Through 2040, MWDSC "can provide reliable water supplies under both the single-driest year and the multiple-driest year hydrologies" (*2015 MWDSC UWMP*, Page 2-13). For the purposes of completing a 25-year supply vs demand analysis in this WSA, it was necessary to assume the same level of reliability for imported water in 2044. MWDSC has not guaranteed the reliability of supply in 2044 under every hydrologic scenario.

As presented in Table 5.3-2, the District's reasonably available supplies, as summarized previously in Table 4.3-1, are sufficient in all normal years through 2039 to accommodate projected demands.

**Table 5.3-2**
**Projected Water Supply and Demand - Average Year**
**(AF)**

| Water Supply / Demands | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|
| **Potable Supply** | | | | | | | |
| Imported – Treated | 40,675 | 46,076 | 40,385 | 40,712 | 42,412 | 35,619 | 33,836 |
| Imported – Untreated – Groundwater Recharge | 14,000 | 15,084 | 23,085 | 24,438 | 24,438 | 33,571 | 35,854 |
| Local Groundwater | 17,511 | 17,511 | 25,422 | 25,422 | 25,422 | 25,422 | 25,422 |
| **Subtotal – Potable Supply** | **72,186** | **78,671** | **88,892** | **90,572** | **92,272** | **94,612** | **95,112** |
| **Untreated[1] Supply** | | | | | | | |
| Santa Margarita River (SMR) Flows | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| **Subtotal – Untreated Supply** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** |
| **Recycled Supply** | | | | | | | |
| SRWRF (RCWD) | 1,975 | 1,999 | 2,085 | 2,166 | 2,215 | 2,264 | 2,335 |
| TVRWRF (EMWD) | 2,619 | 2,948 | 4,634 | 6,006 | 6,269 | 6,295 | 6,300 |
| **Subtotal – Recycled Supply** | **4,594** | **4,946** | **6,718** | **8,171** | **8,484** | **8,559** | **8,635** |
| **Total Supply** | **80,780** | **87,617** | **99,610** | **102,743** | **104,756** | **107,171** | **107,747** |
| **Demand** | | | | | | | |
| Potable - District | 67,327 | 69,095 | 73,204 | 76,126 | 79,048 | 82,247 | 85,514 |
| Potable – Twelve Oaks[2] | 0 | 215 | 704 | 640 | 577 | 507 | 436 |
| Untreated - Santa Margarita River (SMR) Flows | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| Recycled - District[3] | 3,875 | 4,007 | 4,140 | 4,140 | 4,140 | 4,140 | 4,140 |
| **Total Demand** | **75,202** | **77,318** | **82,048** | **84,906** | **87,765** | **90,894** | **94,090** |
| **Supply/Demand Difference** | **5,578** | **10,300** | **17,563** | **17,837** | **16,991** | **16,277** | **13,657** |

1 - Imported untreated water utilized for the District's Groundwater Recharge is included in the Potable classification.

2 - This is the net increase in potable water demand resulting from Twelve Oaks, as previously presented in Table 3.2-2

3 - Does not include Recycled Groundwater Recharge (IPR) Demand, as presented in Table 4.3-8

As required by the CWC, the District communicated with its wholesale agencies regarding imported water supply available to the District. These communications are documented in Appendix D of the 2015 UWMP. These water supply projections provided from the District's wholesale agencies were utilized as the District's source for reasonably available imported water supply data in Table 4.3-1. MWDSC's 2015 UWMP includes a supply reliability analysis that indicates the region will be able to meet 100% of its dry year demand under every hydrologic scenario through the year 2040. Based on historical supply reliability data consistent with MWDSC, the District has identified supply reliability for imported water as 100% of normal water year supply and the first 3 multiple-dry water years. On April 14, 2015, MWDSC announced a 15% reduction in wholesale deliveries to its 26-member public agencies, as part of the current WSAP. This is the fourth time MWDSC has restricted imported supplies in response to drought conditions, the last being a 10% cutback from July 2009 to April 2011. Imported supplies from MWDSC reflect a 15% reduction in the fourth dry year of all multi-dry year analysis performed as part of this UWMP.

The District's current native groundwater extraction capacity is approximately 25,422 AFY and is anticipated to remain consistent in a single-dry water year; however, historically, the Basin has been drawn down over multiple-dry water years and extraction is reduced in years 3 and 4 of a multiple-dry year by about 6% and 12%, respectively, as the available draft from Vail Lake is diminished.

As previously presented in Table 4.1-3, 2018 and 2019 are not anticipated to be average years for native groundwater supply for the District. Similar to 2017, a 7,000 AFY reduction in the average year native groundwater supply is assumed, resulting in a lower 17,511 AFY of native groundwater supply. This lower yield is a result of the recent multiple-year drought experienced throughout Southern California. As such, the District correlates 2017, 2018 and 2019 native groundwater level production to the $5^{th}$, $6^{th}$ and $7^{th}$ years of a multiple-year drought. While the wet 2016 winter replenished storage and sources for imported supplies, as well as for recycled water supplies, the wet winter did not replenish the previous four-year multiple drought impacts on the basin.

There are indirect constraints on recycled water during multiple-dry years that reduce the amount of recycled water available in a fourth dry year. The District estimates a 5% reduction in availability in a fourth multi-dry year, as general conservation efforts begin to decrease indoor water usage, and thus decrease the amount of recycled water available to the District.

During a single-dry year, there is an increase in irrigation demand throughout the District due to low precipitation levels. As such, almost all demands are anticipated to increase by 5% during a single-dry year above those previously summarized in Table 4.2-1. This is consistent with historical demand increases experienced by the District during single-dry years. While this 5% demand increase includes all recycled water demands utilized for outdoor irrigation, it does not include recycled water demands for IPR beginning in 2025.

IPR demands are anticipated to remain constant during single-dry years. Similarly, the demand for 4,000 AFY of untreated MWDSC imported water purchased by the District from WMWD is also anticipated to remain the same during a single-dry year. This untreated water is conveyed through an outfall pipeline to release makeup water into the Santa Margarita River at the Gorge, pursuant to the Cooperative Water Resource Management Agreement.

As presented in Table 5.3-3, the District's reasonably available supplies are sufficient in all single-dry years through 2040. MWDSC's 2015 UWMP only addressed MWDSC's imported water reliability through 2040. Through 2040, MWDSC "can provide reliable water supplies under both the single-driest year and the multiple-driest year hydrologies" (*2015 MWDSC UWMP*, Page 2-13). For the purposes of completing a 25-year supply vs demand analysis in this WSA, it was necessary to assume the same level of reliability for imported water in 2044. MWDSC has not guaranteed the reliability of supply in 2044 under every hydrologic scenario.

**Table 5.3-3**
**Projected Water Supply and Demand – Single Dry-Year**
**(AF)**

| Water Supply / Demands | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|
| **Potable Supply** | | | | | | | |
| Imported – Treated | 40,675 | 46,076 | 40,385 | 40,712 | 42,412 | 35,619 | 33,836 |
| Imported – Untreated – Groundwater Recharge | 14,000 | 15,084 | 23,085 | 24,438 | 24,438 | 33,571 | 35,854 |
| Local Groundwater | 17,511 | 17,511 | 25,422 | 25,422 | 25,422 | 25,422 | 25,422 |
| **Subtotal – Potable Supply** | **72,186** | **78,671** | **88,892** | **90,572** | **92,272** | **94,612** | **95,112** |
| **Untreated[1] Supply** | | | | | | | |
| Santa Margarita River (SMR) Flows | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| **Subtotal – Untreated Supply** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** |
| **Recycled Supply** | | | | | | | |
| SRWRF (RCWD) | 1,975 | 1,999 | 2,085 | 2,166 | 2,215 | 2,264 | 2,335 |
| TVRWRF (EMWD) | 2,619 | 2,948 | 4,634 | 6,006 | 6,269 | 6,295 | 6,300 |
| **Subtotal – Recycled Supply** | **4,594** | **4,946** | **6,718** | **8,171** | **8,484** | **8,559** | **8,635** |
| **Total Supply** | **80,780** | **87,617** | **99,610** | **102,743** | **104,756** | **107,171** | **107,747** |
| **Demand** | | | | | | | |
| Potable - District | 70,693 | 72,550 | 76,864 | 79,932 | 83,001 | 86,359 | 89,789 |
| Potable – Twelve Oaks[2] | 0 | 226 | 739 | 672 | 606 | 533 | 458 |
| Untreated - Santa Margarita River (SMR) Flows | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| Recycled - District[3] | 4,069 | 4,208 | 4,347 | 4,347 | 4,347 | 4,347 | 4,347 |
| **Total Demand** | **78,762** | **80,984** | **85,950** | **88,951** | **91,953** | **95,239** | **98,594** |
| **Supply/Demand Difference** | **2,018** | **6,634** | **13,660** | **13,792** | **12,802** | **11,932** | **9,153** |

1 - Imported untreated water utilized for the District's Groundwater Recharge is included in the Potable classification.

2 - This is the net increase in potable water demand resulting from Twelve Oaks, as previously presented in Table 3.2-2

3 - Does not include Recycled Groundwater Recharge (IPR) Demand, as presented in Table 4.3-8

During the first several multi-dry years, there is an increase in irrigation demand throughout the District due to low precipitation levels. As such, almost all demands are anticipated to increase by 5% during Year 1 of a multiple-dry year above those previously summarized in Table 4.2-1. This is consistent with historical demand increases experienced by the District during single-dry years. This 5% demand increase includes all recycled water demands utilized for outdoor irrigation. The demand for 4,000 AFY of untreated MWDSC imported water purchased by the District from WMWD is anticipated to remain the same during a single-dry year. This untreated water is conveyed through an outfall pipeline to release makeup water into the Santa Margarita River at the Gorge, pursuant to the Cooperative Water Resource Management Agreement. Tables 5.3-4 through 5.3-7 present each year in the multiple-dry year supply vs demand assessment of a 25-year projection.

For the purposes of Table 5.3-7, it is only in a fourth dry year in which the District must enact elements of the Water Shortage Contingency Plan (WSC Plan) to reduce demands in order to mitigate reductions in anticipated supplies. In the first three dry years, the District's reasonably available supplies are sufficient through 2044. However, at the time a water shortage condition is identified, the District's General Manager shall recommend the appropriate shortage stage and corresponding water budget decrease based on an analysis of current and available water supplies and anticipated demands. The District's Board of Directors shall consider and adopt a resolution declaring the appropriate shortage stage and measures to be implemented. In practice, such actions could be made in any hydrologic year as deemed necessary.

In 2015, the District initiated Stage 4A of the WSC Plan, which resulted in an estimated 28% decrease in potable water consumption. The District's WSC Plan provides a critical tool allowing for decreases in potable water consumption, as discussed in Section 5.5. As presented in Table 5.3-7, the District would utilize the WSC Plan in a fourth dry year to reduce potable water demands by the following minimum amounts:

- A 5% decrease in potable water consumption in the fourth-dry year in 2018;
- A 2% decrease in potable water consumption in the fourth-dry year in 2018, 2019 and 2024;
- A 4% decrease in potable water consumption in the fourth-dry year in 2029;
- A 6% decrease in potable water consumption in the fourth-dry year in 2034;
- A 8% decrease in potable water consumption in the fourth-dry year in 2039; and
- A 9% decrease in potable water consumption in the fourth-dry year in 2044.

The District does not anticipate experiencing any problems in meeting its demands in multi-dry scenarios through 2044, including the net increase in demands resulting from the Twelve Oaks Project. For the purposes of completing a 25-year supply vs demand analysis in this WSA, it was necessary to assume the same level of reliability for imported water in 2044. MWDSC has not guaranteed the reliability of supply in 2044 under every hydrologic scenario.

**Table 5.3-4**
**Projected Water Supply and Demand – Year 1 of Multiple Dry-Year**
**(AF)**

| Water Supply / Demands | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|
| **Potable Supply** | | | | | | | |
| Imported – Treated | 40,675 | 46,076 | 40,385 | 40,712 | 42,412 | 35,619 | 33,836 |
| Imported – Untreated – Groundwater Recharge | 14,000 | 15,084 | 23,085 | 24,438 | 24,438 | 33,571 | 35,854 |
| Local Groundwater | 17,511 | 17,511 | 25,422 | 25,422 | 25,422 | 25,422 | 25,422 |
| **Subtotal – Potable Supply** | **72,186** | **78,671** | **88,892** | **90,572** | **92,272** | **94,612** | **95,112** |
| **Untreated[1] Supply** | | | | | | | |
| Santa Margarita River (SMR) Flows | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| **Subtotal – Untreated Supply** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** |
| **Recycled Supply** | | | | | | | |
| SRWRF (RCWD) | 1,975 | 1,999 | 2,085 | 2,166 | 2,215 | 2,264 | 2,335 |
| TVRWRF (EMWD) | 2,619 | 2,948 | 4,634 | 6,006 | 6,269 | 6,295 | 6,300 |
| **Subtotal – Recycled Supply** | **4,594** | **4,946** | **6,718** | **8,171** | **8,484** | **8,559** | **8,635** |
| **Total Supply** | **80,780** | **87,617** | **99,610** | **102,743** | **104,756** | **107,171** | **107,747** |
| **Demand** | | | | | | | |
| Potable - District | 70,693 | 72,550 | 76,864 | 79,932 | 83,001 | 86,359 | 89,789 |
| Potable – Twelve Oaks[2] | 0 | 226 | 739 | 672 | 606 | 533 | 458 |
| Untreated - Santa Margarita River (SMR) Flows | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| Recycled - District[3] | 4,069 | 4,208 | 4,347 | 4,347 | 4,347 | 4,347 | 4,347 |
| **Total Demand** | **78,762** | **80,984** | **85,950** | **88,951** | **91,953** | **95,239** | **98,594** |
| **Supply/Demand Difference** | **2,018** | **6,634** | **13,660** | **13,792** | **12,802** | **11,932** | **9,153** |

1 - Imported untreated water utilized for the District's Groundwater Recharge is included in the Potable classification.

2 - This is the net increase in potable water demand resulting from Twelve Oaks, as previously presented in Table 3.2-2

3 - Does not include Recycled Groundwater Recharge (IPR) Demand, as presented in Table 4.3-8

**Table 5.3-5**
**Projected Water Supply and Demand – Year 2 of Multiple Dry-Year**
**(AF)**

| Water Supply / Demands | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|
| **Potable Supply** | | | | | | | |
| Imported – Treated | 40,675 | 46,076 | 40,385 | 40,712 | 42,412 | 35,619 | 33,836 |
| Imported – Untreated – Groundwater Recharge | 14,000 | 15,084 | 23,085 | 24,438 | 24,438 | 33,571 | 35,854 |
| Local Groundwater | 17,511 | 17,511 | 25,422 | 25,422 | 25,422 | 25,422 | 25,422 |
| **Subtotal – Potable Supply** | **72,186** | **78,671** | **88,892** | **90,572** | **92,272** | **94,612** | **95,112** |
| **Untreated[1] Supply** | | | | | | | |
| Santa Margarita River (SMR) Flows | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| **Subtotal – Untreated Supply** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** |
| **Recycled Supply** | | | | | | | |
| SRWRF (RCWD) | 1,975 | 1,999 | 2,085 | 2,166 | 2,215 | 2,264 | 2,335 |
| TVRWRF (EMWD) | 2,619 | 2,948 | 4,634 | 6,006 | 6,269 | 6,295 | 6,300 |
| **Subtotal – Recycled Supply** | **4,594** | **4,946** | **6,718** | **8,171** | **8,484** | **8,559** | **8,635** |
| **Total Supply** | **80,780** | **87,617** | **99,610** | **102,743** | **104,756** | **107,171** | **107,747** |
| **Demand** | | | | | | | |
| Potable - District | 70,693 | 72,550 | 76,864 | 79,932 | 83,001 | 86,359 | 89,789 |
| Potable – Twelve Oaks[2] | 0 | 226 | 739 | 672 | 606 | 533 | 458 |
| Untreated - Santa Margarita River (SMR) Flows | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| Recycled - District[3] | 4,069 | 4,208 | 4,347 | 4,347 | 4,347 | 4,347 | 4,347 |
| **Total Demand** | **78,762** | **80,984** | **85,950** | **88,951** | **91,953** | **95,239** | **98,594** |
| **Supply/Demand Difference** | **2,018** | **6,634** | **13,660** | **13,792** | **12,802** | **11,932** | **9,153** |

1 - Imported untreated water utilized for the District's Groundwater Recharge is included in the Potable classification.

2 - This is the net increase in potable water demand resulting from Twelve Oaks, as previously presented in Table 3.2-2

3 - Does not include Recycled Groundwater Recharge (IPR) Demand, as presented in Table 4.3-8

**Table 5.3-6**
**Projected Water Supply and Demand – Year 3 of Multiple Dry-Year**
**(AF)**

| Water Supply / Demands | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|
| **Potable Supply** | | | | | | | |
| Imported – Treated | 40,675 | 46,076 | 40,385 | 40,712 | 42,412 | 35,619 | 33,836 |
| Imported – Untreated – Groundwater Recharge | 14,000 | 15,084 | 23,085 | 24,438 | 24,438 | 33,571 | 35,854 |
| Local Groundwater[4] | 17,511 | 17,511 | 23,897 | 23,897 | 23,897 | 23,897 | 23,897 |
| **Subtotal – Potable Supply** | **72,186** | **78,671** | **87,367** | **89,047** | **90,747** | **93,087** | **93,587** |
| **Untreated[1] Supply** | | | | | | | |
| Santa Margarita River (SMR) Flows | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| **Subtotal – Untreated Supply** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** | **4,000** |
| **Recycled Supply** | | | | | | | |
| SRWRF (RCWD) | 1,975 | 1,999 | 2,085 | 2,166 | 2,215 | 2,264 | 2,335 |
| TVRWRF (EMWD) | 2,619 | 2,948 | 4,634 | 6,006 | 6,269 | 6,295 | 6,300 |
| **Subtotal – Recycled Supply** | **4,594** | **4,946** | **6,718** | **8,171** | **8,484** | **8,559** | **8,635** |
| **Total Supply** | **80,780** | **87,617** | **98,085** | **101,218** | **103,230** | **105,645** | **106,221** |
| **Demand** | | | | | | | |
| Potable - District | 70,693 | 72,550 | 76,864 | 79,932 | 83,001 | 86,359 | 89,789 |
| Potable – Twelve Oaks[2] | 0 | 226 | 739 | 672 | 606 | 533 | 458 |
| Untreated - Santa Margarita River (SMR) Flows | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 |
| Recycled - District[3] | 4,069 | 4,208 | 4,347 | 4,347 | 4,347 | 4,347 | 4,347 |
| **Total Demand** | **78,762** | **80,984** | **85,950** | **88,951** | **91,953** | **95,239** | **98,594** |
| **Supply/Demand Difference** | **2,018** | **6,634** | **12,135** | **12,267** | **11,277** | **10,407** | **7,627** |

1 - Imported untreated water utilized for the District's Groundwater Recharge is included in the Potable classification.

2 - This is the net increase in potable water demand resulting from Twelve Oaks, as previously presented in Table 3.2-2

3 - Does not include Recycled Groundwater Recharge (IPR) Demand, as presented in Table 4.3-8

4 – Local groundwater projections for 2018 and 2019 already incorporate a 7,000 AFY reduction reflecting the previous multiple dry-year drought's effect on the groundwater basin, and as such, do not decrease further in a third multiple-dry year.

