6 System Supplies

CWC 10631

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

Since its formation in 1955, VWD has received 100 percent of its water supply from the SDCWA, of which it is one of 24 member agencies. SDCWA, in turn, obtains most of its water from the MWD, which obtains its water from the Sacramento-San Joaquin Delta in Northern California via the State Water Project, and from the Colorado River via the Colorado River Aqueduct. VWD is fully aware how uncertain these water supplies have become. VWD's 2007 Integrated Water Resources Plan (IRP) and the 2018 Master Plan analyzed several local water supply alternatives to supplement its existing SDCWA water supply, including seawater desalination, recycled water purchasing, treated water purchases from other agencies, and groundwater feasibility. Starting in 2012, VWD acted on these IRP recommendations and has executed two separate agreements to expand its water supply portfolio.

This section describes VWD's existing and proposed water supply resources. VWD's own wastewater and recycled water systems are also discussed. And finally, this section discusses other local water supply alternatives that VWD's IRP and Master Plan recommended for further study.

6.1 Purchased or Imported Water

As stated in this section's introduction, VWD has traditionally received 100 percent of its water supply from the SDCWA. But starting in 2012, VWD executed two water purchase agreements that, while still technically water purchases, have significantly expanded its water supply portfolio and operational flexibility. These include the commitment to purchase at least 1,140 MG per year of desalinated seawater from the SDCWA and at least 900 MG per year of potable water treatment from the OMWD. All VWD's supply sources are further described below.

6.1.1 SDCWA Description and Supplies

The SDCWA was established pursuant to legislation adopted by the California State Legislature in 1943 to provide a supplemental supply of water as the region's civilian and military population expanded and local resources became insufficient to meet the region's water supply needs. Before 1947, the San Diego region relied on local surface water runoff in normal and wet weather years and on groundwater pumped from local aquifers during dry years when stream flows were reduced. In 1947, water began to be imported from the Colorado River via a single pipeline that connected to MWD's Colorado River Aqueduct.

Since 1950, the SDCWA became more reliant on imported water supplies from MWD to meet the needs of its member agencies. After experiencing severe shortages from MWD during the 1987 to 1992 drought, the SDCWA began aggressively pursuing actions to diversify the region's supply sources. These include the Water Conservation and Transfer

Agreement with the Imperial Irrigation District in 1998, the lining of the All-American and Coachella Canals, and the purchase of a water supply from the Carlsbad Desalination Project.

Imported water supplies are delivered to the SDCWA member agencies through a system of large-diameter pipelines, pumping stations, and reservoirs. The pipelines that deliver supplies from MWD are divided into two aqueduct alignments, both of which originate at Lake Skinner in southern Riverside County and run in a north to south direction through the SDCWA service area. MWD's ownership of these pipelines extends to a "delivery point" 6 miles into San Diego County. From there, Pipelines 1 and 2 comprise the First Aqueduct, which reaches from the delivery point to the San Vicente Reservoir. Pipelines 3, 4, and 5 form the Second Aqueduct, which provides VWD with the majority of its potable water supply.

The SDCWA has also focused on developing local and alternate water supplies.

6.1.2 SDCWA-Imperial Irrigation District Water Conservation and Transfer Agreement

From 1998 to 2003, the SDCWA entered into a series of agreements to obtain a portion of the Imperial Irrigation District's allocation of Colorado River water. The series of agreements resulted in the SDCWA initially receiving 10,000 AFY of water from the Imperial Irrigation District in 2003, with the volume increasing annually until it reaches 200,000 AFY in 2021. In 2015, the SDCWA received 100,000 AF of water. The initial term of the transfer agreement is 45 years, with a provision that either agency may extend the agreement for an additional 30-year term.

More information regarding the project's cost and financing, the Quantification Settlement Agreement, or other related contracts can be found in the Water Supply sections of MWD's 2015 Regional Urban Water Management Plan and SDCWA's 2015 Urban Water Management Plan.