**Table 5.3-7**
**Projected Water Supply and Demand – Year 4 of Multiple Dry-Year**
**(AF)**

| Water Supply / Demands | 2018 | 2019 | 2024 | 2029 | 2034 | 2039 | 2044 |
|---|---|---|---|---|---|---|---|
| **Potable Supply** | | | | | | | |
| Imported – Treated | 34,574 | 39,165 | 34,328 | 34,605 | 36,050 | 30,276 | 28,761 |
| Imported – Untreated – Groundwater Recharge | 11,900 | 12,821 | 19,622 | 20,772 | 20,772 | 28,535 | 30,476 |
| Local Groundwater[4] | 17,511 | 17,511 | 22,371 | 22,371 | 22,371 | 22,371 | 22,371 |
| **Subtotal – Potable Supply** | **63,985** | **69,497** | **76,321** | **77,749** | **79,194** | **81,183** | **81,608** |
| **Untreated[1] Supply** | | | | | | | |
| Santa Margarita River (SMR) Flows | 3,400 | 3,400 | 3,400 | 3,400 | 3,400 | 3,400 | 3,400 |
| **Subtotal – Untreated Supply** | **3,400** | **3,400** | **3,400** | **3,400** | **3,400** | **3,400** | **3,400** |
| **Recycled Supply** | | | | | | | |
| SRWRF (RCWD) | 1,876 | 1,899 | 1,980 | 2,057 | 2,104 | 2,151 | 2,218 |
| TVRWRF (EMWD) | 2,488 | 2,800 | 4,402 | 5,705 | 5,956 | 5,980 | 5,985 |
| **Subtotal – Recycled Supply** | **4,364** | **4,699** | **6,382** | **7,763** | **8,060** | **8,131** | **8,203** |
| **Total Supply** | **71,749** | **77,596** | **86,103** | **88,912** | **90,653** | **92,714** | **93,211** |
| **Demand** | | | | | | | |
| Potable - District | 63,960 | 67,713 | 71,740 | 73,081 | 74,305 | 75,667 | 77,817 |
| Potable – Twelve Oaks[2] | 0 | 211 | 690 | 615 | 542 | 467 | 397 |
| Untreated - Santa Margarita River (SMR) Flows | 3,400 | 3,400 | 3,400 | 3,400 | 3,400 | 3,400 | 3,400 |
| Recycled - District[3] | 4,069 | 4,208 | 4,347 | 4,347 | 4,347 | 4,347 | 4,347 |
| **Total Demand** | **71,429** | **75,532** | **80,177** | **81,442** | **82,595** | **83,881** | **85,961** |
| **Supply/Demand Difference** | **320** | **2,064** | **5,927** | **7,469** | **8,059** | **8,833** | **7,250** |

1 - Imported untreated water utilized for the District's Groundwater Recharge is included in the Potable classification.

2 - This is the net increase in potable water demand resulting from Twelve Oaks, as previously presented in Table 3.2-2

3 - Does not include Recycled Groundwater Recharge (IPR) Demand, as presented in Table 4.3-8

4 – Local groundwater projections for 2018 and 2019 already incorporate a 7,000 AFY reduction reflecting the previous multiple dry-year drought's effect on the groundwater basin, and as such, do not decrease further in a third multiple-dry year.

## 5.4 Regional Supply Reliability

The reliability of the District's water supply is currently partially dependent on the reliability of its imported water supplies, which are managed and delivered by EMWD and WMWD, each a direct member agency of MWDSC. The District also overlies the Temecula Valley Groundwater Basin and is working in cooperation with the Santa Margarita River Watershed Watermaster and multiple stakeholders to achieve water supply reliability, water quality, and watershed management goals for the Upper Santa Margarita Watershed.

The following section describes the roles of various agencies in water supply reliability, and the near- and long-term efforts they are involved with to ensure future reliability of water supplies to the District and the region as a whole. It provides a summary of the water management tools and options that are being implemented, or are planned for implementation, that maximize the use of local water resources and minimize the need to import water from other regions.

***2015 Water Facilities Master Plan***

To address issues such as imported water supply availability, system capacity constraints, rising imported water costs, and water quality issues, the District evaluated feasible supply-side and demand-side management opportunities to meet its customers' needs in an economical and sustainable manner. The District manages water resources based on an on-going analysis of supply and demand management alternatives to satisfy multiple objectives. These objectives include the following:

- To provide water service to the District's customers in an economical and sustainable manner;
- To provide high quality water to the District's customers;
- To identify and to minimize risk and uncertainty in meeting peak day water demands; and
- To comply with regulatory requirements for water resource management.

As presented in Chapter 5 of the *2015 WFMP*, the District's preferred supply alternative consists of purchasing more untreated water from MWDSC, and delivering it to the Valle de los Caballos (VDC) recharge basins. 10 new wells will be installed at the Upper VDC to increase groundwater production by 22,695 AFY through artificial recharge.

Economic and hydrological conditions can change significantly over time, which can affect not only the price to purchase water, but also the need to treat water to changing standards in order to protect the groundwater basin. As such, the 2015 WFMP recommended to continue evaluating the benefits and costs of utilizing recycled water for IPR.

***Recommended Groundwater Production FY July 1, 2017 - June 30, 2018***

The District's Recommended Groundwater Production report is an annual audit to recommend a groundwater production program for the upcoming FY. The most current report was developed in January 2017 using current data from the water year ending in September 2016. The recommended groundwater production program involves the operation of the groundwater basin within safe yield limits so as not to create permanent overdraft or other undesirable conditions that could degrade water quality or violate legal restrictions.

The FY groundwater production recommendations are based primarily on review of individual well production and historical hydrographs, as well as consideration of water level elevations from all production and monitoring wells. This information is used to formulate a recommendation for groundwater production for the next FY. The recommendation also includes information gained from workshops held among the District, WMWD, and consultant staff. Information includes discussion of previous audits, instantaneous yield, natural and artificial recharge, water quality, pump settings, and well construction factors.

Recommendations are consistent with the District's groundwater management plan and are verified using the calibrated surface and groundwater model of the Temecula Valley Groundwater Basin.

***Upper Santa Margarita Planning Region Integrated Regional Water Management Plan Update (IRWMP)***

The Upper Santa Margarita Planning Region IRWMP was adopted in 2007 to establish a collaborative effort in the watershed to ensure a sustainable water supply through more efficient use of water, protection, and improvement of water quality and environmental stewardship. In 2012, the Region received a Proposition 84, Round 2 Planning Grant to update its 2007 IRWMP, in accordance with new plan guidelines and standards issued by the DWR in 2012.

In April 2014, an update to the IRWMP was prepared to better reflect the Region's current issues, objectives, and strategies. The 2014 IRWMP documents the current IRWM Program and processes that have evolved since the 2007 Plan was developed. Through the IRWMP, regional water agencies, flood control districts, counties, cities, federal, state, and local agencies, and other stakeholders groups are working across jurisdictional boundaries to implement water resource management projects with multiple benefits.

The following is the vision statement of the IRWMP: *"The Integrated Regional Water Management Plan will take a balanced and consensus-based approach that will provide for the protection and sustainability of the Upper Santa Margarita Watershed's water resources, natural resources, and habitats."*

Development of the IRWMP required a cooperative effort on the part the District, Riverside County Flood Control and Water Conservation District (RCFC), and the County of Riverside, which have authority for planning and implementation of water management strategies in the watershed. The District, RCFC, and the County of Riverside have signed a Memorandum of Understanding (MOU) by which the agencies cooperate and work collaboratively with other stakeholders in the watershed. The MOU provided for a Stakeholder Advisory Committee representing significant water and related organizations in the region to work collaboratively to improve water supply reliability, protect and improve water quality, ensure environmental sustainability, promote multiple benefits, and promote integration and regional planning. As a result, the IRWMP includes a list of priority-ranked projects to meet the goals and objectives of the IRWMP. Both the IRWMP and the project listing are flexible and will be updated periodically.

***Metropolitan Water District of Southern California***

MWDSC's primary goal is to provide reliable water supplies to meet the water needs of its service area at the lowest reasonable cost. The reliability of MWDSC's water supply has been stressed as existing imported water supplies from the Colorado River and SWP face increasing challenges.

MWDSC evaluated the dependability of these supplies and concluded that the combination of imported water and expanding local resource programs would ensure its service area's demands would be met in the future. EMWD and WMWD and their member agencies, including the District, expressly rely upon MWDSC's 2015 UWMP in estimating future imported water availability to its service area.

In April 1998, MWDSC adopted the Water Surplus and Drought Management Plan (WSDM Plan). The guiding principle of the WSDM Plan is to manage MWDSC's water resources and programs to maximize utilization of wet year supplies and minimize adverse impacts of water shortages to retail customers. The WSDM Plan also included the following supporting principles:

- Encourage efficient water use and economical local resource programs;
- Coordinate operations with member agencies to make as much surplus water as possible available for use in dry years; and
- Increase public awareness about water supply issues.

In February 2008, MWDSC adopted the Water Supply Allocation Plan (WSAP). The WSAP was developed in consideration of the principles and guidelines described in the WSDM Plan, with the objective of creating an equitable needs-based water supply allocation. The WSAP formula seeks to balance the impacts of a shortage at the retail level while maintaining equity on the wholesale level for shortages of MWDSC supplies of up to 50%. Despite these challenges, MWDSC continues to develop and encourage projects and programs to ensure reliability now and into the future.

*Integrated Water Resources Plan (IRP)*

To address MWDSC's reliability challenges, MWDSC and its member agencies developed an *Integrated Water Resources Plan (IRP*) in 1996. The overall objective of the MWDSC IRP process is the selection and implementation of a Preferred Resource Mix (or strategy) consisting of complementary investments in local water resources, imported supplies, and demand-side management that meet the region's desired reliability goal in a cost-effective and environmentally sound manner. The MWDSC *IRP 2003 Update* was approved and released in July 2004, and includes various projects and programs that contribute to the reliability of MWDSC's imported water supplies. The MWDSC *IRP Update* concluded that the resource targets from the 1996 IRP, factored in with changed conditions, will continue to provide for 100% reliability through 2025. MWDSC's *2010 IRP* Update stated that a key evolution from the July *2004 IRP Update* is the identification of uncertainties and contingency actions that MWDSC can take in order to swiftly respond to uncertainties that exist with all water resource programs that will extend planning actions into an operational approach.

Throughout 2015, MWDSC engaged in a comprehensive process with its Board of Directors and member agencies to review how conditions have changed since the 2010 IRP Update and to establish targets for achieving regional reliability, taking into account known opportunities and risks. Areas reviewed in the *2015 IRP Update* include demographics, hydrologic scenarios, water supplies from existing and new projects, water supply reliability analyses, and potential resource and conservation targets (MWDSC *2015 UWMP*, Page 2-4).

The *2015 IRP Update* approach explicitly recognizes that there are remaining policy discussions that will be essential to guiding the development and maintenance of local supplies and conservation. Following adoption of the *2015 IRP Update* and its targets for water supply reliability, MWDSC will begin a process to address questions such as how to meet the targets for regional reliability, what are local and what are regional responsibilities, how to finance regional projects, etc. This discussion will involve extensive interaction with MWDSC's Board of Directors and member agencies, with input from the public (MWDSC *2015 UWMP*, Page 2-4).

The findings and conclusions of the *2015 IRP Update* are:

- Encourage efficient water use and economical local resource programs;

- Coordinate operations with member agencies to make as much surplus water as possible available for use in dry years;

- Action is needed – without the investments in conservation, local supplies, and the California WaterFix targeted in the 2015 IRP Update, MWDSC's service area would experience unacceptable levels of shortage allocation frequency in the future;

- Maintain Colorado River supplies – the plan to stabilize deliveries at 900,000 AF in a typical year;

- Stabilize SWP supplies – a collaborative approach with state and federal agencies to pursue better science for resolving questions about SWP operations and advancing coequal goals of Delta restoration and statewide water supply reliability in the near-term. Also work collaboratively with state and federal agencies in the California WaterFix and EcoRestore efforts;

- Develop and protect local supplies and water conservation – the *2015 IRP Update* embraces and advances the regional self-sufficiency ethics by increasing the targets for additional local supplies and conservation;

- Maximize the effectiveness of storage and transfers – rebuilding MWDSC's supply of water reserves is imperative when the drought is over. A comprehensive water transfer approach that takes advantage of water when it is available will help to stabilize and build storage reserves, increasing the ability for MWDSC to meet water demands in dry years; and

- Continue with the adaptive management approach – the IRP is updated periodically to incorporate changed conditions, and an implementation report is prepared annually to monitor the progress in resources development. The *2015 IRP* also includes Future Supply Actions that would advance a new generation of local supplies through public outreach; development of legislation and regulation; technical studies and support; and land and resource acquisitions (MWDSC *2015 UWMP*, Page 2-4).

In addition to the IRP, MWDSC also provides financial and technical assistance for implementing water conservation BMPs, as well as a significant investment in regional and local water conservation programs, and distribution of funding for conjunctive management programs in Southern California. MWDSC has made investments in conservation, water recycling, storage, and supply that are all part of MWDSC's long-term water management strategy that is adaptive to current reliability challenges.

*State Water Project (SWP)*

The goal for the 2015 IRP Update for SWP supplies is to manage flow and export regulations in the near-term and ultimately to achieve a long-term Bay-Delta solution. This goal involves continued engagement in collaborative science-based approaches to manage regulations in the near-term and continued participation in the long-term California WaterFix and the California EcoRestore efforts. This approach targets an average of 980 TAF of SWP supplies in the near-term and 1.2 MAF of supplies on average starting in 2030, when the long-term Delta solution is assumed to be in place. In dry and below-normal conditions, MWDSC has increased the supplies received from the California Aqueduct by developing flexible Central Valley/SWP storage and transfer programs (MWDSC *2015 UWMP*, Page 2-13).

*Colorado River Aqueduct (CRA)*

MWDSC also depends on Colorado River water to meet its service area demands. The CRA is owned and operated by MWDSC to transport water from the Colorado River approximately 242 miles to its terminus at Lake Mathews in Riverside County. CRA supplies include supplies that would result from existing and committed programs and from implementation of the QSA and related agreements. The QSA establishes the baseline water use for each of the agreement parties and facilitates the transfer of water from agricultural agencies to urban uses. Colorado River transactions are potentially available to supply additional water up to the CRA capacity of 1.2 MAF on an as-needed basis (MWDSC *2015 UWMP*, Page 2-13).

*Storage*

A key component of MWDSC's water supply capability is the amount of water in MWDSC's storage facilities. Over the past 2 decades, MWDSC has developed a large regional storage portfolio that includes both dry year and emergency storage capacity. Storage is a key component of water management. Storage enables the capture of surplus amounts of water in normal and wet climates and hydrologic conditions when it is plentiful for supply and environmental uses. Stored water can then be used in dry years and in conditions where augmented water supplies are needed to meet demands. MWDSC's resource analysis model considers all the capacities and constraints of its storage facilities and programs and simulates the fill and withdrawal of these facilities through the 91 hydrologic conditions from 1922-2012 (MWDSC *2015 UWMP*, Page 2-14).

***Western Municipal Water District and Eastern Municipal Water District***

As a water wholesaler, MWDSC supplies supplemental imported water to WMWD and EMWD to meet the water needs of their service areas. MWDSC's diverse resources and aggressive conservation program protect the reliability of the region's water supply, as discussed above. MWDSC demonstrates that sufficient supplies can be reasonably relied on to meet projected supplemental demands. As a result, during a single-dry year or multiple-dry years, MWDSC will have the resources to supply its member agencies with 100% of their imported water demands through 2040.

***Santa Margarita River Watershed Watermaster***

The Watermaster works cooperatively with a steering committee comprised of entities within the watershed and overlying the groundwater basin. This collaborative approach contributes to and supports the management of reliable water supplies in the watershed. The Watermaster prepares the "Santa Margarita Watershed Annual Watermaster Report," which provides annual reporting of water conditions in the watershed, but does not manage the groundwater basins. Water users in the Santa Margarita River Watershed are required to report the amount of surface water and groundwater they use to the Watermaster. The Annual Watermaster Report, prepared pursuant to the U.S. District Court Order, March 13, 1989, includes information on surface and subsurface water, imports and exports, water rights, water production and use, threats to water supply, water quality, review of agreements, and a Watermaster 5-year projection of activities.

The District works cooperatively with the Watermaster to manage the basin on a watershed-wide basis through the Court jurisdiction, using the Annual Watermaster Report, groundwater management agreement, and cooperative water resource agreement, as well as the annual groundwater hydrogeologic assessment – "*Recommended Ground Water Production*" – that continuously guides the management of the Temecula Valley Groundwater Basin on a sustainable safe yield basis.

The SGMA (Water Code §§ 10720 et seq.) went into effect on January 1, 2015. SGMA established a new structure for managing California's groundwater resources at a local level.

For the Temecula Valley Groundwater Basin, the Watermaster submitted to DWR a copy of a governing final judgment, or other judicial order or decree, by April 1, 2016. Also, by April 1, 2016, and annually thereafter, the Watermaster will submit to DWR a report containing the following, per CWC Section 10720.8 (f) (3):

- Groundwater elevation data;
- Annual aggregated data identifying groundwater extraction;
- Surface water supply used;
- Total water use; and
- Change in groundwater storage.

***California Regional Water Quality Control Board – San Diego Region (9)***

The SWRCB and the 9 Regional Water Quality Control Boards (Regional Boards) are responsible for the protection and, where possible, the enhancement of the quality of California's waters. The SWRCB sets statewide policy and, together with the Regional Boards, implements state and federal laws and regulations. Each of the 9 Regional Boards adopts a Water Quality Control Plan or Basin Plan, which recognizes and reflects regional differences in existing water quality, the beneficial uses of the region's ground and surface waters, and local water quality conditions and problems.

In 1975, the San Diego Regional Water Quality Control Board (RWQCB) published the original *Comprehensive Water Quality Control Plan for the San Diego Basin* (Basin Plan). In 1994, the RWQCB updated and adopted the Basin Plan to address issues that had evolved over time due to increasing populations and changing water demands in the region, which supersedes the 1975 Basin Plan and its amendments.

The Basin Plan is more than just a collection of water quality goals and policies, descriptions of conditions, and discussions of solutions. It is also the basis for the RWQCB's regulatory programs. The Basin Plan establishes water quality standards for all the ground and surface waters of the region. The RWQCB also regulates water discharges to minimize and control their effects on the quality of the region's ground and surface water. Permits are issued under a number of programs and authorities.

Water quality problems in the region are listed in the Basin Plan, along with the causes, where they are known. For water bodies with quality below the levels necessary to allow all the beneficial uses of the water to be met, plans for improving water quality are included. Legal basis and authority for the RWQCB reflects, incorporates, and implements applicable portions of a number of national and statewide water quality plans and policies, including the CWC (Porter-Cologne Water Quality Control Act) and the Clean Water Act.

Periodic review of the Basin Plan is required by state and federal law. CWC section 13240 states that Basin Plans "shall be periodically reviewed and may be revised." Because federal law requires that water quality standards be reviewed every 3 years, the periodic review of the Basin Plan is commonly referred to as the "triennial review." The triennial review is not itself a Basin Plan amendment and does not itself result in changes to the Basin Plan. It is the process by which the San Diego RWQCB identifies and prioritizes Basin Plan issues in need of further review.

For the 2014 Triennial Review, the San Diego RWQCB embarked on a Basin Plan review process by which the San Diego RWQCB identified and prioritized suggested Basin Plan revisions in need of further evaluation. The process included a public solicitation and identification of potential revisions that may require incorporation into the Basin Plan. With input from stakeholders and staff, the San Diego RWQCB developed a "short list" of suggested revisions to be investigated further. Following an opportunity for public review and a formal public hearing, the San Diego RWQCB adopted a resolution containing the short list. Once adopted, the list serves to guide work on the Basin Plan during the next 3 years.

The SDRWQCB board members adopted Resolution No. R9-2015-00443 approving the Basin Plan review and adopting a short list of suggested Basin Plan revisions developed through the 2014 Basin Plan review and to work on over the subsequent 3 years.

***Watershed Management Initiative***

The Watershed Management Initiative, included in the 1995 Strategic Plan of the SWRCB and RWQCBs, addresses issues related to watershed management, describes current regional efforts, and established an action plan to implement watershed management plans statewide.

The San Diego RWQCB is fully committed to implementing the Watershed Management Initiative in the San Diego Region. Watershed management represents a departure from the traditional approach of protecting the quality and beneficial uses of ground and surface waters. The Watershed Management approach provides a framework to integrate RWQCB programs and activities and allocate resources so as to more effectively and efficiently address water quality and beneficial use issues. Many water quality and beneficial use problems are best solved by considering entire watersheds, or portions of watersheds, rather than considering only individual waters, discharges, discharge types, or political jurisdictions. Involvement of all stakeholders, governmental agencies, and non-governmental agencies must be actively sought to identify the highest priority issues and achieve mutually beneficial solutions.