6.1.3 All-American Canal and Coachella Canal Lining Projects

As part of the 2003 Quantification Settlement Agreement, the SDCWA contracted for 77,700 AFY of conserved water from projects that lined portions of the All-American and Coachella Canals. Deliveries of conserved water from the Coachella Canal reached the region in 2007 and deliveries from the All-American Canal reached the region in 2010. The project reduced the loss of water that occurred through seepage, and the conserved water is now delivered to the SDCWA.

The Coachella Canal project constructed a 37-mile-long parallel canal adjacent to the existing Coachella Canal. The lining of the All-American Canal project constructed a concrete-lined canal parallel to the 24 miles of the existing All-American Canal. The combined conserved water from both projects will provide the San Diego region with an additional 8.5 million AF over the 110-year life of the agreement.

The October 10, 2003 exchange agreement between the SDCWA and MWD provides for the delivery of conserved water from the canal lining projects. SDCWA pays MWD applicable wheeling rates. In the exchange agreement, MWD will deliver the canal lining water for the entire 110-year term of the Allocation Agreement.

More information on the cost and financing, contracts, and other information related to All-American Canal and Coachella Canal Lining Projects can be found in the Water Supply sections of MWD's 2015 Regional Urban Water Management Plan and SDCWA's 2015 Urban Water Management Plan.

6.1.4 Carlsbad Seawater Desalination Facility

To continue to diversify its future water resource portfolio and provide a new drought-proof water source, the SDCWA identified seawater desalination as a potential supply for meeting future demands. The Carlsbad Desalination Facility is a fully operational, private desalination plant located at the Encina Power Station site in the City of Carlsbad. The plant was constructed and is owned by Poseidon Resources Corporation. The plant was operational on December 23, 2015.

The Carlsbad Desalination Facility now provides a highly reliable local supply of 18,250 MG per year of potable water supply for the region, available in both normal and dry hydrologic conditions. A 54-inch pipeline conveys product water from the desalination plant 10.5 miles east to the SDCWA's Second Aqueduct. The water is then conveyed 5 miles north to the SDCWA's Twin Oaks Valley Water Treatment Plant facility, where it is blended with treated imported water and subsequently distributed into SDCWA's existing aqueduct system.

More information on cost and financing, contracts, and other information related to the Carlsbad Seawater Desalination Facility can be found in the Section 4 of the SDCWA's 2015 UWMP.

6.1.5 Additional VWD Water Sources

VWD currently obtains 100 percent of its water supply from the SDCWA either directly or indirectly. VWD anticipates relying on the SDCWA for a large portion of its water supply in the foreseeable future.

On August 25, 2015, VWD executed a water purchase agreement with the SDCWA to obtain at least 1,140 MG per year of desalinated seawater. This provides VWD with a drought-proof, high quality potable water supply that also can serve VWD during an emergency outage of the SDCWA aqueduct system. Although desalinated water has these reliability benefits, it is still considered a water purchase from SDCWA.

On November 21, 2012, VWD's Board of Directors authorized the execution of a water purchase agreement with OMWD for the purchase of at least 2,750 AF of treated water per year. The WPA benefits OMWD by allowing their treatment plant to operate more efficiently by reducing unused capacity. VWD benefits by the following:

1. Reduced treatment costs, allowing a partial offset to future increased costs from desalinated water.
2. Increases VWD's water portfolio by adding a supplier and a supply point.
3. Receives water in the south end of the District, avoiding power costs associated with pumping from northern reservoirs.

4. Reduces nitrification issues in the District's southern reservoirs. Less nitrification frees staff and saves on treatment chemical costs. The water will only be a few minutes old instead of days old (from Lake Skinner).
5. Supplies a water source during SDCWA potable aqueduct shutdowns.

OMWD treats raw water from Olivenhain Reservoir, which is owned by the SDCWA. As with the desalinated water agreement, this water purchase agreement with OMWD relies on SDCWA-controlled water sources and thus is also an indirect SDCWA water supply.

6.2 Groundwater

CWC 01631(b)(4)

If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information: the current version of any groundwater management plan adopted by the urban water supplier, a description of any groundwater basin or basins from which the urban water supplier pumps groundwater, a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years, and a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years.