## 5.5 Water Shortage Contingency Planning

In order to ensure a reliable water supply in a water shortage situation, RCWD developed a water shortage contingency plan. A water shortage situation may be brought on by drought conditions caused by hot and dry weather, or a failure of the water delivery system due to seismic activity or other catastrophic event. A large portion of the water RCWD sells to its customers is imported from Metropolitan through EMWD and WMWD. Therefore, as part of RCWD's Water Shortage Contingency Plan it is important to present Metropolitan's plan in the case of a water shortage.

The following sections discuss RCWD's compliance with Water Code Section 10632, as well as Metropolitan's Water Surplus and Drought Management Plan and Water Supply Allocation Plan, and EMWD and WMWD's Water Shortage Contingency Planning.

### 5.5.1 Metropolitan's Water Surplus and Drought Management Plan

In 1999, Metropolitan developed a WSDM Plan that included guidelines for implementing water supply restrictions in the event of a water shortage. The WSDM Plan does not outline specific criteria for how water would be distributed among the Metropolitan member agencies during water shortage conditions, but states that the methods to be used for determining reduction in supplies to each member agency would be developed in a manner that was equitable and minimized hardship to retail water customers.

The WSDM Plan will guide management of regional water supplies to achieve the reliability goals of Southern California's IRP. The IRP sought to meet long-term supply and reliability goals for future water supply planning. The WSDM Plan's guiding principle is to minimize adverse impacts of water shortage and ensure regional reliability. From this guiding principle come the following supporting principles:

- Encourage efficient water use and economical local resource programs.
- Coordinate operations with member agencies to make as much surplus water as possible available for use in dry years.
- Pursue innovative transfers and banking programs to secure more replacement water for use in dry years.
- Increase public awareness about water supply issues.

The WSDM Plan guides the operations of water resources (local resources, Colorado River, SWP, and regional storage) to ensure regional reliability. It identifies the expected sequence of resource management actions Metropolitan will take during surpluses and shortages of water to minimize the probability of severe shortages that require curtailment of full-service demands. Mandatory allocations are avoided to the extent practicable, however, in the event of an extreme shortage an allocation plan will be adopted in accordance with the principles of the WSDM Plan.

The WSDM Plan describes Metropolitan's ability to meet demand during a Surplus, Shortage, Severe Shortage, and Extreme Shortage. Within the WSDM Plan, these terms have specific meaning relating to Metropolitan's capability to deliver water to the District, as follows:

**Surplus:** Metropolitan can meet full-service and interruptible program demands, and it can deliver water to local and regional storage.

**Shortage:** Metropolitan can meet full-service demands and partially meet or fully meet interruptible demands, using stored water or water transfers as necessary.

**Severe Shortage:** Metropolitan can meet full-service demands only by using stored water, transfers, and possibly calling for extraordinary conservation.

**Extreme Shortage:** Metropolitan must allocate available supply to full-service customers.

The WSDM Plan also defines five "surplus" management stages and seven "shortage" management stages to guide resource management activities. Each year, Metropolitan will consider the level of supplies available and the existing levels of water in storage to determine the appropriate management stage for that year. Each stage is associated with specific resource management actions designed to: 1) avoid an Extreme Shortage to the maximum extent possible; and 2) minimize adverse impacts to retail customers should an Extreme Shortage occur. The current sequencing outline in the WSDM Plan reflects anticipated responses based on detailed modeling of Metropolitan's existing and expected resource mix. This sequencing may change as the resource mix evolves.

### 5.5.2 Metropolitan's Water Supply Allocation Plan

In 2007, Metropolitan began to update its plans for addressing water shortage conditions. The impetus for this was a combination of on-going dry conditions and reduced deliveries from the SWP, creating water supply challenges that threatened access to the imported supplies necessary to meet Southern California's water demands in the coming years. Critically dry conditions in the western United States, including the Colorado River experiencing the driest time in over a century, as well as the federal court ruling in late 2007 to protect the Delta Smelt in the Sacramento-San Joaquin River Delta which brought uncertainty about future pumping operations from the State Water Project, all contribute to the region's water supply challenges.

In preparing for the possibility of not meeting firm demands of its member agencies, Metropolitan's Board adopted the Water Supply Allocation Plan in February 2008, subsequently updated in June 2009. This plan is an extension of the WSDM Plan and includes specific formula for calculating member agency supply allocations and the key implementation elements needed for administering an allocation. The Water Supply Allocation Plan is the foundation for the urban water shortage contingency analysis required under Water Code Section 10632 and is part of Metropolitan's Regional UWMP.

Metropolitan's Water Supply Allocation Plan was developed in consideration of the principles and guidelines described in the WSDM Plan, with the objective of creating an equitable needs-based allocation. The plan's formula seeks to balance the impacts of a shortage at the retail level while maintaining equity on the wholesale level for shortages of Metropolitan supplies of up to 50 percent. The formula takes into account: impact on retail customers and the economy; growth and population; changes in supply conditions; investments in local resources; demand hardening aspects of non-potable recycled water use; implementation of conservation savings program; participation in Metropolitan's interruptible programs; and investments in facilities.

On December 9, 2014, Metropolitan approved their Water Supply Allocation Plan (WSAP) which updated the base period calculation, added adjustments for agencies with mandatory conservation, revised the Conservation Demand Hardening Credit, added a groundwater replenishment allocation and revised allocation enforcement.

The formula is calculated in three steps: based period calculations, allocation year calculations, and supply allocation calculations. The first two steps involve standard computations, while the third section contains specific methodology developed for the Water Supply Allocation Plan.

*Step 1: Base Period Calculations*

The first step in calculating a water supply allocation is to estimate water supply and demand using a historical based period with established water supply and delivery data. The base period for each of the different categories of demand and supply is calculated using data from Fiscal Year 2013 and Fiscal Year 2014.

*Step 2: Allocation Year Calculations*

The next step in calculating the water supply allocation is estimating water needs in the allocation year. This is done by adjusting the base period estimates of retail demand for population or economic growth and changes in local supplies.

*Step 3: Supply Allocation Calculations*

The final step is calculating the water supply allocation for each member agency based on the allocation year water needs identified in Step 2. Each element and its application in the allocation formula are discussed in detail in Metropolitan's Water Supply Allocation Plan.

In order to implement the Water Supply Allocation Plan, the Metropolitan Board will make a determination on the level of the regional shortage, based on specific criteria, in April each year. If it is determined allocations are necessary, they will go into effect in July for that year and remain for a 12-month period, although the schedule is at the discretion of Metropolitan's Board.

In April 2009 and again in April 2010, Metropolitan concluded that water shortage stage 7 conditions existed and the Water Supply Allocation Plan was implemented, resulting in reduced deliveries to all Metropolitan member agencies. In April 2011, Metropolitan recognized improvement in Southern California water reserves made possible by seasonal storms and the water-saving efforts of the region's consumers and businesses, and responded by ending its call for mandatory water restrictions. On April 13, 2011, Metropolitan's Board of Directors voted to restore full imported water deliveries to its 26 member agencies for the first time since 2009.

In preparation for the continuation of California's record drought, Metropolitan's Board of Directors revised the WSA in December 2014. Metropolitan's expected deliveries from Northern California through the State Water Project are currently projected at 20 percent. The SWP typically provides about a third of the Southland's water. Meanwhile, storage in the district's other supply source—the Colorado River—stands at less than 50 percent of capacity after 15 drought years in the Southwest. Metropolitan's board is scheduled to decide in April 2015 whether it will need to restrict deliveries to its member agencies through its allocation plan based on an update of weather and supply conditions.

As of December 29, 2017, Metropolitan's reservoir water storage in Southern California remains somewhat positive: Diamond Valley Lake is 92 percent full; Lake Skinner is 87 percent full; and Lake Matthews is 75 percent full. (Reservoir Water Storage in Southern California, December 29, 2017, MWDSC) Metropolitan also has more than a full year's worth of supply deliveries in reserve. However, since Sierra Nevada snowpack conditions are below normal as well as environmental obstacles and pumping restrictions in the Bay-Delta, Metropolitan will not receive a full supply from Northern California in 2018. Appropriately, Metropolitan strongly emphasizes the importance of continued water conservation and wise water practices as a permanent way of life in Southern California in order to maintain reserves, since the history has shown that the region's water challenges will continue.

On April 14, 2015, Metropolitan announced a 15% reduction in wholesale deliveries to its 26 member public agencies, as part of the current WSAP. This is the fourth time Metropolitan has restricted imported supplies in response to drought conditions, the last being a 10 percent cutback from July 2009 to April 2011. Imported supplies from Metropolitan will reflect a 15% reduction in the third dry-year of all multi-dry year analysis performed as part of this WSA.

### 5.5.3 EMWD Water Shortage Contingency Planning Affecting RCWD

EMWD's Water Shortage Contingency Plan applies regulations and restrictions on the delivery and consumption of potable outdoor water use during water shortages. EMWD's Water Shortage Contingency Plan was updated in April 2009 to account for changes in EMWD's water pricing structure and the Metropolitan Water Supply Allocation Plan. On March 26, 2014, EMWD's Board of Directors adopted Resolution No. 2014-033 to add the Water Shortage Contingency Plan as Article 10 of Title 5 of EMWD's Administrative Code.

EMWD restrictions are structured to protect the safety, health and welfare of the public and minimize the impact a water shortage may have on the local economy and quality of life. Specific reduction requirements and restrictions are applied to four customer types, including residential and landscape, CII, agricultural, and wholesale water. Wholesale customers are allocated water using the formula and methodology based on MWD's Water Supply Allocation Plan.

Since EMWD will respond to Metropolitan's implementation of its WSDM Plan and activation of its Water Supply Allocation Plan, RCWD will be impacted by EMWD's water use restrictions in the event of a water shortage. EMWD is currently in a Stage 2 (Mandatory Waste Reduction) of their Water Shortage Contingency Plan.

### 5.5.4 WMWD Water Shortage Contingency Planning Affecting RCWD

During a water shortage WMWD will adopt an Ordinance that restricts water usage and penalizes excess usage. Prohibitions of water use that may be imposed by WMWD include street/sidewalk cleaning, washing cars, lawn/landscape watering, non-permanent agriculture, uncorrected plumbing leaks, gutter flooding, and restrictions on construction use. According to the WMWD's Water Shortage Contingency Plan, the stages when these prohibitions become mandatory may vary.

With drought and emergency situations continuously a threat to water supply, WMWD has had a Water Shortage Contingency Plan in place since 2009 to strategically reduce water consumption in severe circumstances. On February 18, 2015, the WMWD Board of Directors adopted an updated Water Shortage Contingency Plan in order to better coordinate with the 2011 water budget rate program, and now includes five shortage stages. Currently, WMWD is at shortage stage 2 of their Water Shortage Contingency Plan, which includes mandatory water restrictions.

In addition, WMWD will respond to Metropolitan's implementation of its WSDM Plan and activation of its Water Supply Allocation Plan. WMWD has also prepared actions to be taken should a catastrophic event occur. Possible catastrophes it is prepared for include: regional power outage, earthquake, extreme weather, terrorism/sabotage, water borne diseases, and system failure. WMWD's Water Shortage Contingency Plan states that it

may stop wholesale water sales during a water shortage emergency period, which will have a direct impact on RCWD supplies.

### 5.5.5 Rancho California Water District Water Shortage Contingency Plan

RCWD Water Shortage Contingency Plan (WSC Plan) was adopted in July 2008, and subsequently revised in June 2009, May 2011 and March 2015. The Water Shortage Contingency Plan is developed in accordance with California Water Code 10632. The WSC Plan demonstrates the ability of RCWD to meet demands under a supply shortage of up to 50 percent. Emphasis is placed on protection of public health, sanitation, fire protection and general public welfare.

Pursuant to state law, the June 2015 revision of the WSC Plan included specific stages of action to be undertaken in response to water supply shortages, including adjustments in customers' assigned water budgets during specified stages. A declaration of a water shortage condition shall become effective immediately, and shall be made by public announcement and published in a newspaper of general circulation.

While Stage 1 measures remain in effect at all times, there are 3 basic conditions that can trigger the declaration of further water shortage stages of the WSC Plan. At the time a water shortage condition is identified, the District's General Manager shall recommend the appropriate shortage stage and corresponding water budget decrease based on an analysis of current and available water supplies and anticipated demands. Except as provided below, the District's Board of Directors shall consider and adopt a resolution declaring the appropriate shortage stage and measures to be implemented thereto.

*Condition No. 1: Long- and Short-Term Water Supply Deficiencies*

The District's General Manager shall request the Board of Directors to authorize and implement provisions of the WSC Plan when the demand for District water is anticipated to be in excess of District's available water supply. The request shall be made at a regular or special meeting of the Board of Directors where findings will dictate the necessity, if any, to implement the measures of the WSC Plan. The Board of Directors will have the authority to adopt a resolution to initiate or terminate the appropriate shortage stage and any of the measures described in the WSC Plan.

*Condition No. 2: Immediate Emergency Water Shortage Response*

An immediate emergency water shortage is defined as an unexpected or catastrophic event including, but not limited to, a regional power outage, earthquake or other disaster, or major other event that prevents or interrupts adequate water to be delivered to customers. By adopting this WSC Plan, the Board of Directors authorizes the General Manager to declare the extent of the immediate water shortage emergency and to indicate which measures of the WSC Plan are needed.

*Condition No. 3: Emergency Declaration of State or Federal Agency*

Upon the declaration of a water shortage emergency by resolution or other appropriate authoritative process of a state or federal agency with jurisdiction over the District, the District shall respond to the requirements set forth in the governing statutes, rules, regulations, or documents.

The District continuously monitors water demands and supplies, and determines when conditions warrant initiation or termination of each shortage stage and water conservation measure.

*Stage 1 – Water Supply Watch Criteria*

The term 'Water Supply Watch' acknowledges that while near-term regional supply and storage conditions may from time to time improve due to wet weather, there are continued long-term challenges that warrant continued wise and efficient use of water. These include ongoing regulatory restrictions on pumping from the Bay-Delta region for the SWP, which makes up a significant portion of the District's imported water supply. In addition, our Mediterranean climate and average annual rainfall of 14 inches in our service area make ongoing efficient water use imperative.

The District and other retail water agencies in California have been mandated by the state to work with customers to achieve a 20% reduction in per capita water use by the year 2020. Under Stage 1 conditions, customers are requested to continue to use water efficiently, maximize recycled water use, practice sensible voluntary water conservation, and take advantage of the District's indoor and outdoor water conservation incentive programs to eliminate water waste. It should also be noted that water waste is in violation of California Law and the District's Water Conservation Policy at any Stage.

*Stage 2 – Water Supply Alert Criteria*

There is a probability that the District may not be able to meet all of the water demands of its customers, with an anticipated supply reduction of 20%. This may correlate to MWDSC's WSDM Plan stage of "Shortage" and the MWDSC WSAP's Regional Shortage Levels 1 through 2, may mean local groundwater levels are lower than normal, or the District is mandated by a state or federal regulatory agency with jurisdiction over the District to reduce water use. Imported water supply shortages for the District are expected. Additional voluntary water use reduction measures will be called upon during this stage. Some nonessential outdoor water use restrictions in the residential, commercial, and agricultural sectors may be implemented.

*Stage 3 – Water Supply Warning Criteria*

Water supply shortages (local or imported) for the District are expected to continue and possibly worsen, with an anticipated supply reduction of 30%, or the District is mandated by a state or federal regulatory agency with jurisdiction over the District to reduce water use. This may correlate to MWDSC's WSDM Plan stage of "Severe Shortage" and the MWDSC WSAP's Regional Shortage Levels 3 through 4. Some restrictions on certain non-essential outdoor residential, commercial, agricultural, and landscape water use will be implemented. The District will work to achieve an appropriate balance of water budget decreases to domestic and landscape customers as water shortages increase. Allocation surcharges, monetary assessments, and/or fines for non-compliance of such restrictions will be imposed.

*Stage 4 – Extreme Water Supply Warning Criteria*

Water supply shortages (local or imported) are expected to worsen, with an anticipated supply reduction of 40%, or the District is mandated by a state or federal regulatory agency with jurisdiction over the District to reduce water use. This may correlate to MWDSC's WSDM Plan stage of "Extreme Shortage" and the MWDSC WSAP's Regional Shortage Levels 5 through 6. If Stage 4 is the result of an extended drought and has been triggered by Condition No. 1 of Section 2 of the WSC Plan, the District will explore increased incentives for implementation of demand management measures that will have immediate and substantial impacts on water demands. More severe restrictions on non-essential outdoor water use will be implemented. The District will work to achieve an appropriate balance of water budget decreases to all customer classes including domestic, landscape, CII, and agricultural customers as water shortages increase. Significant allocation surcharges, monetary assessments and/or fines for non-compliance of such restrictions will be imposed.

*Stage 5 – Water Supply Emergency Criteria*

Water supply shortages (local or imported) are expected to worsen, with an anticipated supply reduction of 50%, or the District is mandated by a state or federal regulatory agency with jurisdiction over the District to reduce water use. This may correlate to MWDSC's WSDM Plan stage of "Extreme Shortage" and the MWDSC WSAP's Regional Shortage Levels 7 through 10, or may be as a result of an emergency situation resulting in the inability of the District's water distribution system to deliver all of the District's supply. Restrictions on all non-essential outdoor and indoor water use will also be implemented. The District will work to achieve an appropriate balance of water budget decreases to all customer classes as water shortages increase. Allocation surcharges, monetary assessments, and/or fines for non-compliance of such restrictions will be imposed.

The District is currently in a Stage 3c (Mandatory Supply Warning) of their Water Shortage Contingency Plan. Table 5.5-1 summarizes the stages of the District's WSC Plan.

**Table 5.5-1**
**Stages of Water Shortage Contingency Plan**

| Stage | Percent Supply Reduction (%) |
|---|---|
| 1 | 10 |
| 2 | 20 |
| 3a, 3b and 3c | 30 |
| 4a, 4b and 4c | 40 |
| 5a, 5b, and 5c | 50 |

### 5.5.6 Prohibition of End Uses

The District's WSC Plan contains specific prohibitions of end uses during each shortage stage for its landscape, CII, domestic (household/residential), agricultural, and other mixed use (residential/commercial) customers, including specific restrictions on water features and swimming pools. Recycled water customers that use recycled water for outdoor irrigation are subject to the terms and conditions of their Recycled Water User Agreement and the District's On-Site Recycled Water Irrigation Systems Manual.

For single-family, multi-family, and landscape customers, the District has developed water usage budgets consisting of the following tiers:

- Tier 1 – Base or Indoor Tier
- Tier 2 – Outdoor Efficient Tier
- Tier 3 – Outdoor Inefficient Tier
- Tier 4 – Wasteful Tier

For agricultural and CII customers, the District has developed water usage budgets consisting of the following tiers:

- Tier 1 – Base or Efficient Tier
- Tier 2 – Inefficient Tier

Table 5.5-2 presents a summary of the shortage stages and the associated water budget reductions that will be imposed, as discussed further in Section 8.4, consumption reduction methods.

**Table 5.5-2**
**Summary of Water Shortage Stages and Water Budget Reductions**

| Water Shortage Stage | Single-Family, Multi-Family, and Landscape | Agricultural, Commercial, Industrial, and Institutional |
|---|---|---|
| Stage 1: Water Supply Watch | None | None |
| Stage 2: Water Supply Alert | None | None |
| Stage 3a: Water Supply Warning – Mandatory Water Waste Reduction | None | None |
| Stage 3b: Water Supply Warning – Mandatory Water Waste Reduction | Tier 3 - 50% | None |
| Stage 3c: Water Supply Warning – Mandatory Water Waste Reduction | Tier 3 - 100% | None |
| Stage 4a: Extreme Water Supply Warning – Mandatory Outdoor Water Reduction | Tier 2 - 10-49% | Tier 1 - 10% |
| Stage 4b: Extreme Water Supply Warning – Mandatory Outdoor Water Reduction | Tier 2 - 50-99% | Tier 1 - 20% |
| Stage 4c: Extreme Water Supply Warning – Mandatory Outdoor Water Reduction | Tier 2 - 100% | Tier 1 - 45% |
| Stage 5a: Water Supply Emergency – Mandatory Outdoor and Indoor Water Reduction | Tier 1 - 10% | Tier 1 - 55% |
| Stage 5b: Water Supply Emergency – Mandatory Outdoor and Indoor Water Reduction | Tier 1 - 30% | Tier 1 - 60% |
| Stage 5c: Water Supply Emergency – Mandatory Outdoor and Indoor Water Reduction | Tier 1 - 50% | Tier 1 - 70% |

In addition to water budget reductions, specific prohibitions of end uses are included in each shortage stage of the District's WSC Plan, as summarized in this section.