Historically, local groundwater supplies have not been used by VWD due to questionable quantity and relatively poor quality. In 1996, a draft groundwater feasibility analysis was performed for VWD to determine the quantity and quality of groundwater potentially available for use as a local groundwater supply source.

The draft groundwater feasibility analysis determined that the volume of water stored in the fractured bedrock aquifer beneath the VWD service area likely ranges between 97,000 and 389,000 AF. The estimated volume of water stored in the combined alluvium and residuum units likely ranges between 9,700 and 38,600 AF. Groundwater yields for wells would likely be small, averaging about 114 gallons per minute.

Groundwater quality in the aquifer is characterized by moderately high levels of total dissolved solids and occurrences of relatively high concentrations of bicarbonate, sodium, chloride, and nitrate. The groundwater would require treatment prior to introduction into VWD's potable water distribution system.

The 1996 draft groundwater feasibility analysis concluded that the storage capacity of the alluvium and residuum is too small to be considered as a long-term source, although the fractured bedrock aquifer may be considered further as a possible source. However, the expected yields from wells in the VWD service area, combined with the water quality issues that would need to be resolved, would not be likely to produce groundwater at an economically viable rate even in the short-term.

VWD funded an updated groundwater supply alternatives study completed in 2019 for investigating the potential for utilizing the San Marcos Groundwater Basin as a future water supply source. The study determined that a 250 AFY groundwater desalter project may be feasible if costs are less than the cost of purchasing desalinated water through SDCWA and recommended VWD monitor their current supplies until further studies and funding options are evaluated.

6.3 Surface Water

VWD does not draw water from streams, lakes, or reservoirs for use in its potable water distribution system. As mentioned in Section 6.1, VWD currently obtains 100 percent of its water supply from the SDCWA either directly or indirectly. There are no plans for VWD to self-supply surface water as part of its water supply.

6.4 Stormwater

VWD does not divert stormwater for beneficial use within its potable water distribution system. VWD currently obtains 100 percent of its water supply from the SDCWA either directly or indirectly. However, VWD will investigate the integration of stormwater capture as part of a non-potable supply source in its Recycled Water Facilities Plan. This is discussed in further detail in Section 6.8.

6.5 Wastewater and Recycled Water

CWC 10633

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier.

VWD serves a 14,750-acre sewer service area as illustrated in Figure 1-2. This sewer service area can be expanded to the same size as VWD's water service area through annexation of the additional parcels. However, because of its rural nature and land use designations, the Northern Tributary Area is likely to remain on septic systems; therefore, it is not likely to be an area where VWD's wastewater infrastructure will be expanded in the future.

Wastewater collected from the sewer service area is conveyed to either the EWPCF or to the MRF for treatment. MRF is essentially a scalping plant that extracts water for production of recycled water. Wastewater that is not rerouted to MRF flows directly to the EWPCF in the City of Carlsbad for both liquids and solids treatment. MRF does not treat for solids; instead, solids are pumped from MRF to the EWPCF for treatment.

Expansion of MRF was completed in 2008, increasing its recycled water production capacity to 5 MGD. The CMWD and OMWD purchase 4.5 MGD for non-potable purposes, such as landscape irrigation.

Although VWD produces up to 5 MGD of recycled water at MRF, it does not maintain a recycled water service area within its sphere of influence. All the recycled water produced is sold to CMWD and OMWD. Excess recycled water is disposed of through a failsafe pipeline that connects to the ocean outfall at the EWPCF.

Table 6-1 summarizes information on collection of wastewater within VWD's sewer service area.

Table 6-1. Wastewater Collected Within Service Area in 2020

Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area 2020 (MG)	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area?	Is WWTP Operation Contracted to a Third Party? (optional)
Vallecitos Water District	Metered	630	Vallecitos Water District	Meadowlark Water Reclamation Facility	Yes	No
Vallecitos Water District	Metered	1,688	Vallecitos Water District	Encina Water Pollution Control Agency	No	No
Total Wastewater Collected from Service Area in 2020		**2,318**				

As shown in Table 6-1, MRF is located within VWD's sewer service area while the EWPCF is not. MRF is the only wastewater treatment facility within VWD's sewer service area. Table 6-2, below, gives information on MRF's treatment level, 2020 treatment volumes, method of disposal (for that portion of treated water that is not sold as recycled water), and discharge location.