*Stage 1 – Water Supply Watch*

Under Stage 1 conditions, customers are requested to continue to use water efficiently, maximize recycled water use, practice sensible voluntary water conservation, and take advantage of the District's indoor and outdoor water conservation incentive programs to eliminate water waste. Water waste violates California Law and the District's Water Conservation Policy at this and any other shortage stage.

In order to comply with requirements of state legislation and Water Conservation BMPs, it shall be a violation of the District's Water Conservation Policy at any time to make, cause, or permit the use of water for residential, commercial, industrial, agricultural, institutional/governmental, or any other purpose in a manner constituting water waste.

All customers shall abide by the following water conservation requirements at all times in all water shortage stages:

1. Refrain from hosing down driveways and other hard surfaces, except for health or sanitary reasons.
2. Repair faucets, toilets, pipes, and other potential sources of water leaks.
3. Irrigate landscape only between 6 p.m. and 9 a.m. Customers with weather-based irrigation controllers are exempt from this requirement. This provision does not apply when:
    a. Manually watering during the establishment period of a new landscape.
    b. Supervised spot watering is done to address landscape issues.
    c. Temperatures are predicted to fall below freezing.
    d. Testing/repairing an irrigation system.
    e. Using drip and point-to-point irrigation systems.
    f. A longer watering window is needed due to system constraints.
4. Adjust and operate all landscape irrigation systems in a manner that will maximize irrigation efficiency and avoid over-watering or watering of hardscape and resulting runoff.
5. Prevent excessively irrigating any lawn or landscape area that would cause the sheeting of water to flow; eliminate water runoff from lawns or landscape areas into any gutters, streets, or alleys.
6. Do not use decorative fountains unless they are equipped with a re-circulating system.
7. When installing plumbing fixtures, use low-flow devices, except for those that require high-flow fixtures for health and/or sanitary reasons. Where possible, install pool and spa covers to minimize water loss due to evaporation during non-operating days.
8. Do not allow water to run while washing vehicles (including autos, trucks, trailers, motor homes, boats, or other types). Use a hose with an automatic shutoff valve to avoid runoff into gutters, streets or alleys. Use a hose equipped with an automatic shutoff valve or other device that causes it to cease dispensing water immediately when not in use.

9. When installing new landscaping, refer to the Water Use Classification of Landscape Species (WUCOLS). Plant low-water California Friendly® Landscapes. Non-functional turf areas are not recommended. Turf-lined channels are only permitted when justified by environmental regulations.
10. Refrain from watering during rain or high winds by turning off irrigation timers.

All District customers in violation of these water conservation requirements, consistent with Section 2 General Provisions of the District's Water Conservation Policy, or with excessive runoff that would cause water to flow from property into any gutters, streets, or alleys are subject to fines, as specified in the WSC Plan.

*Stage 2 – Water Supply Alert*

Under Stage 2 conditions, all Stage 1 water conservation requirements remain in effect for all customers. There are also additional voluntary water use reduction measures for all customers, and there are no allocation surcharges of mandatory restrictions imposed. The following additional voluntary water use reduction measures are requested of all customers:

1. Eliminate sprinkler overspray from driveways and sidewalks. Divide irrigation runtimes into multiple cycles to eliminate runoff water that leaves the landscaped area.
2. Install a self-adjusting "Smart" irrigation controller, and ensure the controller has a manual mode that will allow compliance with higher stages of the WSC Plan.
3. Tune-up your irrigation system by checking for and repairing leaks and damaged sprinklers.
4. Use a broom instead of a hose to clean driveways, sidewalks, and other hardscape surfaces, except for California Department of Health Services prescribed health or sanitary reasons.
5. Install pool and spa covers to minimize evaporative water loss.
6. CII and landscape customers including, but not limited to, parks, school grounds, highway medians, commercial landscaping, and golf courses are restricted to irrigation applications between 6 p.m. and 9 a.m. These irrigators are advised to adjust automatic irrigation timers according to changing weather patterns and landscape requirements.
    a. Customers irrigating with recycled water will be exempt from watering restrictions imposed, provided signage on the site conforms to recycled water use requirements and is clearly visible.
    b. Customers that can demonstrate the use of an active "Smart" irrigation controller that is currently on the Irrigation Association's Smart Water

Application Technology approved irrigation controller list will be exempt from the watering restrictions imposed in Stages 2 through 4.

7. Wash only full loads of laundry and/or dishes.
8. Shorten showers and turn off faucets while brushing teeth or shaving.

The District recognizes the importance of agriculture to the local economy and strives to help sustain the economic viability of the agricultural industry within its service area through implementation of a variety of water use efficiency measures. The District recognizes agricultural properties as commercial enterprises; therefore, this WSC Plan regards agricultural water users similarly to commercial water users. For farms/agricultural users with homes on the property, the WSC Plan regards these agricultural accounts as commercial water users with some residential/domestic use. The following voluntary water use reduction measures are requested of all agricultural customers:

9. When possible, irrigate crops during the cooler nighttime hours to minimize evaporative water loss.
10. Tune-up agricultural irrigation systems by checking for and repairing leaks and damaged sprinklers/drippers.
11. Eliminate sprinkler overspray from driveways, access roads, etc.
12. Install a soil moisture monitoring device such as a tensiometer or a capacitance probe. Use these devices to decide how often to irrigate.
13. Use weather data and/or an irrigation scheduling calculator to determine irrigation runtimes. This information can be found on various websites.

To assist customers in complying with the voluntary water use reduction measures, enhanced outreach and customer support and communication programs will be implemented.

No allocation surcharges, monetary assessments, or mandatory restrictions will be imposed during Stage 2. All District customers in violation of the Stage 1 water conservation requirements, consistent with Section 2 General Provisions of the District's Water Conservation Policy, or with excessive runoff that would cause water to flow from property into any gutters, streets, or alleys are subject to fines, as specified in the WSC Plan.

*Stage 3 – Water Supply Warning*

Under Stage 3 conditions, all Stage 1 water conservation requirements and Stage 2 water use reduction measures remain in effect for all customers, including Stage 2 indoor voluntary water use reduction measures. Rolling water budgets are suspended. Mandatory outdoor water use reduction measures are introduced for all customers, with variances for certain specific activities suspended. Fines for non-compliance are imposed.

Stage 3 includes the following mandatory outdoor water use reduction measures for all customers:

1. Irrigate lawns and landscape only between 6:00 p.m. and 9:00 a.m. Customers with weather-based irrigation controllers are exempt from this restriction.
2. No application of potable water to outdoor landscapes (turf and ornamental landscapes) during a rainfall event and up to 48 hours after measurable rainfall. Measureable rainfall for the region is defined as greater than or equal to 0.5 inches.
3. Do not allow irrigation water to leave the landscaped area.
4. If new landscaping is installed, landscaping meeting the specifications of California Friendly® landscaping, as defined by the MWDSC Be Water Wise Program, is recommended and must comply with the local Water Efficient Landscape Design Standards Ordinance.
5. Use a broom instead of a hose to clean driveways, sidewalks, and other hardscape surfaces, except for California Department of Health Services prescribed health or sanitary reasons.
6. Eliminate sprinkler overspray from driveways and sidewalks. Divide irrigation runtimes into multiple cycles to eliminate runoff water that leaves the landscaped area.
7. Tune-up irrigation system by checking for and repairing leaks and damaged sprinklers.
8. Do not allow hoses to run while washing motor vehicles (including autos, trucks, trailers, motor homes, boats, or other types). Use a hose equipped with an automatic shutoff valve or other device that causes it to cease dispensing water immediately when not in use.

It is recommended that all customers install self-adjusting "Smart" irrigation controllers and ensure the controller has a manual mode to allow compliance with higher shortage stages.

Stage 3 also includes the following mandatory water use reduction measures for all CII customers:

9. CII and landscape customers are advised to adjust automatic irrigation timers according to changing weather patterns and landscape requirements.
    a. Customers irrigating with recycled water will be exempt from watering restrictions imposed, provided signage on the site conforms to recycled water use requirements and is clearly visible.

b. Customers that can demonstrate the use of an active "Smart" irrigation controller that is currently on the Irrigation Association's Smart Water Application Technology approved irrigation controller list will be exempt from the watering restrictions imposed in Stages 2 through 4.

c. Exceptions may be granted, as necessary, to provide for the health and welfare of the community, pursuant to state and federal regulations, e.g., dust control.

10. Commercial car wash operators will work to ensure most of the water used is captured and reaches the municipal wastewater system so that it can be recycled for reuse in community landscapes. Car wash operators shall work with the District to distribute discount coupons or other incentives to discourage the washing of vehicles in private driveways.
11. No CII customers shall allow the use of its premises for charity or fundraising car washes.
12. Drinking water shall not be served other than upon request in eating or drinking establishments including, but not limited to, restaurants, hotels, cafes, cafeterias, bars, or other public places where food and drink are served and/or purchased.
13. Operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each bathroom using clear and easily understood language.

Stage 3 also includes the following mandatory water use reduction measures for all agricultural customers:

14. When possible, irrigate crops during the cooler nighttime hours to minimize evaporative water loss.
15. Tune-up agricultural irrigation systems by checking for and repairing leaks and damaged sprinklers/drippers.
16. If a new crop, in addition to that already planted, is installed, it must be done in accordance with industry-accepted irrigation BMPs (i.e., the system must contain pressure compensation and regulation devices) to guarantee excellent distribution uniformity.
17. Do not allow irrigation water to leave the planted crop area.

The following voluntary water use reduction measures remain in effect for all agricultural customers for irrigation efficiency in Stage 3:

1. Install a soil moisture monitoring device such as a tensiometer or a capacitance probe. Use these devices to decide how often to irrigate.

2. Use weather data and/or an irrigation scheduling calculator to determine irrigation runtimes. This information can be found on various websites.

Fines for non-compliance will be imposed for flagrant or repeat violations, in addition to allocation surcharges or other monetary assessments for excessive use. All District customers in violation of the Stage 1 water conservation requirements, consistent with Section 2 General Provisions of the District's Water Conservation Policy, or with excessive runoff that would cause water to flow from property into any gutters, streets, or alleys are subject to fines, as specified in the WSC Plan.

*Stage 4 – Extreme Water Supply Warning*

Under Stage 4 conditions, all Stage 1 water conservation requirements, and all Stage 2 and Stage 3 water use reduction measures remain in effect for all customers, including Stage 2 indoor and Stage 3 agricultural voluntary water use reduction measures. Rolling water budgets are suspended. Variances are provided for health and safety only. Fines for non-compliance are imposed, in addition to allocation surcharges or other monetary assessments for excessive use.

Stage 4 includes the following mandatory water use reduction measures for all customers:

1. Washing of personal vehicles at home (including autos, trucks, trailers, motor homes, boats, or other types) is prohibited.
2. No water for decorative fountains may be used, even if it has a recirculating system.
3. The District recommends the installation of pool and spa covers to minimize evaporative water loss.
4. Upon the declaration of a water shortage emergency, no new water meters are allowed, except for health and safety, unless water demand is offset to a net zero increase. Achieving net zero water increase is when potable water use of proposed development is no greater than current demand within the District's service area prior to installation.

It is recommended that all customers install self-adjusting "Smart" irrigation controllers and ensure the controller has a manual mode to allow compliance with higher shortage stages.

Stage 4 also includes the following mandatory water use reduction measures for all CII and agricultural customers:

5. No new hydrant construction or temporary construction meter permits will be issued by the District.

Fines for non-compliance will be imposed for flagrant or repeat violations, in addition to allocation surcharges or other monetary assessments for excessive use. All District customers in violation of the Stage 1 water conservation requirements, consistent with Section 2 General Provisions of the District's Water Conservation Policy, or with excessive runoff that would cause water to flow from property into any gutters, streets, or alleys are subject to fines, as specified in the WSC Plan.

*Stage 5 – Water Supply Emergency*

Under Stage 5 conditions, all Stage 1 water conservation requirements, and all Stage 2, Stage 3, and Stage 4 water use reduction measures remain in effect for all customers, including Stage 3 agricultural voluntary water use reduction measures. Rolling water budgets are suspended. Variances are provided for health and safety only. The District recommends the installation of pool and spa covers to minimize evaporative water loss. In addition, there are no new water meters allowed, except for health and safety. Fines for non-compliance are imposed.

Stage 5 includes the following mandatory water use reduction measures for all customers:

1. No irrigation of lawns, landscapes, and/or ornamental gardens. Vegetable gardens under 5,000 square feet in area grown for personal consumption are exempt.
2. Recycled water customers must also comply with these reduction measures.
3. Water for refilling recreational swimming pools and spas is prohibited.
4. No replacement water may be provided for ponds or lakes. Aeration equipment should be managed in such a way as to eliminate evaporative loss of water.
5. Turn off all decorative fountains, even if it has a recycling (recirculating) system, and consider using any remaining water to irrigate landscape. Make sure to empty completely so standing water does not attract insects.
6. Limit use of misting devices.
7. Wash only full loads of laundry and/or dishes.
8. Fix leaky faucets, toilets, showerheads, pipes, and other water plumbing immediately.
9. Shorten showers and turn off faucets while brushing teeth or shaving.

Stage 5 also includes the following mandatory water use reduction measures for all CII customers:

10. No water for commercial car washes.

11. All hydrant construction and temporary construction meter permits will be rescinded by the District.
12. No planting of new landscaping (seed, sod, or other plant materials).

Stage 5 also includes the following mandatory water use reduction measures for all agricultural customers:

13. All hydrant construction and temporary construction meter permits will be rescinded by the District.
14. No planting of crop acreage in addition to existing acreage.

Fines for non-compliance will be imposed for flagrant or repeat violations, in addition to allocation surcharges or other monetary assessments for excessive use. All District customers in violation of the Stage 1 water conservation requirements, consistent with Section 2 General Provisions of the District's Water Conservation Policy, or with excessive runoff that would cause water to flow from property into any gutters, streets, or alleys are subject to fines, as specified in the WSC Plan.

Table 5.5-3 summarizes the restrictions and prohibitions of end uses for all stages of the District's WSC Plan.

**Table 5.5-3**
**Restrictions and Prohibitions on End Uses**

| Stage | Restrictions and Prohibitions on End Uses | Additional Explanation or Reference | Penalty, Charge, or Other Enforcement? |
|---|---|---|---|
| 1 | Other - Prohibit use of potable water for washing hard surfaces | | Yes |
| 1 | Other - Customers must repair leaks, breaks, and malfunctions in a timely manner | | Yes |
| 1 | Landscape - Limit landscape irrigation to specific times | | Yes |
| 1 | Landscape - Restrict or prohibit runoff from landscape irrigation | | Yes |
| 1 | Water Features - Restrict water use for decorative water features, such as fountains | Require recirculating system | Yes |

**Table 5.5-3**
**Restrictions and Prohibitions on End Uses**

| Stage | Restrictions and Prohibitions on End Uses | Additional Explanation or Reference | Penalty, Charge, or Other Enforcement? |
|---|---|---|---|
| 1 | Other - Require automatic shut off hoses | | Yes |
| 3a, 3b, and 3c | Landscape - Other landscape restriction or prohibition | No outdoor irrigation during or 48 hours after a rainfall event (0.5 inches) | Yes |
| 3a, 3b, and 3c | CII - Restaurants may only serve water upon request | | Yes |
| 3a, 3b, and 3c | CII - Lodging establishment must offer opt-out of linen service | | Yes |
| 4a, 4b, and 4c | Other | Prohibit vehicle washing at home | Yes |
| 4a, 4b, and 4c | Water Features - Restrict water use for decorative water features, such as fountains | No water for decorative fountains allowed, even if it has a re-circulating system | Yes |
| 4a, 4b, and 4c | Other - Prohibit use of potable water for construction and dust control | No new POTABLE hydrant construction or temporary construction meter permits issued. | Yes |
| 5a, 5b, and 5c | Landscape - Prohibit all landscape irrigation | | Yes |
| 5a, 5b, and 5c | Other water feature or swimming pool restriction | Water for refilling pools, spas, ponds, and lakes is prohibited | Yes |
| 5a, 5b, and 5c | Other | No water for commercial car washes | Yes |

### 5.5.7 Penalties, Charges, Other Enforcement of Prohibitions

Measures called for in the stages of the District's WSC Plan will be primarily enforced through fines, allocation surcharges, and monetary assessments. In extreme cases, certain types of outdoor water service may be discontinued until the emergency situation is over.

***Enforcement***

Water users who violate of any of the general provisions or additional measures required as part of the applicable WSC Plan stage are subject to the enforcement outlined in the District's WSC Plan. Violations that are related to the malfunction of water conveying hardware or devices are subject to the following enforcement:

1. For a first violation, the District shall issue a written notice of fact of such violation to the customer. The customer shall then be allowed a period of 10 days following issuance of the written notice to correct the violation described therein before a second violation notice will be issued.
2. For a second violation, the District shall issue a written notice of fact of such violation to the customer. The customer shall then be allowed a period of 10 days following issuance of the written notice to correct the violation described therein before a third violation notice will be issued.
3. For a third violation, the District shall issue a written notice of fact of such violation to the customer when a second violation has not been corrected within a period of 10 days following issuance of the second violation notice. A fine in the amount of $50.00 shall be added to the customer's water bill upon issuance of a third violation. The customer shall be allowed a period of 5 days following issuance of the written notice to correct the third violation before a fourth violation notice will be issued.
4. For a fourth violation, the District shall issue a written notice of fact of such violation to the customer when a third violation has not been corrected within a period of 5 days following issuance of the third violation notice. A fine in the amount of $100.00 shall be added to the customer's water bill upon issuance of a fourth violation. The customer shall be allowed 5 days following issuance of the written notice to correct the fourth violation before a fifth violation notice will be issued.
5. For a fifth violation, the District shall issue a written notice of fact of such violation to the customer when a fourth violation has not been corrected within a period of 5 days following issuance of the fourth violation notice. A fine in the amount of $200.00 shall be added to the customer's water bill upon issuance of a fourth violation. The customer shall be allowed 5 days following issuance of the written notice to correct the fifth violation before a sixth violation notice will be issued.

6. For a sixth violation, the District shall issue a written notice of fact of such violation to the customer when the fifth violation has not been corrected within a period of 5 days following issuance of the fifth violation notice. A fine of $500.00 per day shall be added to the customer's water bill following the issuance of the sixth violation notice until the violation is corrected.

Violations that are not related to the malfunction of water conveying hardware or devices, but are related to actions taken by a water user including, but not limited to, hosing down driveways, are subject to the same enforcement procedures outlined above, with the exception that the expected timeframe for correction of the violation is immediate.

Customers shall pay all water bills and fines, in accordance with the due dates stated on their bills. An appeals process is offered to customers that disagree with the fines assessed. If the appeal is upheld in favor of the customer, appropriate monies will be refunded. Details of the appeals process are included in the District's WSC Plan.

***Allocation Surcharges and Monetary Assessments***

Surcharges may be imposed if customers exceed their water budgets during times of water shortage (local or import) or when MWDSC implements its WSAP. Such excessive water use is a violation of the water shortage stages of the WSC Plan and is subject to an allocation surcharge. Any allocation surcharge will represent the MWDSC allocation surcharge imposed on the District for exceeding its allocations. The total MWDSC allocation surcharge would be allocated to customers who exceed their efficient water budget.

1. Single-Family, Multi-Family, and Landscape Customers - For Stages 3, 4, and 5 of the District's WSC Plan, these customers may have their water budgets reduced to coincide with available local and imported supply. For example, if MWDSC implements a reduction of any level, the District will determine the appropriate water budget reduction to be imposed, if any, based on the water shortage stage declared. Based on the rate structure for these customers, they may therefore be charged Tier 2 or Tier 3 rates sooner than before. If these customers exceed their water budgets and begin paying Tier 2 or Tier 3 rates, they may also have to pay allocation surcharges. Any allocation surcharge will represent the MWDSC allocation surcharge imposed on the District (the total MWDSC allocation surcharge would be allocated to customers based on a pro-rata share). All allocation surcharge collected will be used for additional administration of the WSC Plan, to pay MWDSC for allocation surcharges assessed to the District, to implement additional demand management measures during an extended water shortage, as well as to replenish the Drought Cash Reserve for the District.
2. CII and Agricultural Customers - For Stages 4 and 5 of the WSC Plan, these customers may have their water budgets reduced to coincide with available local and imported supply. For example, if MWDSC implements a reduction of any

level, the District will determine the appropriate water budget reduction to be imposed, if any, based on the water shortage stage declared. Based on the rate structure for these customers, they may therefore be charged Tier 2 rates sooner than before. If these customers exceed their water budgets and begin paying Tier 2 rates, they may also have to pay allocation surcharges. Any allocation surcharge will represent MWDSC allocation surcharges imposed on the District (the total MWDSC allocation surcharge would be allocated to customers based on a pro-rata share). All allocation surcharges collected will be used for additional administration of the WSC Plan, to pay MWDSC for allocation surcharges assessed to the District, to implement additional demand management measures during an extended water shortage as well as to replenish the Drought Cash Reserve for the District.

In addition to allocation surcharges, monetary assessments may be imposed if customers exceed their water budgets during times of water shortage (local or imported).

### 5.5.8 Consumption Reduction Methods

Consumption reduction methods are actions that are taken by the water agency to reduce water demand within the service area, whereas the prohibitions, addressed in Section 8.2, limit specific uses of water. The following is a summary of the District's consumption reduction methods:

1. Expand Public Information Campaign – during any stage of the District's WSC Plan, the District may elect to include additional bill inserts, contact local newspapers, and/or update the District's website to further inform the public of current drought and weather conditions, as well as the anticipated reductions in customer's water budgets associated with each shortage stage.
2. Improve Customer Billing – during any stage of the District's WSC Plan, the District has developed "MyWaterTracker," which is an easy-to-use, digital platform that enables customers to see and track their water use on a day-to-day basis. The platform also features a comparison of each customer's current water use to their individual household water budget. On March 22, 2016 the Executive Office of the President of the United States released the *Commitments to Action on Building a Sustainable Water Future*, which stated that "In July 2015, Rancho California Water District (Rancho) launched MyWaterTracker . . . To date, Rancho reports that use of the tool has resulted in District-wide water savings of 30% over 2013, or enough to serve approximately 20,000 households. Today, Rancho is announcing that it will launch a mobile-app version of this tool in summer 2016, which will include additional hourly water-use data and leak alerts and is expected to reach over 33,000 residential and agricultural customers." (Commitments to Action on Building a Sustainable Water Future, Pages 34-35).
3. Offer Water Use Surveys – during any stage of the District's WSC Plan, single-family, multi-family, landscape, and CII customers can request a free landscape

audit from the District on the District's website at http://www.ranchowater.com/index.aspx?nid=292.

4. Provide Rebates or Giveaways of Plumbing Fixtures and Devices – during any Stage of the District's WSC Plan, the District provides a hot water recirculating pump voucher program for customers who have entered Tier 4 of their water budget for at least 1 billing cycle, in addition to Urinal Flush Valve Upgrades (in conjunction with WMWD). In addition, residential rebates administered by MWDSC include premium high-efficiency toilets (HET), in conjunction with the State of California, clothes washers, rain barrels and cisterns. Commercial rebates administered by MWDSC include So. Cal Water$mart Rebates. Details on all of these programs are available on the District's website at http://www.ranchowater.com/index.aspx?nid=234.
5. Provide Rebates for Landscape Irrigation Efficiency – during any stage of the District's WSC Plan, residential rebates administered by MWDSC include rotating nozzles, sprinkler nozzles, and weather based irrigation controllers (WBIC). Commercial rebates administered by MWDSC include rotating nozzles. Details on all of these programs are available on the District's website at http://www.ranchowater.com/index.aspx?nid=234.
6. Moratorium or Net Zero Demand Increase on New Connections – during Stage 4 of the District's WSC Plan, no new water meters are allowed, except for health and safety, unless water demand is offset to a net zero increase. During Stage 5 of the District's WSC Plan, no new water meters are allowed, except for health and safety.
7. Implement or Modify Drought Rate Structure or Surcharge – during stages 3, 4, and 5 of the District's WSC Plan, the General Manager shall recommend a corresponding water budget decrease based on an analysis of current available water supplies and anticipated demands. Where a range of water budget reduction is shown, the General Manager shall recommend the appropriate water budget reduction in that stage. The District's Board of Directors shall consider and may adopt the following water budget reductions.

    - Stage 3a - Rolling water budgets are suspended, and there are no variances or adjustments for filling swimming pools, establishing or expanding landscape area, leaks not repaired within 48 hours, and/or adjusting existing outdoor water budgets.
    - Stage 3b - Single-family, multi-family, and landscape Tier 3 water budgets are decreased by 50%.
    - Stage 3c - Single-family, multi-family, and landscape Tier 3 water budgets are decreased by 100%.

    For single-family, multi-family, and landscape customers:

    - Stage 4a - Tier 2 water budgets are decreased by 10% to 49%

- Stage 4b - Tier 2 water budgets are decreased by 50% to 99%
- Stage 4c - Tier 2 water budgets are decreased by 100%

For CII and agricultural customers:

- Stage 4a - Tier 1 water budgets are decreased by 10%
- Stage 4b - Tier 1 water budgets are decreased by 20%
- Stage 4c - Tier 1 water budgets are decreased by 45%

For single-family, multi-family, and landscape customers:

- Stage 5a - Tier 1 water budgets are decreased by 10%
- Stage 5b - Tier 1 water budgets are decreased by 30%
- Stage 5c - Tier 1 water budgets are decreased by 50%

For CII and agricultural customers:

- Stage 5a - Tier 1 water budgets are decreased by 55%
- Stage 5b - Tier 1 water budgets are decreased by 60%
- Stage 5c - Tier 1 water budgets are decreased by 70%

Table 5.5-4 summarizes the consumption reduction methods for all stages of the District's WSC Plan.

**Table 5.5-4**

**Consumption Reduction Methods**

| Stage | Consumption Reduction Methods by Water Supplier | Additional Explanation or Reference |
|---|---|---|
| 1 | Expand Public Information Campaign | Include bill inserts; contact local newspapers; update website |
| 1 | Improve Customer Billing | Customers can see and track water usage on a day-to-day basis with an easy-to-use, digital platform |
| 1 | Offer Water Use Surveys | Single-family, multi-family, landscape, and CII customers can request a free landscape audit |

**Table 5.5-4**

**Consumption Reduction Methods**

| Stage | Consumption Reduction Methods by Water Supplier | Additional Explanation or Reference |
|---|---|---|
| 1 | Provide Rebates on Plumbing Fixtures and Devices | The District provides a hot water recirculating pump voucher program and Urinal Flush Valve Upgrades (in conjunction with WMWD) |
| 1 | Provide Rebates on Plumbing Fixtures and Devices | Residential rebates administered by MWDSC include premium high-efficiency toilets (HET) - in conjunction with the State of California, clothes washers, rain barrels, and cisterns. Commercial rebates administered by MWDSC include So. Cal Water$mart Rebates |
| 1 | Provide Rebates for Landscape Irrigation Efficiency | Residential rebates administered by MWDSC include rotating nozzles, sprinkler nozzles, weather-based irrigation controllers. Commercial rebates administered by MWDSC include rotating nozzles |
| 3a, 3b, and 3c | Implement or Modify Drought Rate Structure or Surcharge | Suspend rolling budgets; no variances for filling swimming pools; and single-family, multi-family, and landscape Tier 3 budgets are decreased up to 100% |
| 4a, 4b, and 4c | Moratorium or Net Zero Demand Increase on New Connections | No new water meters allowed, except for health and safety, unless water demand is offset to a net zero increase |
| 4a, 4b, and 4c | Implement or Modify Drought Rate Structure or Surcharge | Single-family, multi-family, and landscape Tier 2 budgets are decreased up to 100%; CII and agricultural Tier 1 budgets are decreased by up to 45% |
| 5a, 5b, and 5c | Moratorium or Net Zero Demand Increase on New Connections | No new water meters allowed, except for health and safety |

**Table 5.5-4**

**Consumption Reduction Methods**

| Stage | Consumption Reduction Methods by Water Supplier | Additional Explanation or Reference |
|---|---|---|
| 5a, 5b, and 5c | Implement or Modify Drought Rate Structure or Surcharge | Single-family, multi-family, and landscape Tier 1 budgets are decreased up to 50%; and Commercial, Industrial, Institutional and Agricultural Tier 1 budgets are decreased by up to 70% |

### 5.5.9 Determining Water Shortage Reductions

The District's telemetry system assists in monitoring and controlling the District's water production and distribution. Since water production correlates directly with demand, regular production monitoring allows the District to become immediately aware of any changes in water consumption. Water system personnel track production continuously. In the event of a declared water shortage, the District would monitor water production as needed, to determine actual water demand shortages. Production data may be used to measure the effectiveness of any water shortage contingency stage that would be implemented.

In addition, the District will be able to track actual reductions in water use through its billing system. The billing system tracks actual use on a monthly basis, no matter the supply situation. The District has over 10 years of consumption history for each customer, when applicable. The District's aggressive water meter replacement program ensures the use being tracked via the billing system is reliable and accurate.

### 5.5.10 Revenue and Expenditure Impacts

The District's rate structure is designed to mitigate the impacts of reduced sales volumes through adequate fixed revenue coverage. As stated in the District's Annual Comprehensive Financial Report, "It is the intent of the Board of Directors that the costs of providing water and sewer services are financed primarily through user charges, and that fixed costs are recovered through fixed revenues and variable costs are recovered through variable revenues. This method better positions the District to maintain a stable and equitable rate structure during normal and abnormal weather conditions, as well as periods of drought that result in material reductions of water sales."

Currently, the District has a Cash Reserve Policy to deal with risk. One element of that reserve policy is a Drought Reserve. The Drought Reserve takes into account changes in the District's water supply operational costs and the reduced revenues from lower water

sales. This reserve will be used to minimize any potential rate impacts caused by the implementation of the District's WSC Plan.

Any allocation surcharges, monetary assessments, and fines collected through non-compliance of the WSC Plan will be partially used to replenish this Drought Reserve, implement additional demand management measures during an extended water shortage, contribute to increased administration costs, and pay for any MWDSC allocation surcharges assessed to the District.

### 5.5.11 Resolution or Ordinance

The District's WSC Plan identifies actions to be taken by water consumers within the District service area during periods of adequate water supply and during moderate, high, and severe water shortages. The purpose of the WSC Plan is to provide procedures with voluntary and mandatory provisions to minimize the effect of a water shortage and reduce overall water usage.

Prior to and during implementation of the WSC Plan and Resolution, the District would likely meet water shortage demands by increasing groundwater pumping and implementing water use efficiency programs. Water for public health, safety and welfare, water for maintenance of water facilities, and "grey water" use are all exempt from mandatory reductions. Special case circumstances may be reviewed by the General Manager's office.

### 5.5.12 Catastrophic Supply Interruption

The CWC section 10632 requires actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

The District operates in an area where the probability of an earthquake is high. Depending on the severity, an earthquake may damage the water system. The District's Emergency Response Plan provides a framework for an organized response to an earthquake emergency. The primary objectives of the WSC Plan are to maintain the functionality of the water distribution system, assess the system, and, if necessary, make rapid repair to any damage and prevent any further damage. The District's response to an earthquake will be directed by the General Manager.

The following are the District's response phases in the event of an earthquake:

- Phase I – Inspection: A rapid inspection to determine injuries and any damage that might affect the distribution system.

- Phase II – Report Back: Emergency communications flow: additional inspection procedures.

- Phase III – Repair: Coordination of maintenance forces.

- Phase IV – Management Procedures: Key management responsibilities for the emergency.

- Phase V – Operating/Maintenance/Engineering: Outlines procedures for division staff.

Prior to Phase I inspections, system operators and inspectors report to the Emergency Operations Center to receive assigned inspection routes. The Emergency Operations Center creates a communications hub for the District to efficiently manage their available resources. For example, personnel inspecting Vail Dam, wastewater treatment facilities, and wells receive their assignments from and report their findings to the Emergency Operations Center. The Emergency Response Plan contains 10 areas that are inspected with driving directions for specific inspection routes. If inspections reveal damage to any of the areas, the necessary repairs are made. Communications are ongoing at all phases of the response to an earthquake. The District has primary and secondary radio systems to insure communications will be available during an emergency. The Emergency Response Plan also includes an analysis of the potential of an electrical power outage. The District depends on electricity to boost water to higher elevations via pumping stations, although some wells use natural gas as their energy source. In an emergency situation involving a power outage, the District will utilize emergency generators to provide customers with a reliable source of water.

To safeguard the region from a catastrophic loss of imported water supply, MWDSC and its member agencies have made and are continuing to make substantial investments in emergency storage and interconnections with adjacent water purveyors. With few exceptions, MWDSC asserts it can deliver emergency supply from its Diamond Valley Lake Reservoir throughout its service area via gravity, thereby eliminating dependence on power sources that could also be disrupted by a major earthquake. MWDSC's WSDM Plan will guide management on available supplies and resources during an emergency.

While EMWD and WMWD have prepared for emergencies through storage, facility design, and redundant power sources, the District receives imported water directly through MWDSC pipelines, and is thereby not affected by interruptions or losses in EMWD or WMWD facilities, assuming MWDSC pipelines are not affected.

In the event that one or more water supply sources are unavailable, remaining source of supply will be maximized to meet demand, while implementing the District's WSC Plan and activating the District's Emergency Response Plan.

The primary goal of the District's water system is to preserve the health and safety of its personnel and the public. Meeting this goal is a continuous function of the water system – before, during, and after a disaster or water shortage. Fire suppression capabilities will continue to be available during any water shortage contingency stage. Some water needs are more immediate than others. The following is a guideline of public health needs and the approximate allowable time without potable water that can be endured:

- Hospitals – continuous need;
- Emergency shelters – immediate need;
- Kidney dialysis – 24 hours;
- Drinking water – 72 hours; and
- Personal hygiene, waste disposal – 72 hours.

### 5.5.13 Minimum Supply Next 3 Years

If conditions during the 3 years from 2018 - 2020 are equal to the driest 3-year historic sequence for the District's water supply, the District would have to take measures to meet water demand within its service area. Most likely the District will rely on MWDSC for imported water while maximizing groundwater production.

Table 5.5-5 is consistent with supply restrictions that would be experienced in a second, third and fourth-dry year, with the exception of native groundwater. Specifically, recycled water supplies would decrease by 5% in 2020. Imported supplies from MWDSC also reflect a 15% reduction in 2020 of Table 5.5-5, which includes artificial groundwater recharge. Native groundwater is projected to decrease by 7,000 AFY in all 3 years.

At the time a water shortage condition is identified, the District's General Manager shall recommend the appropriate shortage stage and corresponding water budget decrease based on an analysis of current and available water supplies and anticipated demands. The District's Board of Directors shall consider and adopt a resolution declaring the appropriate shortage stage and measures to be implemented. In practice, such actions could be made in any hydrologic year as deemed necessary.

In 2015, the District initiated Stage 4A of the WSC Plan, which resulted in an estimated 28% decrease in potable water consumption, which is substantially greater than the demand reductions required through 2018 in Table 5.5-5. The District's WSC Plan provides a critical tool allowing for decreases in potable water consumption. As such, the District should not experience any problems in meeting its demands during minimum supply scenarios over the next 3 years. The results of a simulation using the 3 driest historic years are presented below in Table 5.5-5.

**Table 5.5-5**
**Minimum Supply Next 3 Years (AF)**

| | 2018 | 2019 | 2020 |
|---|---|---|---|
| Available Water Supply | 82,773 | 89,610 | 80,711 |

## 5.6 Water Quality Effect on Management Strategies and Reliability

The District works collaboratively with EMWD, WMWD, and the Santa Margarita Watershed Watermaster to achieve the highest quality of water, safeguard the groundwater supply, and to ensure reliability of water supplies. The identified water quality issues facing the District include nitrates, TDS, arsenic, fluoride, and quagga mussels. A variety of water management strategies are implemented or planned for implementation by the District as discussed below.

There are no known water quality concerns that will significantly impact water supply reliability; therefore, there is no projected reduction in water supplies due to water quality constraints during the 25-year planning period. Imported water treated and delivered from MWDSC is consistently of good quality, resulting in a reliable supply of imported water. MWDSC has identified water quality issues that are of concern and has implemented water management strategies to minimize the impact on water supplies. The groundwater quality in the Temecula Valley Groundwater Basin is considered good, especially where recharge occurs. Early monitoring and implementation of programs are intended to help producers maintain the groundwater production ability, in accordance with the Basin agreements. Recycled water meets or exceeds stringent water quality standards.

If water quality does impact the District's water supply in the future, the District will continue to implement its Water Facilities Master Plan and CIP, which provide for system redundancy and enhanced reliability of supply. For example, if groundwater becomes unusable (without treatment) due to water quality concerns, more imported water will be utilized and/or treatment could be applied to the affect groundwater. If imported water becomes limited due to diminished water quality, then additional treatment could be applied and/or more groundwater may be used.

## 5.7 Climate Change Impacts to Supply

The District's climate is a semi-arid environment with mild winters, warm summers and moderate rainfall, consistent with coastal and inland Southern California. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. The usually mild to warm climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

Climatological data in California has been recorded since the year 1858. During the twentieth century, California has experienced 3 periods of severe drought: 1928-34, 1976-77, and 1987-91. The year 1977 is considered to be the driest year of record in the Four Rivers Basin by the DWR. These rivers flow into the San Francisco Bay Delta and are the source of water for the SWP. Southern California and, in particular, the southwest Riverside County area, sustained few adverse impacts from the 1976-77 drought, due in large part to the availability of Colorado River water and groundwater in the Temecula Valley Groundwater Basin. In contrast, the 1987-91 drought created considerably more concern for Southern California.

While the data presented in this Water Supply Assessment indicates water availability during single- and multiple-dry year scenarios, response to a future drought would follow the water use efficiency mandates of MWDSC's WSAP, along with implementation of the appropriate stage of the District's WSC Plan.

## 5.8 Water Conservation as a Reliable Water Source

The District recognizes water use efficiency as an integral component of current and future water supply strategy for its service area. Demand Management Measures (DMMs) refer to policies, programs, rules, regulation and ordinances, and the use of devices, equipment, and facilities that, over the long-term, have been generally justified and accepted by the industry as providing a "reliable" reduction in water demand. DMMs are equivalent and correlate to the BMPs, as established and recently reorganized by the California Urban Water Conservation Council (CUWCC). Two general classes of efficiency measures are foundational activities: 1) operations practices and education programs – that which water providers in California are expected to pursue as part of a well-managed utility; and 2) programmatic measures that target potential efficiency improvements in each customer sector – residential, CII, and landscape – as implemented through the use of more efficient devices or practices. The BMPs (or DMMs) are generally based on what is technically and economically reasonable and environmentally and socially acceptable, and are not otherwise unreasonable for most water suppliers to implement.

The District has made implementation of BMPs the cornerstone of its conservation programs and became a Signatory to the MOU Regarding Urban Water Conservation in California with the CUWCC, last amended on January 4, 2016. As signatory to the MOU, the District is responsible for completing and submitting BMP Activity Reports to the

CUWCC every 2 years for each year prior. The District's BMP Activity Report is a comprehensive document that shows implementation of each BMP and provides a determination of implementation. BMP "implementation" means achieving and maintaining the staffing, funding, and, in general, the priority levels necessary to achieve the level of activity called for in each BMP's definition, and to satisfy the commitment by the signatories to use good faith efforts to optimize water savings from implementing BMPs as described in the MOU.