Table 6-2. Wastewater Treatment and Discharge Within Service Area in 2020

Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (optional)	Method of Disposal	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level	2020 Volumes (MG)				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
Meadowlark Water Recycling Facility	Encina Wastewater Authority	Ocean outfall of the Encina Water Pollution Control Facility	9 000000030	Ocean outfall	No	Tertiary	630	112	0	518	
Total							**630**	**112**	**0**	**518**	**0**

Notes: Discharged treated wastewater assumed to be approximately 18 percent of total treated wastewater.

VWD is actively involved in planning for the use of recycled water in the near future. VWD is a member of the NSDWRC and has participated in the production of its Regional Recycled Water Facilities Plan, which investigates expanded recycled water use within the north San Diego County area. The Regional Recycled Water Facilities Plan is intended to assist the North San Diego County water and wastewater agencies in identifying the benefits of regionalization of existing and planned recycled water systems to further maximize the use of recycled water. Regionalization of facilities will allow recycled water to play an even more significant role in meeting the future water needs in the north San Diego County area. The NSDWRC intends to pursue U.S. Bureau of Reclamation Title XVI grant funds for the construction of various recycled water facilities within each of the north county agencies.

The Regional Recycled Water Facilities Plan identified 771 MG per year in potential future recycled water demands within VWD's sphere of influence. Approximately 471 MG per year could potentially be delivered to customers as early as 2025 via short-term expansion projects. Another 300 MG per year could be developed in a more long-term time frame.

Table 6-3 summarizes the potential recycled water demands within VWD's sphere of influence and their beneficial use types.

Table 6-3. Current and Projected Recycled Water Direct Beneficial Uses within Service Area

Name of Agency Producing (Treating) the Recycled Water:	Vallecitos Water District and City of Escondido
Name of Agency Operating the Recycled Water Distribution System:	Vallecitos Water District
Supplemental Water Added in 2020	None
Source of 2020 Supplemental Waters	N/A

Beneficial Use Type	General Description of 2015 Uses	Level of Treatment	Volume of Water (MG)					
			2020	2025	2030	2035	2040	2045
Landscape Irrigation (Excludes Golf Courses)	Currently no recycled water use	Tertiary	0	305	305	305	478	478
Golf Course Irrigation	Currently no recycled water user	Tertiary	0	166	166	166	293	293
Total			**0**	**471**	**471**	**471**	**771**	**771**

VWD does not currently own or operate a recycled water distribution system. Thus, VWD did not deliver or use recycled water within its water service area in 2020 (Table 6-4).

Table 6-4. 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual

Use Type	2015 Projection for 2020 (MG)	2020 Actual Use (MG)
Landscape Irrigation (excludes golf courses)	471	0
Total	**471**	**0**

To offset potable water use, VWD could potentially purchase recycled water from the City of Escondido's Hale Avenue Resource Recovery Facility, an 18.0-MGD treatment facility located in the southwest section of Escondido, and construct facilities to deliver this water to customers within the VWD service area.

Escondido's recycled water distribution system extends to the VWD boundary. Recycled water purchases from Escondido offer the advantage of being a highly reliable supply and immune from the effects of prolonged drought and SDCWA aqueduct shutdowns. Pumping and additional storage may be required to distribute the recycled water within the VWD service area, depending on the location of the customers and volume of recycled water served. Several parks, schools, and golf courses could be served by extending the recycled water system through VWD's service area.

Currently, all of the recycled water produced at MRF is sold to the CMWD and the OMWD. However, VWD has evaluated expanding MRF's capacity and has discovered that the production of an additional 1.5 MGD of recycled water at MRF may be possible with certain equipment and structural upgrades.

Production of recycled water to meet such demands may come from the expansion of the VWD's MRF, purchase of recycled water from the City of Escondido's Hale Avenue Resource Recovery Facility, or both, as shown below in Table 6-5.