The District's most effective conservation effort has been the implementation of a tiered rate structure in 2010. As supported by the reduction in GPCD annual averages for the District, the introduction of tiered water rates has been a fundamental component of the District's implementation plan toward achieving a 20% reduction in potable water consumption by 2020. Furthermore, during stages 3, 4, and 5 of the District's WSC Plan, the General Manager has the ability to recommend a water budget decrease to the District's Board of Directors, which provides a critical consumption reduction measure when necessary.

The District has maintained full compliance with all the BMPs to date. The District continues to work toward implementing the most cost-effective BMPs. These BMPs include technologies and methodologies that result in more efficient water use and conservation. Table 5.5-6 lists the current CUWCC BMPs as they have been reorganized and correlates them with the DMMs.

**Table 5.5-6**
**CUWCC BMPs and UWMP DMMs**

| CUWCC BMP Organization and Names (2016 MOU) | | | | UWMP DMMs | |
|---|---|---|---|---|---|
| **Type** | **Category** | **BMP #** | **BMP Name** | **DMM #** | **DMM Name** |
| Foundational | Utility Operations | 1.1.1 | Conservation Coordinator | CWC 10631 (f)(B)(vi) | Water conservation program coordination and staffing report |
| | | 1.1.2 | Water Waste Prohibition | CWC 10631 (f)(B)(i) | Water waste prevention measures |
| | | 1.1.3 | Wholesale Agency Assistance Programs | CWC 10631 (f)(1)(B)(2) | Wholesale supplier assistance programs |
| | | 1.2 | Water Loss Control | CWC 10631 (f)(B)(v) | Programs to assess and manage distribution system real loss |
| | | 1.3 | Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections | CWC 10631 (f)(B)(ii) | Metering |
| | | 1.4 | Retail Conservation Pricing | CWC 10631 (f)(B)(iii) | Conservation pricing |
| | Education | 2.1 | Public Outreach | CWC 10631 (f)(B)(iv) | Public education and outreach |
| | | 2.2 | School Education Programs | CWC 10631 (f)(B)(iv) | Public education and outreach |
| Programmatic | Residential | 3.1 | Residential Assistance Program | CWC 10631 (f)(B)(vii) | Other DMM that have a significant impact on water use |
| | | | | CWC 10631 (f)(B)(vii) | Other DMM that have a significant impact on water use |
| | | 3.2 | Landscape Water Survey | CWC 10631 (f)(B)(vii) | Other DMM that have a significant impact on water use |
| | | 3.3 | High-Efficiency Clothes Washing Machine Financial Incentive Programs | CWC 10631 (f)(B)(vii) | Other DMM that have a significant impact on water use |

**Table 5.5-6**
**CUWCC BMPs and UWMP DMMs**

| CUWCC BMP Organization and Names (2016 MOU) | | | | UWMP DMMs | |
|---|---|---|---|---|---|
| **Type** | **Category** | **BMP #** | **BMP Name** | **DMM #** | **DMM Name** |
| | | 3.4 | Water Sense Specification (WSS) toilets | CWC 10631 (f)(B)(vii) | Other DMM that have a significant impact on water use |
| | Commercial, Industrial, and Institutional | 4 | Commercial, Industrial, and Institutional | CWC 10631 (f)(B)(vii) | Other DMM that have a significant impact on water use |
| | Landscape | 5 | Landscape | CWC 10631 (f)(B)(vii) | Other DMM that have a significant impact on water use |

Efficient Water Management Practices (EWMPs) for agriculture were established as part of California Assembly Bill 3616, Agricultural Efficient Water Management Act of 1990, and were officially defined on January 1, 1999. These EWMPs were later included in SBx7-7 (2009) as mandated water use efficiency targets for agricultural water suppliers. The District has made implementation of EWMPs the cornerstone of its agricultural water use efficiency programs and efforts.

EWMPs refer to policies, programs, rules, and other activities conducted by a water supplier that, over the long-term, have been generally justified and accepted by the industry as providing for the advancement of the efficient use of water used for agricultural purposes in California.

The District is committed to water use efficiency and conservation as a means to provide a sustainable supply of water to its service area into the future. As a member agency of WMWD and EMWD, the District cooperates with and benefits from regional programs implemented by these agencies on behalf of its member agencies.

## 6.0 CONCLUSION

The Rancho California Water District optimizes its water resource supply through an integrated resource approach, utilizing available water programs and projects. Complexities and continuing refinement in groundwater management, evolving development of the recycled water supplies, and challenges of imported water reliability make analysis of water demand and supply complex.

All future projects including the Twelve Oaks Project are subject to the rules and regulations in place at the time when meter installation is requested, including but not limited to, the District's Water Supply Contingency Plan.

The WSA does not evaluate the adequacy of the District's infrastructure to handle the available water supplies or make any recommendations with respect to capital improvements that may be necessary in order to provide an adequate level of service to the Project.

Analysis of water supply projections for the District, including the Project, demonstrates that projected supplies exceed demand through the year 2044. These projections consider land use, water development programs and projects, and water conservation. The analysis shows that groundwater and recycled water supplies increase, and imported water supplies will remain relatively consistent with growth. Analyses of normal, single-dry, and multiple-dry year scenarios also demonstrate the District's ability to satisfy demand during the 25-year planning period in all hydrologic conditions, even under reduced imported water supply conditions.

Collectively, the information included in this WSA identifies a sufficient and reliable water supply for the District, now and into the future, including a sufficient water supply for the Twelve Oaks Project.

# APPENDIX A

Technical Memorandum, Twelve Oaks Proposed Water Demands, Fuscoe Engineering, October 27, 2017;

Email from Fuscoe Engineering dated December 4, 2017, which includes a phasing exhibit and site, as we all service connection and buildable area information;

Email from Fuscoe Engineering dated December 8, 2017, which includes net pad acreage for residential land uses;

Email from Fuscoe Engineering dated January 3, 2018, which includes estimation of population counts for each phase of the Twelve Oaks Project; and

Email from Fuscoe Engineering dated January 25, 2018, which revised the residential vineyard area.

FUSCOE ENGINEERING

TECHNICAL MEMORANDUM

# Twelve Oaks Proposed Water Demands

| | |
|---|---|
| **PREPARED FOR:** | County of Riverside and Rancho California Water District |
| **PREPARED BY:** | Stephanie Castle Zinn, Fuscoe Engineering, Inc. |
| **DATE:** | October 27, 2017 |

## PURPOSE

The purpose of this memorandum is to provide an estimate of proposed water demands for the Twelve Oaks Resort, Winery and Residential Project ("Twelve Oaks" or "Project"). As required by Senate Bill 610 (SB 610) and Section 10912(a) of the Water Code, a Water Supply Assessment (WSA) must be furnished to local governments for inclusion in environmental documentation for certain projects subject to the California Environmental Quality Act. Projects that must include WSAs must have at least one of the following features:

1. A proposed residential development of more than 500 dwelling units.
2. A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
3. A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
4. A proposed hotel or motel, or both, having more than 500 rooms.
5. A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
6. A mixed-use project that includes one or more of the projects specified in this subdivision.
7. A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.
8. If a public water system has fewer than 5,000 service connections, then ''project'' means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

Although the Project includes less than 500 dwelling units/hotel rooms (as described in more detail below), due to the irrigation demands of the 293 acres of vineyard area, it is anticipated that the Project will satisfy #7 above and "demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project." Rancho California Water District (RCWD) is the proposed water provider for the Project and will be preparing the WSA. The County of Riverside ("County") and RCWD have requested this memorandum, in addition to other Project related information, in order to complete the WSA.

## PROJECT DESCRIPTION

The Twelve Oaks property encompasses a total of 1,099.3 acres in the Wine Country Community Plan area of southwestern Riverside County, northeast of the City of Temecula. Approximately 468.4

acres includes dedicated MSHCP Open Space area and will not be considered as part of the overall development Project area, which encompasses the remaining 630.9 acres including a residential area and a resort area. The proposed Project's residential area in the western portion of the Project site includes the development of 76 single family lots or dwelling units (DU) for future custom-build homes ("Clustered Lots") and 21 larger, 10+ acre estate lots ("Estate Lots"). Each of the Estate Lots will include two building pads. On all 21 Estate Lots, one pad would be for a primary residence with "Cottage Inn" style lodging. On 18 of the 21 Estate Lots, the second pad would be for a Class II Winery[1], and on the remaining three (3) Estate Lots, the second pad would be for ancillary structures associated with farming, livestock and other allowed uses. The Project's residential area grading includes the building pads, roadways, and the associated driveways. This residential area of the Project will also include approximately 206 acres of vineyard area.

The large-scale, 251-room Twelve Oaks Resort ("Resort"), with amenities consisting of a Class VI winery ("Resort Winery"), Conference/Event Center and Marketplace, will be located in the eastern portion of the Project site. The Resort and its amenities will be developed on 126 gross acres, with approximately, 87.1 acres of vineyards and 10.4 acres of orchards and other landscaping. See Table 1 below for summary of proposed land uses associated with the Project.

Table 1 Twelve Oaks Proposed Land Uses

| *Resort Area* | | |
|---|---|---|
| Proposed Project Land Use | Proposed Project Land Use Description | Unit Count |
| Resort | Resort will include 251 rooms with a concierge, restaurant, fitness center, spa and parking garage. | 251 rooms |
| Conference/Event Center | The Event Center will be adjacent to the Resort and will include a ballroom and a conference center. | 58,223 sf |
| Marketplace | The Marketplace area will include restaurants, a banquet area, retail areas and an activity shed for storage. | 26,614 sf |
| Resort Winery | The Resort Winery will include a fermentation bar, tasting room, wedding amenities and other administration areas (i.e. office and storage rooms). | 33,402 sf |
| Resort Vineyard Areas | Vineyards will be planted throughout the Resort area and its amenities. | 87.1 acres |
| Resort Landscaping | Orchard trees, lawns and other landscaping will be planted throughout the Resort area and its amenities. | 10.4 acres |
| *Residential Area* | | |
| Proposed Project Land Use | Proposed Project Land Use Description | Unit Count |
| Residential Clustered Lots (less than 2 acres) | Single family residential homes the range in size from 1.0-1.9 acres. | 29 DU |
| Residential Clustered Lots (2-4.99 acres) | Single family residential homes that range in size from 2.0-4.57 acres. | 46 DU |
| Residential Clustered Lots (greater than 5 acres acres) | Single family residential homes that range in size from 5-5.66 acres. | 1 DU |
| Residential Estate Lots (greater than 10 acres) | Residential Estate Lots will have Cottage Inns with a max of five rooms in addition to the primary residence. Of the 21 Estate Lots, 18 lots will also have a Class II Winery within the | 21 Lots with Cottage Inns (126 multi-family units) |

[1] Land Use Planning and Zoning Regulations and Related Functions in Wine Country Zones – Ordinance No. 348.4818

| | | |
|---|---|---|
| | property. Twenty of the Estate Lots will range in size from 10.0-10.12 acres and one of the Estate Lots will be 20 acres. | and 18 Class II Wineries |
| Residential Vineyard Areas | Vineyards will be planted throughout the residential area. This area includes the combined vineyard area proposed for the entire residential area. | 206.0 acres |
| *Notes:*<br>gpd gallons per day<br>AFY acre feet per year<br>Source: RCWD 2015 Water Facilities Master Plan | | |

As the existing condition of the Project is primarily vacant except for the recent planting of 53 of the 87 acres of vineyard area associated with the Resort, there will be an increase in existing potable water demands over the next 25 years based on these proposed land uses. RCWD has planned for this area within the Wine Country Community Plan to eventually be developed and currently anticipates water supplies available to support the proposed Project.[2]

The RCWD or Eastern Municipal Water District (EMWD) recycled water system will not be extended to the Project site; therefore, as required for implementing projects under the Wine Country Community Plan (see Mitigation Measure PSU Water-1), the Project plans to implement winery process water reuse and gray water reuse systems throughout different features of the Project to decrease potable water demands for toilet flushing and irrigation, as described in more detail below. Water demand calculations are summarized in the section below and additional details are provided in Appendix A.

## TWELVE OAKS PROPOSED WATER DEMANDS

After communication with RCWD, water demand factors from the RCWD 2015 Water Facilities Master Plan have been determined to be the most up-to-date and relevant water demand factors to be employed in this analysis. Water demand factors from Table 3-3 – Summary of 2013 District-Wide Potable Water Demands that are applicable to the proposed Project land uses will be utilized. For the Estate Lots, due to the Cottage Inn style residence and Class II Winery within the properties, separate water calculations were performed to account for these additional Project specific features. See Table 2 below and Appendix A:

Table 2 RCWD Water Facilities Master Plan Applicable Water Duty Factors

| Land Use | Land Use Description | Master Plan Duty Factor |
|---|---|---|
| "Ag/Vineyard Planning Areas" | Vineyard and landscaped areas through Resort and residential areas | 1.5 AFY/acre |
| "Estate 5" | Estate residential areas with 5 acres minimum area for Clustered Lots | 3,000 gpd/DU |
| "Estate 2" | Estate residential areas with 2 acres minimum area for Clustered Lots | 2,000 gpd/DU |
| "Low Density" | Low density residential areas with 1-2 acres for Clustered Lots | 1,285 gpd/DU |
| "Multi-Family" | High Density Residential used for hotel rooms associated with Resort and the Estate Lot Cottage Inns | 210 gpd/DU |
| "Commercial" | Retail, Neighborhood Commercial and Tourist Commercial Areas | 1,585 gpd/acre |

[2] Wine Country Community Plan EIR – Water and Sewer Technical Memorandum. Found here: http://www.socalwinecountryplan.org/LinkClick.aspx?fileticket=zqmpGAKwDaQ%3d&tabid=70

*Notes:*
gpd gallons per day
AFY acre feet per year
Source: RCWD 2015 Water Facilities Master Plan

Residential water demands typically include both indoor and outdoor water demands. Indoor water demands typically include toilet-flushing, showers, baths, dishwashers, washing machines, faucets, and leakage. Outdoor water demands include landscape irrigation estimates. The residential water demands for the Project were broken up based on lot size. The Clustered Lots range in lot size between 1.00-5.66 acres. Therefore, associated water demand factors representative of the lot acre size were employed from the 2015 Water Facilities Master Plan as shown above in Table 2. The Residential Vineyard areas surrounding the residential lots are also included as a separate water demand calculation based on total acreage. The Residential Vineyard estimate includes vineyard area that will be included within the Estate Lots.

As mentioned, the Estate Lots include Cottage Inn features with minimum acreage requirements for vineyards. 18 of Estate Lots will also have Class II Wineries. To account for water demands for each portion, individual water demand calculations were performed as summarized below. See Appendices A and B for detailed calculations for the Estate Lots.

- Per discussion with RCWD, the estimates for the Cottage Inn water demands are to be calculated based on RCWD Water Facilities Master Plan for multi-family residences. As no hotel/lodging specific water demands were available, it was advised by RCWD to employ these multi-family land use water demand factors for any lodging type land use (i.e. Cottage Inn and Resort).[3] Therefore, the water demands for each Estate Lot Cottage Inn is calculated based on a maximum of five rooms plus the primary residence for a total of six multi-family residential units for each of the 21 Estate Lots (126 total). This water demand will be assumed to only account for indoor water usage. Outdoor water usage, primarily for vineyard irrigation, will be calculated separately as described below.

- As mentioned, the Residential Vineyard acreage of 206 acres includes the vineyard acreage that will be included within both the Residential Clustered Lots and Estate Lots. RCWD water demand factors for Ag/Vineyard areas will be used to calculate outdoor, vineyard water demands.

- The water demand estimates associated with the Class II Wineries follows the methodology of the sewer study that was conducted for the Project shown in Appendix B. Each of the Class II Wineries must generate at least 3,500 gallons of wine per year which was the primary assumption and metric utilized in the calculations. As the majority of water used in winery processing flows to the sewer, it was assumed that water and sewer demands are similar.

The primary non-residential land use water demands associated with the Twelve Oaks Project include the Resort, Marketplace, Event Center, Winery and vineyard/orchard areas. As no hotel/lodging specific water demands were available, it was advised by RCWD to employ the water demand factor for multi-family land uses as hotel rooms and multi-family dwelling units have similar water demands.[4] Commercial water demand factors will be employed for the Event Center and Marketplace as they include tourist/commercial/retail services.

[3] Personal Communication with RCWD on 08/31/2017.

[4] Personal Communication with RCWD on 08/31/2017.

The Resort Winery is required to produce at least 14,000 gallons of wine annually consistent with the Winery Zone Ordinance Section 14.93(E)(13) and is anticipated to produce approximately 50,000 cases of wine per year (118,900 gallons per year). As mentioned, a sewer capacity study was conducted to determine the sewer capacity required to handle estimated wastewater flows from Resort Winery processes in addition to the other proposed land uses. An estimate of 2,938 gpd of wastewater flows was anticipated for the Resort Winery (See Appendix B). As sewer flows and water demands are similar for winery land uses, the sewer flow estimates will be used as the Winery water demands for consistency.

See Table 3 below for proposed water demand estimates for the Project. As described in more detail below, the actual water demands will likely be less due to the proposed water savings features including various gray water reuse and winery process water reuse systems.

Table 3 Twelve Oaks Proposed Water Demands

| Residential Water Demands | | | | |
|---|---|---|---|---|
| Land Use Type | Unit Water Demand | Proposed Land Use Count | Residential Water Usage (gpd) | Residential Water Usage (AFY) |
| Residential Lots - Clustered Development (less than 2 acres) | 1,285 gpd/DU | 29 DU | 37,265.0 | 41.7 |
| Residential Lots - Clustered Development (2-4.99 acres) | 2,000 gpd/DU | 46 DU | 92,000.0 | 103.1 |
| Residential Lots - Clustered Development (greater than 5 acres acres) | 3,000 gpd/DU | 1 DU | 3,000.0 | 3.4 |
| Residential Lots - Estate Lots (greater than 10 acres)[1] | (See Appendix A) | 21 lots with Cottage Inns (126 multi-family units total) + 18 Class II Wineries | 28,015.2 | 31.4 |
| Residential Vineyard Areas[2] | 1.5 AFY/acre | 206.2 acres | 275,844.3 | 309.0 |
| **Resort Area Water Demands** | | | | |
| Land Use Type | Unit Water Demand | Proposed Land Use Count | Resort Area Water Usage (gpd) | Residential Water Usage (AFY) |
| Resort | 210 gpd/room | 251 rooms | 52,710.0 | 59.0 |
| Event Center | 1,585 gpd/acre | 58,223 sf | 2,118.5 | 2.4 |
| Marketplace | 1,585 gpd/acre | 26,641 sf | 968.4 | 1.1 |
| Resort Winery | 2,938 gpd[3] | 33,402 sf | 2,937.5 | 3.3 |
| Resort Vineyard Areas | 1.5 AFY/acre | 87.1 acres | 116,497.4 | 130.5 |
| Resort Orchard and other Landscaped Areas | 1.5 AFY/acre | 10.4 acres | 13,926.1 | 15.6 |
| TOTAL PROJECT WATER DEMAND | | | 625,282.4 gpd | 700.4 AFY |

*Notes*

[1] Estate Lots include estimates for Cottage Inns and Class II Wineries and do not include vineyard area as described in (2) below

[2] Residential Vineyard areas include vineyard area associated with both Clustered Development and Estate Lots. Therefore, no additional vineyard acreage is calculated for the Estate Lots.

[3]Estimate from Project's sewer study – see Appendix B.

As shown above in Table 3, the water demand for the Project is approximately 700 AFY (625,282 gpd). Detailed calculations for the residential Clustered Lots and Estate Lots, the Resort area and the vineyard areas are provided in Appendix A. It is estimated that the Project will be constructed over a three year period with construction starting in 2019 and lasting through 2022. Therefore, a portion of the Project water demands will need to be available as early as 2019.

Water supply planning is ongoing and regional reports (i.e. Urban Water Management Plans) are submitted every five years. The Project WSA must include a discussion regarding whether the RCWD total projected water supplies will be available during normal, single dry, and multiple dry water years during a 20-year projection to meet the projected water demand associated with the proposed Project, in addition to the RCWD existing and planned future demands[5]. Therefore, it is important to note how much water will be needed over the various construction phases of the Project over the next several years. See Table 4 below for estimated Project phasing and associated water demands during each phase and for a 20-year period.

Table 4 Estimated Twelve Oaks Project Phasing and Associated Water Demands

| Project Feature | Phase 1 A & B | Phase 2 | Phase 3A | Phase 3B | Project Completed | | | |
|---|---|---|---|---|---|---|---|---|
| | 2019 | 2020 | 2021 | 2022 | 2025 | 2030 | 2035 | 2040 |
| Resort/hotel, Event Center, Resort Vineyards and Orchards | 207.52 | 207.52 | 207.52 | 207.52 | 207.52 | 207.52 | 207.52 | 207.52 |
| Resort Winery and Retail | 4.38 | 4.38 | 4.38 | 4.38 | 4.38 | 4.38 | 4.38 | 4.38 |
| Estate Lots, Cottage Inns and Class II Wineries | 0.00 | 31.38 | 31.38 | 31.38 | 31.38 | 31.38 | 31.38 | 31.38 |
| Half of Cluster Lots and half Residential Vineyards | 0.00 | 0.00 | 228.58 | 228.58 | 228.58 | 228.58 | 228.58 | 228.58 |
| Remaining Half of Cluster Lots and Residential Vineyards | 0.00 | 0.00 | 0.00 | 228.58 | 228.58 | 228.58 | 228.58 | 228.58 |
| Water Demand (AFY) | 211.89 | 243.28 | 471.86 | 700.44 | 700.44 | 700.44 | 700.44 | 700.44 |

As shown above, the Project will initially demand 212 AFY starting in 2019. Once the Project is completed in 2022, approximately 700 AFY is estimated to be demanded for 20-years and beyond. It must be noted that the Project phasing may change as it is impacted by several variables, and that the table above is a rough estimate of the Project construction schedule and associated water demands.

## TWELVE OAKS PROPOSED WATER SAVINGS FEATURES

The Project will include water efficient design elements including low flow indoor features (i.e. low flow toilets, showerheads, appliances) following the California Green Building Code and low water use landscape features following the local landscape ordinance[6]. In addition, actual Project demands

[5] Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001, California Department of Water Resources. October 2003. Found here: http://www.water.ca.gov/pubs/use/sb_610_sb_221_guidebook/guidebook.pdf

[6] Ordinance No. 859 – An Ordinance of the County of Riverside – The Water Efficient Landscape Requirements

will likely be less due to the proposed implementation of gray water reuse systems within the Resort lodging and residential units, reuse systems for Resort Winery and Class II Winery process water for landscape and vineyard irrigation, and reuse of HVAC air conditioning condensate. Water savings was calculated by following water demand estimates (i.e. toilet flushing demands, condensate water production) from various studies throughout California and the United States[7,8,9]. See potential savings and details on each of these features below. Additional water savings calculations are provided in Appendix C.

- Resort Gray Water Reuse: It is proposed to include gray water reuse systems within the Resort. The scheme will include treating water from sinks and showers and reusing the treated gray water for toilet flushing within the hotel rooms. As shower and sink water have higher demands as compared to toilet flushing, only a portion of the water will be reused for toilet flushing with the remaining shower and sink water connected and flowing to the sewer. It is anticipated that toilet water will be able to be 100% supplied by gray water and will decrease potable water demands by approximately 3,341 gpd or 3.7 AFY.

- Resort Winery Process Water Reuse: As mentioned above, the Resort Winery is required to produce at least 14,000 gallons of wine and is anticipated to produce approximately 50,000 cases of wine per year (118,900 gallons of wine per year). The Winery is estimated to generate approximately 2,938 gpd of process water that would normally flow to the sewer. With new and emerging treatment technology, it is possible to reuse at least 90% of the process water for vineyard and landscape irrigation (2,630 gpd on average). On an annual basis, the Winery has the potential to reuse 960,000 gallons for vineyard and landscape irrigation.

- Class II Winery Process Water Reuse: Similar to the Resort Winery, 18 of the 21 Estate Lots each have a Class II Winery. Each Class II Winery is required to produce 3,500 gallons of wine per year consistent with the Winery Zone Ordinance Section 14.93(E)(11). With this production, approximately 233 gpd of process water per winery could be reused during crush to supply vineyard and landscape irrigation demands. On an annual basis, a typical winery uses at least 8 gallons of water per one gallon of wine. Therefore, approximately 28,000 gallons could be reused per winery per year. For all 18 Class II Wineries on the Estate Lots, the savings potential would be approximately 504,000 gal/year (1.6 AFY).

- Condensate Water Reuse: Condensate water from air conditioning systems can be reused for subsurface irrigation and other demands to further offset potable water demands. It is anticipated that condensate water from HVAC systems associated with the Resort and its amenities (assuming to cover 399,256 square feet of air-conditioned areas) will generate at least 4,000 gpd or 4.5 AFY on average. Condensate water is considered as clean as distilled water and can be used for subsurface irrigation or other demands across the Resort area.

- Residential Gray Water Features: There is also potential for individual home owners to have their home be constructed with dual plumbing. This would allow them to reuse shower and bathroom sink water for toilet flushing. If all 76 Clustered Lots and the 21 Cottage Inns on

[7] California Single-Family Water Use Efficiency Study, July 2011 – Aquacraft Water Engineering and Management (www.aquacraft.com)

[8] Water and Energy Savings from High Efficiency Fixtures and Appliances in Single Family Homes – Volume 1 (2005) (www.aquacraft.com)

[9] San Antonio Condensate Collection and Use Manual for Commercial Buildings (2013). Found here: https://saws.org/Conservation/Commercial/Condensate/docs/SACCUManual_20131021.pdf

the Estate Lots were dually plumbed with such a feature, the potential potable water savings would be approximately 3,342 gpd or 3.7 AFY.

See Table 5 below for additional breakdown of potential water savings for the Twelve Oaks Project.

Table 5 Twelve Oaks Sustainable Water Savings Features

| Water Savings Scheme | Daily Water Savings gpd[1] | Annual Water Savings AFY | Potable Demand Offset |
|---|---|---|---|
| Resort Gray Water Reuse | 3,341 gpd | 3.74 AFY | Hotel toilet flushing |
| Resort Winery Process Water Reuse* | 2,630 gpd avg. annual (5,333 gpd during crush) | 2.95 AFY | Vineyard and landscape irrigation |
| Class II Winery Process Water Reuse* | 1,380 gpd avg. annual (4,194 gpd during crush) | 1.54 AFY | Vineyard and landscape irrigation |
| Condensate Water Reuse | 3,993 gpd | 4.47 AFY | Vineyard and landscape irrigation |
| Optional Residential Gray Water Reuse | 3,342 gpd | 3.74 AFY | Residential toilet flushing |
| **Total Potential Savings** | **14,686 gpd** | **16.44 AFY** | **Combined toilet flushing and vineyard/landscape irrigation** |

Notes
[1] See Water Savings Calculations in Appendix C
*Daily water savings increases during crush as compared to the average over an annual period. Water savings technologies would be sized to handle flows during crush periods.

Due to Total Dissolved Solids and salinity concerns within the underlying groundwater basin, reusing treated gray water from showers and sinks for irrigation is prohibited and can only be used for toilet flushing. However, treated water from condensate and Winery process water will be able to be reused for landscape and vineyard irrigation, which constitutes that largest water demand for the Project. Irrigation demands will also be offset by the proposed harvest and reuse cisterns (a stormwater Best Management Practice) which will also satisfy water quality requirements for the Resort and residential areas.

As shown above, the combination of these planned sustainable water reuse features associated with the Twelve Oaks Project have the potential to reduce potable water demands by 16.4 AFY or 14,686 gpd (annual use daily average). This would reduce potable water demands by the amount of water that could supply up to 33 single family residences and their families for an entire year which is also equivalent to filling nearly 50 Olympic size swimming pools every day.

# Appendix A

## Twelve Oaks Water Demand Calculations

| Twelve Oaks Proposed Water Demands (not including Estate Lots) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Land Use | Counts | Count Type | Water Demand Factor | Water Demand Unit | gpd/unit | Proposed Water Demand (gpd) | Proposed Water Demand (AFY) |
| **Resort Area** | | | | | | | |
| Resort | 251.0 | rooms | 210.0 | gpd/room | N/A | 52,710.0 | 59.0 |
| Event Center | 58,223.0 | sf | 1,585.0 | gpd/ac | N/A | 2,118.5 | 2.4 |
| Marketplace | 26,614.0 | sf | 1,585.0 | gpd/ac | N/A | 968.4 | 1.1 |
| Winery | 33,402.0 | sf | ** | ** | N/A | 2,937.5 | 3.3 |
| Resort Vineyard Areas | 87.0 | acres | 1.5 | AFY/acre | 1,339.1 | 116,497.4 | 130.5 |
| Resort Landscaped Areas | 10.4 | acres | 1.5 | AFY/acre | 1,339.1 | 13,926.1 | 15.6 |
| **Residential Area** | | | | | | | |
| Residential Lots - Clustered Division (less than 2 acres) | 29.0 | DU | 1,285.0 | gpd/du | N/A | 37,265.0 | 41.7 |
| Residential Lots - Clustered Division (2-4.99 acres) | 46.0 | DU | 2,000.0 | gpd/du | N/A | 92,000.0 | 103.1 |
| Residential Lots - Clustered Division (greater than 5 acres acres) | 1.0 | DU | 3,000.0 | gpd/du | N/A | 3,000.0 | 3.4 |
| Residential Vineyard Areas* | 206.0 | acres | 1.5 | AFY/acre | 1,339.1 | 275,844.3 | 309.0 |
| | | | | | *TOTALS* | GPD<br>597,267.2 | AFY<br>669.1 |

* Includes total vineyard acreage throughout residential sub-division including Estate Lot vineyard area for Class II Winery classification.
** See Appendix B.

# Twelve Oaks Estate Lot with Cottage Inn and Class II Winery Water Demands

## Residential Indoor Water Demands

| Land Use | Water Demand | | Water Usage for 6 multi-family type unit per Estate Lot (gpd) | Annual Water Usage (AFY) |
|---|---|---|---|---|
| Cottage Inn Rooms[1] | 210 | gpd/DU | 1,260.00 | 1.41 |
| *Cottage Inn Room Demand for 21 Lots* | | | *26,460.00* | *29.64* |

## Vineyard Irrigation and Class II Winery Demands

| | | | | |
|---|---|---|---|---|
| Class II Winery [2] | 86 | gpd | 86 | 0.10 |
| Total Water Demand for 18 Class II Wineries | | | 1,555.20 | 1.74 |
| **TOTAL WATER DEMAND FOR THE 21 ESTATE LOTS** | | | **28,015.20** | **31.38** |

*Notes*

1 Based off Rancho California Water District Water Demand Factors

2 See Appendix B. Based off sewer demand factors and study.

The total Residential Vineyard acreage of 206 acres includes the vineyard area that would be required for the Estate Lots to become a Class II Winery. Therefore, no irrigation estimate is required for the individual Estate Lots as it is already accounted for in the Residential Vineyard area acreage.

# Appendix B
## Winery Sewer Flow Calculations

## Resort Winery and Class II Winery Water Demand Calculations

The Resort Winery and Class II Wineries will each have water demands primarily from winery process water. Eastern Municipal Water District (EMWD) has prescribed sewer flow factors in estimating sewer flows associated with wineries to ensure adequate sewer capacity is provided. It is assumed that as the majority of water utilized in the wine making process flows to the sewer, sewer flows and water demands are similar. Therefore, the sewer flow factors from EMWD will be used to calculate water demands for the Resort Winery and Class II Wineries associated with the Twelve Oaks Project.

The Resort Winery is required to produce at least 14,000 gallons of wine annually consistent with the Winery Zone Ordinance Section 14.93(E)(13) and is anticipated to produce approximately 50,000 cases of wine per year (118,900 gallons per year).

Class II Wineries with limited commercial uses such as sampling rooms and retail wine sales establishments on a minimum lot size of ten (10) acres must include:

- 75% of the project site is planted in vineyards;
- 5% of the grapes utilized in wine production are grown or raised within the county; and
- The winery facility shall at least produce 3,500 gallons of wine annually.

Therefore, for the Class II Wineries, it is anticipated that at least 3,500 gallons of wine will be produced annually (63,000 gallons per year for the 18 Class II Wineries).

Sewer flow/water demand calculations are below. It is assumed sewer flows and water demands are similar as the majority of winery process water goes to the sewer.

| Description | Units | Factor | Estimated Flow (EDU) | gpd/EDU | Average Daily Flow, gpd |
|---|---|---|---|---|---|
| Resort Winery | 118,900 gal/yr<br>50,000 cases | 0.25 EDU/1,000 cases | 12.5 | 235 | 2,938 |
| 18 Class II Wineries | 3,500 gal/yr x 18 = 63,000 gal/yr<br>26,493 cases | 0.25 EDU/1,000 cases | 6.62 | 235 | 1,556 |
| Notes<br>1 wine bottle = 75- ml; 1 case = 12 bottles = 9 liters = 2.378 gallons | | | | | |

As shown above, it is anticipated that the Resort Winery will have a water demand of 2,938 gpd and each Class II Winery will have a water demand of 86.4 gpd (1,556 gpd for all of the 18 Class II Wineries).

# Appendix C

## Sustainable Water Feature Savings Calculations

# Twelve Oaks Clustered Lot and Estate Lot Gray Water Savings

## Residential Water Demands

*Clustered Lots*

| Residential Unit Water Savings Features | Water Demand[1] | | Frequency[2,4] | | Assumed People Per DU[3] | | Unit Water Usage (gpd) | Water Usage for 76 DU (gpd) | Annual Water Usage for 76 DU(AFY) |
|---|---|---|---|---|---|---|---|---|---|
| Toilets[1, 2, 4] | 1.28 | gal per flush | 5.2 | fpd/person | 3.29 | people/ unit | 21.90 | 1,664.27 | 1.86 |

*Estate Lots*

| Residential Unit Water Savings Features | Water Demand[1] | | Frequency[2,4] | | Assumed People Per DU[6] | | Unit Water Usage (gpd) | Water Usage for 126 rooms (gpd)[5] | Annual Water Usage for 126 rooms (AFY) |
|---|---|---|---|---|---|---|---|---|---|
| Toilets[1, 2, 4] | 1.28 | gal per flush | 5.2 | fpd/person | 2 | people/ unit | 13.31 | 1,677.31 | 1.88 |
| | | | | | | *Total Residential Gray Water Savings Potential* | | 3,341.58 | 3.74 |

[1] 2016 CALGreen Residential Mandatory Code Requirements for new developments

[2] Aquacraft Analysis of Water Use in New Single-Family Homes (2011)

[3] Department of Finance, E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2017 with 2010 Census Benchmark, found here: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/

[4] Aquacraft Analysis - Water and Energy Savings from High Efficiency Fixtures and Appliances in Single Family Homes - Volume 1 (2005)

[5] Estate Lots will have a primary residence with 5 room Cottage Inns for a total estimate of 6 rooms. 6 rooms x 21 estate lots = 126 rooms for potential toilet reuse.

[6] Assuming 2 persons per Cottage Inn room.

# Twelve Oaks Resort Gray Water Savings

## Residential Water Demands

| Unit Water Demands | Water Demand [1] | | Frequency [2,5] | | Assumed People Per room [4] | | Unit Water Usage (gpd) | Water Usage for 251 Rooms (gpd) | Annual Water Usage for 251 Rooms (AFY) |
|---|---|---|---|---|---|---|---|---|---|
| Toilets[1, 2, 5] | 1.28 | gal per flush | 5.2 | fpd/person | 2 | people/ unit | 13.31 | 3,341.31 | 3.74 |

| Unit Water Demands | Water Demand [3] | | Frequency [2,5] | | Assumed People Per room [4] | | Unit Water Usage (gpd) | Water Usage for 399,256 sf (gpd) | Annual Water Usage for 399,256 sf (AFY) |
|---|---|---|---|---|---|---|---|---|---|
| Condensate[6] | 10 | gpd/1000 sf | NA | NA | NA | NA | NA | 3,992.56 | 4.47 |

[1] 2016 CALGreen Residential Mandatory Code Requirements for new developments

[2] Aquacraft Analysis of Water Use in New Single-Family Homes (2011)

[3] Approximately 10 gpd of condensate water can be reused per 1000 sf of air conditioned floor area. See (6) for reference.

[4] Estimated occupants per hotel room

[5] Aquacraft Analysis - Water and Energy Savings from High Efficiency Fixtures and Appliances in Single Family Homes - Volume 1 (2005)

[6] Following equation from San Antonio Condensate Collecton and Use Manual for Commercial Buildings (2013):10 gpd/1,000 sq f of air conditioned area. Condensate estimate includes all air conditioned area including the resort, winery, market place and event center for a total area of 399,256 sf.

## Twelve Oaks Resort Winery and Class II Winery Reuse Savings

*Water Savings during Crush*

| | | |
|---|---|---|
| 50,000 cases | 2.4 gal/case | 120,000 gallons |
| 120,000 x 2 / 45 days | 5,333 gpd during crush | |

*Annual Savings*

| | | |
|---|---|---|
| 120,000 gal | 8 gal water/gal wine | 960,000 gallons per year to reuse |
| | | 2.95 AFY for reuse |

## Class II Winery Potential Reuse
## 3,500 gallons of wine per year required

*Water Savings during Crush*

| | | |
|---|---|---|
| 3,500 gal x 2 / 30 days | 233 gpd during crush per Winery | 4,194 gpd during crush for 21 Class II Wineries |

*Annual Savings per Class II Winery*

| | | |
|---|---|---|
| 3,500 gal | 8 gal water/gal wine | 28,000 gallons per year to reuse |

Total Potential Savings for 18Estate Lot Class II Wineries

| | |
|---|---|
| 504,000 gal/year to reuse | 1.55 AFY to reuse |

Notes:
Equations and Assumptions:
Winery Process Water Reuse: Gallons of Wine x 2 gallons of process water / days of crush
Average Annual Savings: Typical winery uses between 8-12 gallons of water per gallon of wine. 8 gal water/gal wine is assumed to be conservative.

## Jeff Kirshberg

**From:** Stephanie Castle <scastlezinn@fuscoe.com>
**Sent:** Monday, December 04, 2017 8:02 AM
**To:** Jeff Kirshberg; Jacob Wiley
**Cc:** Steve Ellis; Michele Staples; EPD Andrea Arcilla
**Subject:** Twelve Oaks - WSA Information
**Attachments:** ITEM 1 - PHASING EXHIBIT AND SITE PLAN.PDF; ITEM 4 - SERVICE CONNECTIONS ATTACHMENT.PDF

Hello Jeff,

Please see below and attached for answers to questions #1, #3 and #4 regarding the Twelve Oaks water demand memo for the WSA. Please let me know if you have any questions. We are still locking down answers to #2 and #5 and hope to have them by the end of the week.