Table 6-5. Methods to Expand Future Recycled Water Use

Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use (MG)
North San Diego Water Reclamation Coalition	Regional Recycled Water Facilities Plan – Short-term Demand Projections	2025	471
North San Diego Water Reclamation Coalition	Regional Recycled Water Facilities Plan – Long-term Demand Projections	2035	300
Total			**771**

6.6 Desalinated Water Opportunities

CWC 10621(g)

Describe the opportunities for development of desalinated water…

As stated in Section 6.1, VWD executed a water purchase agreement with the SDCWA on August 25, 2015 to obtain at least 1,140 MG per year of desalinated seawater. This provides VWD with a drought-proof potable water supply that also can serve VWD during an emergency outage of the SDCWA aqueduct system.

This desalinated water source is considered a water purchase from SDCWA and is reported as a water purchase for purposes of this UWMP. There are no other desalinated water opportunities currently being considered by VWD; however, VWD has the option of purchasing up to 2,440 MG per year as a future supply.

6.7 Exchanges or Transfers

CWC 10631(c)

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

VWD has interagency service agreements with OMWD and CMWD through one of its SDCWA connections. This service is provided through an interagency service agreement entitled, "Construction of a Water Transmission and Storage System – Questhaven Pipeline," dated July 1, 1978 and its supplement dated September 1979, in which VWD is designated as the lead agency.

The OMWD capacity is limited per the agreement to 6.47 MGD and the CMWD connection capacity is limited to 8.61 MGD. Potable water quantities delivered to OMWD and CMWD are metered and reported to the SDCWA, and the SDCWA bills the respective agencies directly.

VWD has a total of 16 interagency service connections to neighboring water districts, including the interagency service connections to OMWD and CMWD as previously discussed. The remaining 14 connections are only used under emergency conditions. VWD has emergency connections with the CMWD (1), Vista Irrigation District (9), the City of Escondido (1), Rincon MWD (1), Rainbow Water District (1), and OMWD (1), as shown in Table 6-6 and on Figure 6-1. These connections are limited in their ability to deliver flows and are to be used for short-term outages within VWD or the neighboring agency. Annual water exchanges are typically low volume and cumulatively do not exceed 10 MG per year. With the improved reliability of the regional system following the implementation of the Emergency Supply Project and the delivery of desalinated water to VWD, there are no immediate plans to supplement or increase the capacity of the existing connections.

Table 6-6. Interagency Emergency Connections

Ref ID[1]	Name	Size (in)	Service to:		VWD Pressure Zone	Approx. Capacity (gpm)
			System	Connecting Agency		
3	Melrose/Carlsbad Crosstie	8	VWD	CMWD	815	900
4	Escondido Pump Connection[2]	8	EWD	VWD	920	1,000
5	San Elijo Hills Pump Connection[2]	8	OMWD	VWD	877	2,000
6	Rincon del Diablo Crosstie	8	VWD	Rincon	920	900
7	Rainbow Crosstie[3]	8	VWD	RMWD	900	1,800
8	Rees & El Norte VID Crosstie[4]	8	VWD/VID	VID/VWD	920	450
9	Mulberry Crosstie[2,5]	6	VWD	VID	920	900
10	Stonegate/VID Crosstie	6	VWD	VID	920	450
11	S. Santa Fe Crosstie[2,5]	8	VWD	VID	920	450
12	Capalina Crosstie	8	VWD	VID	920	450
13	Ormsby Crosstie	8	VWD	VID	900	450
14	Nordahl Crosstie	12	VWD	VID	920	N/A
15	Knobhill/Center St Crosstie	N/A	VWD	VID	920	N/A
16	Buena Creek Crosstie	8	VWD	VID	1028	900

Notes:

[1] Reference IDs refer to the locations shown in Figure 5-1.

[2] Connections have only been used during SDCWA shutdowns and require a portable pump and piping to be set up.