1. A Map clearly identifying the separate Phases of Development (1A/B, 2, 3A and 3B). Note that 1A and 1B do not need differentiating as they appear to develop at the same time per Table 4 of the TM. I previously requested this item from you. **See attached.**

2. For the Residential Land Uses (251 rooms at the Resort, 126 units at the Cottage Inns, and the 3 types of Clustered Division Lots), I will need the parcel lot area for each of these land uses. In other words, it states that 29 Residential Lots will be less than 2 acres, however I need to confirm this. So please provide parcel lot area of each of these land uses (for the resort rooms and cottage inn rooms, just give your best estimate of the footprint of the rooms). (**pending**)

3. Please provide the buildable area in square feet of the sum of all the Class 2 Wineries (similar to the number provided in Appendix A for the Resort Winery). The number provided can just be for the sum of the 18 class 2 wineries, with no need to break it our among each individual winery. **The buildable area in square feet for the Class 2 wineries is 456,285 sf.**

4. An estimate of the total number of service connections included in each phase (1a/1b, 2, 3a and 3b). Again, no need to differentiate between 1a and 1b. Please break up into residential and non-residential connections. **See attached breakdown.**

5. Population projections for each phase (1a/1b, 2, 3a and 3b). Again, no need to differentiate between 1a and 1b. (**pending**)

Thank you!
Stephanie

---

25 YEARS

**STEPHANIE CASTLE ZINN** | *Water Resources Specialist*
scastlezinn@fuscoe.com

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*an employee owned company*

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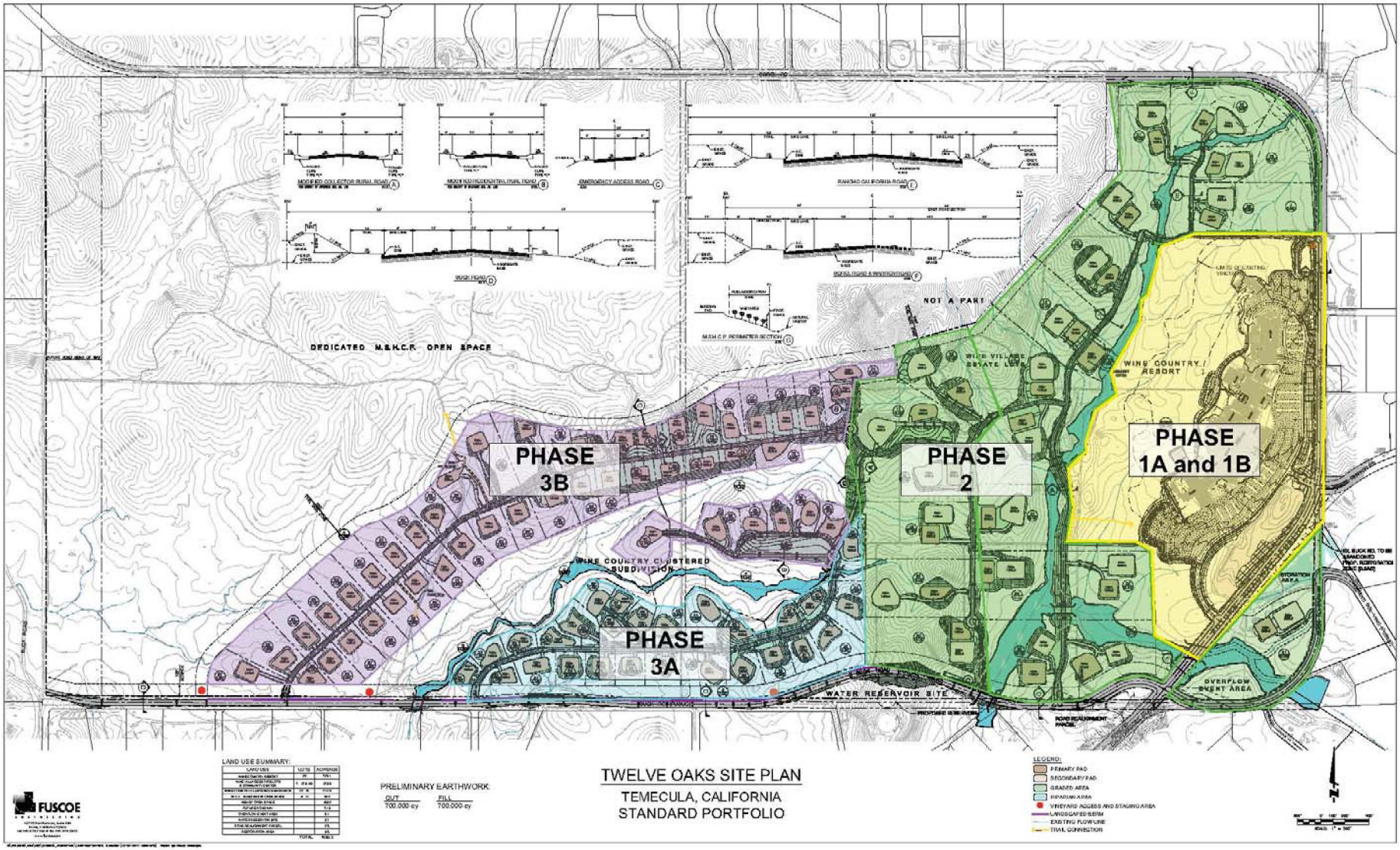
DEDICATED M.S.H.C.P. OPEN SPACE
NOT A PART
PHASE 3B
PHASE 2
PHASE 1A and 1B
PHASE 3A
WINE COUNTRY CLUSTERED SUBDIVISION
WINE VILLAGE ESTATE LOTS
WINE COUNTRY RESORT
WATER RESERVOIR SITE
OVERFLOW EVENT AREA
LAND USE SUMMARY:
PRELIMINARY EARTHWORK:
CUT 700,000 cy
FILL 700,000 cy
TWELVE OAKS SITE PLAN
TEMECULA, CALIFORNIA
STANDARD PORTFOLIO
LEGEND:
PRIMARY PAD
SECONDARY PAD
GRADED AREA
REMAINING AREA
VINEYARD ACCESS AND STAGING AREA
LANDSCAPED BERM
EXISTING FLOW LINE
TRAIL CONNECTION
FUSCOE

FUSCOE ENGINEERING

| Project: | | Project #: | |
|---|---|---|---|
| By: | Date: | Check: | Date: |

TWELVE OAK - EST. # OF CONNECTIONS

Page / of

| PHASE | USE | DOMESTIC | FIRE CONNECT. | IRRIGATION MTRS |
|---|---|---|---|---|
| 1A/1B | RESORT/WINERY/RETAIL/ CONF. CENTER | 4 | 6* | 4 |
| 2 | ESTATE LOTS (21 LOTS) | 42** | 21 | 21 |
| 3A | 38 LOTS | 38 | | 3 |
| 3B | 38 LOTS | 38 | | 3 |

Note:

* 1 CONNECTION PER USE & 2 CONNECTION TO MAIN TO "LOOP THE SYSTEM.

** 1 METER ~~FOR THE~~ PRIMARY PAD & 1 METER FOR THE SECONDARY PAD.

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2850 Inland Empire Blvd., Suite B, Ontario, California 91764 ○ tel 909.581.0676 ○ fax 909.581.0696
901 E. Tahquitz Canyon Way, Suite B-200, Palm Springs, California 92262 ○ tel 760.327.3375 ○ fax 760.406.5945
801 S. Grand Ave., Suite 1020, Los Angeles, California 90017 ○ tel 213.542.4260 ○ fax 213.542.4263
111 North 6th Street, El Centro, California 92243 ○ tel 760.482.0089 ○ fax 760.897.2144

## Jeff Kirshberg

**From:** Stephanie Castle <scastlezinn@fuscoe.com>
**Sent:** Friday, December 08, 2017 4:12 PM
**To:** Jeff Kirshberg; Jacob Wiley
**Cc:** Steve Ellis; Michele Staples; EPD Andrea Arcilla
**Subject:** RE: Twelve Oaks - WSA Information
**Attachments:** ITEM 2 - LAND USE ACREAGES.PDF

Hello Jeff,

Please see attached PDF for details on item #2 below. Let me know if you have any questions. We are still working on #5 but will hopefully get you those population estimates ASAP!

Have a great weekend.

Stephanie


STEPHANIE CASTLE ZINN
*Water Resources Specialist*

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an employee owned company

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**From:** Stephanie Castle
**Sent:** Monday, December 4, 2017 8:02 AM
**To:** 'Jeff Kirshberg' <kirshbergj@ranchowater.com>; 'wileyj@ranchowater.com' <wileyj@ranchowater.com>
**Cc:** Steve Ellis <sellis@fuscoe.com>; 'Michele Staples' <MStaples@jacksontidus.law>; EPD Andrea Arcilla <andrea@epdsolutions.com>
**Subject:** Twelve Oaks - WSA Information

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Thank you!
Stephanie

---



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COUNTY OF RIVERSIDE
TENTATIVE TRACT MAP No. 37377
TWELVE OAKS

## Estate Lots
Typical Cottage Inn Room Square Footage: 500 sf
*on 35,000 sf primary pad

## Resort Area
Typical Room (239 rooms): 408 sf
Vineyard Suite (12 suites): 1,052 sf

**LAND USE: WINE VILLAGE ESTATE LOT TABLE**

| LOT NUMBER | GROSS LOT AC. | NET PAD AC. |
|---|---|---|
| 1 | 10.09 | 1.36 |
| 2 | 10.12 | 1.34 |
| 3 | 10.06 | 1.34 |
| 4 | 10.12 | 1.27 |
| 5 | 10.09 | 1.44 |
| 6 | 10.03 | 1.38 |
| 7 | 10.08 | 1.31 |
| 8 | 10.12 | 1.41 |
| 9 | 10.07 | 1.33 |
| 10 | 10.10 | 1.37 |
| 11 | 10.09 | 1.50 |
| 12 | 10.13 | 1.55 |
| 13 | 10.13 | 1.35 |
| 14 | 10.11 | 1.33 |
| 15 | 10.11 | 1.33 |
| 16 | 10.22 | 1.32 |
| 17 | 10.03 | 1.33 |
| 18 | 10.02 | 1.33 |
| 19 | 10.07 | 1.33 |
| 20 | 10.01 | 1.34 |
| 21 | 20.47 | 1.35 |
| TOTAL | 222.24 AC. | 28.61 AC. |

**LAND USE: COMMUNITY CENTER LOT TABLE**

| LOT NUMBER | GROSS LOT AC. | NET PAD AC. |
|---|---|---|
| 98 | 2.00 | 0.70 |

**LAND USE: WINE COUNTRY RESORT LOT TABLE**

| LOT NUMBER | GROSS LOT AC. |
|---|---|
| 99 | 126.74 AC. |

**LAND USE: WINE COUNTRY CLUSTERED SUBDIVISION LOT TABLE**

| LOT NUMBER | GROSS LOT AC. | NET PAD AC. |
|---|---|---|
| 22 | 1.28 | 0.47 |
| 23 | 2.11 | 0.52 |
| 24 | 1.74 | 0.44 |
| 25 | 1.74 | 0.44 |
| 26 | 1.74 | 0.40 |
| 27 | 2.09 | 0.52 |
| 28 | 2.68 | 0.53 |
| 29 | 2.09 | 0.58 |
| 30 | 2.17 | 0.44 |
| 31 | 1.81 | 0.47 |
| 32 | 2.61 | 0.44 |
| 33 | 2.86 | 0.48 |
| 34 | 2.84 | 0.49 |
| 35 | 1.84 | 0.55 |
| 36 | 1.75 | 0.53 |
| 37 | 1.54 | 0.48 |
| 38 | 1.29 | 0.47 |
| 39 | 2.79 | 0.63 |
| 40 | 3.67 | 0.52 |
| 41 | 1.58 | 0.55 |
| 42 | 1.76 | 0.54 |
| 43 | 2.17 | 0.54 |
| 44 | 3.64 | 0.63 |
| 45 | 2.63 | 0.56 |
| 46 | 1.19 | 0.65 |
| 47 | 1.07 | 0.51 |
| 48 | 1.55 | 0.60 |
| 49 | 1.58 | 0.46 |
| 50 | 2.53 | 0.67 |
| 51 | 1.49 | 0.53 |
| 52 | 1.34 | 0.50 |
| 53 | 1.23 | 0.45 |
| 54 | 1.00 | 0.47 |
| 55 | 1.14 | 0.48 |
| 56 | 2.04 | 0.47 |
| 57 | 2.49 | 0.47 |
| 58 | 2.58 | 0.47 |
| 59 | 2.58 | 0.47 |

**LAND USE: WINE COUNTRY CLUSTERED SUBDIVISION LOT TABLE**

| LOT NUMBER | GROSS LOT AC. | NET PAD AC. |
|---|---|---|
| 60 | 2.58 | 0.47 |
| 61 | 2.58 | 0.48 |
| 62 | 2.67 | 0.47 |
| 63 | 2.61 | 0.47 |
| 64 | 2.46 | 0.47 |
| 65 | 3.10 | 0.47 |
| 66 | 2.30 | 0.46 |
| 67 | 2.26 | 0.46 |
| 68 | 2.00 | 0.46 |
| 69 | 1.74 | 0.39 |
| 70 | 1.75 | 0.47 |
| 71 | 1.55 | 0.49 |
| 72 | 2.03 | 0.55 |
| 73 | 2.39 | 0.48 |
| 74 | 2.18 | 0.51 |
| 75 | 2.73 | 0.47 |
| 76 | 2.71 | 0.45 |
| 77 | 2.82 | 0.45 |
| 78 | 2.49 | 0.53 |
| 79 | 2.18 | 0.56 |
| 80 | 1.84 | 0.69 |
| 81 | 1.43 | 0.55 |
| 82 | 1.40 | 0.52 |
| 83 | 1.12 | 0.51 |
| 84 | 1.00 | 0.53 |
| 85 | 1.93 | 0.52 |
| 86 | 4.57 | 0.37 |
| 87 | 5.66 | 0.48 |
| 88 | 3.32 | 0.44 |
| 89 | 2.14 | 0.42 |
| 90 | 2.37 | 0.47 |
| 91 | 2.86 | 0.47 |
| 92 | 3.03 | 0.48 |
| 93 | 3.09 | 0.47 |
| 94 | 3.10 | 0.47 |
| 95 | 3.09 | 0.47 |
| 96 | 4.19 | 0.48 |
| 97 | 2.82 | 0.47 |
| TOTAL | 172.36 AC. | 37.79 AC. |

**LETTERED LOT AREA TABLE**

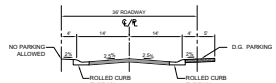
| LOT NUMBER | LAND USE | GROSS LOT AC. |
|---|---|---|
| A | W.C.C. SUBDIVISION OPEN SPACE | 17.81 |
| B | W.C.C. SUBDIVISION OPEN SPACE | 14.66 |
| C | W.C.C. SUBDIVISION OPEN SPACE | 18.59 |
| D | W.C.C. SUBDIVISION OPEN SPACE | 14.36 |
| E | W.C.C. SUBDIVISION OPEN SPACE | 2.99 |
| F | W.C.C. SUBDIVISION OPEN SPACE | 14.61 |
| G | W.C.C. SUBDIVISION OPEN SPACE | 7.00 |
| J | ROAD REALIGNMENT PARCEL | 0.61 |
| K | WATER RESERVOIR SITE | 3.71 |
| L | ROADWAY | 4.63 |
| M | ROADWAY | 7.49 |
| O | ROADWAY | 1.16 |
| P | ROADWAY | 0.62 |
| Q | ROADWAY | 0.14 |
| R | DEDICATED M.S.H.C.P. OPEN SPACE | 467.97 |
| TOTAL | | 576.59 AC. |

NOTE:
LETTERED LOT H & N - NOT USED

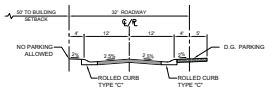
**LAND USE SUMMARY:**

| LAND USE | LOTS | ACREAGE |
|---|---|---|
| WINE VILLAGE ESTATE LOTS & COMMUNITY CENTER | 1 - 21 & 98 | 224.30 |
| WINE COUNTRY CLUSTERED SUBDIVISION | 22 - 97 | 172.40 |
| WINE COUNTRY RESORT | 99 | 126.70 |
| W.C.C. SUBDIVISION OPEN SPACE | A - G | 89.90 |
| NOT USED | H | — |
| ROAD REALIGNMENT PARCEL | J | 0.60 |
| WATER RESERVOIR SITE | K | 3.70 |
| FUTURE ROADWAY | L-Q | 13.60 |
| MSHCP OPEN SPACE | R | 468.03 |
| TOTAL: | | 1099.30 |

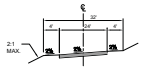
Remaining clustered lot area specifications



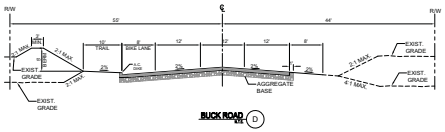
MODIFIED COLLECTOR RURAL RD. N.T.S. (A)



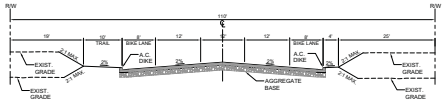
MODIFIED RESIDENTIAL RURAL RD. N.T.S. (B)



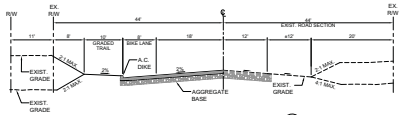
EMERGENCY ACCESS RD. N.T.S. (C)



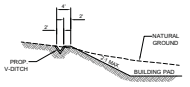
BUCK ROAD N.T.S. (D)



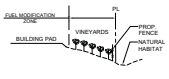
RANCHO CALIFORNIA ROAD N.T.S. (E)



BOREL ROAD & WARREN ROAD N.T.S. (F)



TYPICAL CUT SLOPE PROTECTION N.T.S. (H)



M.S.H.C.P. PERIMETER SECTION N.T.S. (G)

IMPORTANT NOTICE
48 HOURS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT
1-800-227-2600

STEVEN L. ELLIS
R.C.E. No. 47305 expires 12/31/17
DATE

FUSCOE ENGINEERING

| DATE | BY | MARK | REVISIONS | APPR. | DATE |
|---|---|---|---|---|---|
| DESIGNED BY | | | DRAWN BY | CHECKED BY: | |

COUNTY OF RIVERSIDE
APPROVED _____, 20__
BY: _____

IN THE UNINCORPORATED TERRITORY OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA
TENTATIVE TRACT MAP No. 37377
TWELVE OAKS
TEMECULA, CALIFORNIA

PREPARED FOR: STANDARD PORTFOLIO TEMECULA, LLC

SHEET 2 OF 5

## Jeff Kirshberg

**From:** Stephanie Castle <scastlezinn@fuscoe.com>
**Sent:** Wednesday, January 03, 2018 11:38 AM
**To:** Jeff Kirshberg; Jacob Wiley
**Cc:** Steve Ellis; Michele Staples; EPD Andrea Arcilla
**Subject:** RE: Twelve Oaks - WSA Information

Hello Jeff,

Happy New Year to you and your team! We have an estimate of population counts for each phase of the Twelve Oaks Project summarized below. Please let me know if you have any questions.

Population:

- Resort CUP: 3,884 people
- 18 Cottage Inns: 198 people
- 3 Estate Lots: 10 people
- 76 Clustered Lots: 240 people
- **Total = 4,332 people**

For the population over the four phases of the project, see breakdown below:

- Phase 1A and 1B: 3,884 people
- Phase 2: 208 people
- Phase 3A: 120 people
- Phase 3B: 120 people
- Total = 4,332 people

I believe we have satisfied all of your questions/information requests but please let me know if we can provide you with any additional information regarding the Twelve Oaks Project.

Thank you!
Stephanie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**STEPHANIE CASTLE ZINN, WATER RESOURCES SPECIALIST**
scastlezinn@fuscoe.com

**FUSCOE ENGINEERING, INC.**
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949.474.1960 | fuscoe.com

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**From:** Stephanie Castle
**Sent:** Friday, December 8, 2017 4:12 PM
**To:** 'Jeff Kirshberg' <kirshbergj@ranchowater.com>; 'wileyj@ranchowater.com' <wileyj@ranchowater.com>

## Jeff Kirshberg

**From:** Jeremy Krout <jeremy@epdsolutions.com>
**Sent:** Thursday, January 25, 2018 11:16 AM
**To:** Jeff Kirshberg; Stephanie Castle
**Cc:** Michele Staples; Steve Ellis; David DiRienzo; Andrea Arcilla
**Subject:** Update on the Draft Twelve Oaks WSA

Jeff,
The residential vineyards (estate lots plus clustered lots) are now proposed to be about 242.0 acres rather than 206 acres as stated in our water demand memo and in the WSA.

Thank you for your consideration and assistance.

Sincerely,

**Jeremy Krout**
E|P|D Solutions, Inc.

jeremy@epdsolutions.com
949.794.1181 direct
949.751.8993 cell
2030 Main St., Ste. 1200
Irvine, CA 92614
www.epdsolutions.com

**NOTE OUR EMAIL AND WEB ADDRESSES HAVE CHANGED TO: @EPDSOLUTIONS.COM and WWW.EPDSOLUTIONS.COM
OUR PRIOR EMAIL AND WEB ADDRESSES WILL REMAIN ACTIVE.