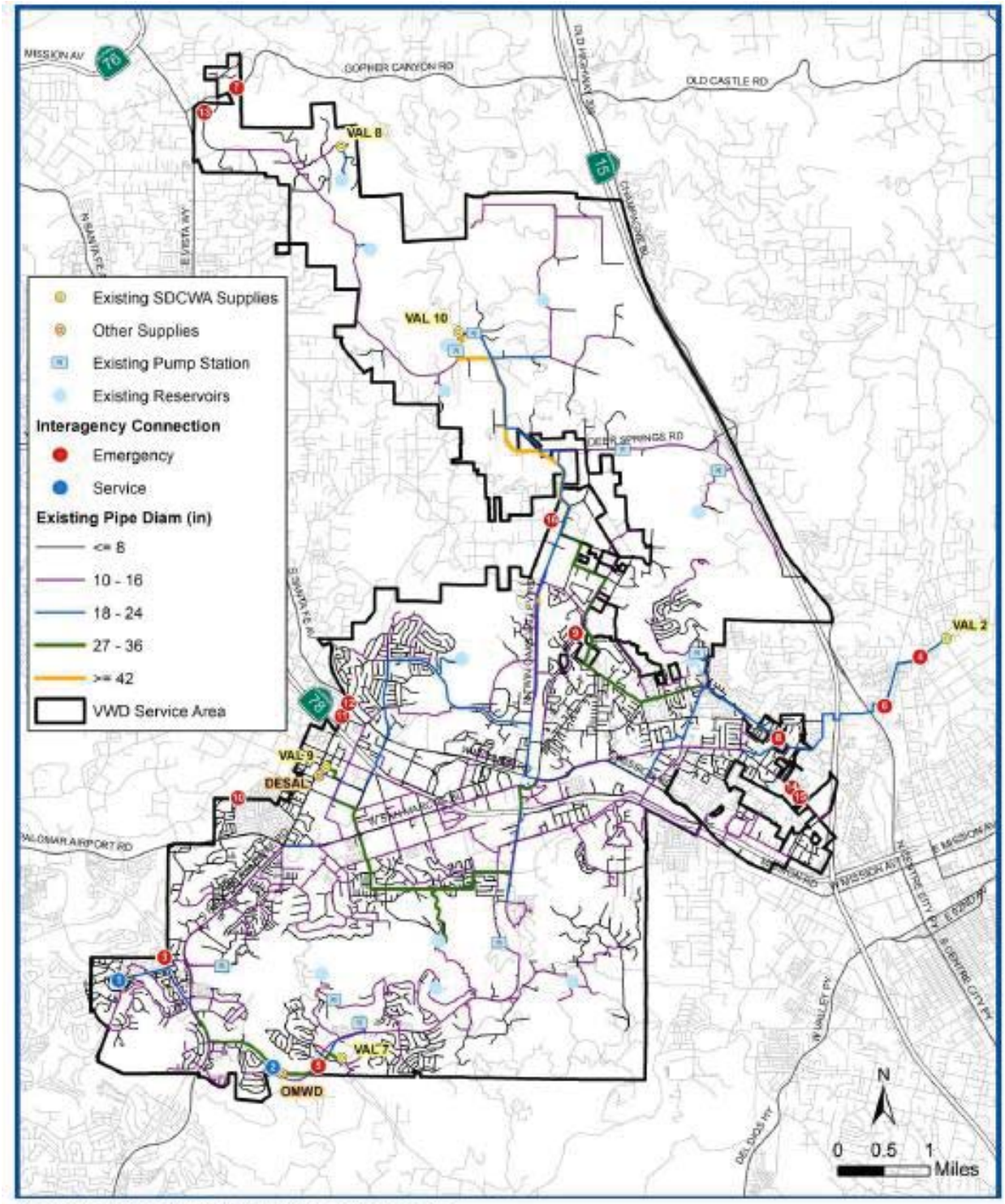
[3] Crosstie would be established with a couple lengths of pipe and a meter but is currently not connected.

[4] VID can supply VWD water using a portable pump. VWD can supply VID water under gravity flow.

[5] Connection also utilized during scheduled VID maintenance.

Source: VWD 2018 Water, Wastewater, and Recycled Water Master Plan

Figure 6-1. Interagency Locations



Note: Refer to Table 5-7 for list of Interagency Connections.

6.8 Future Water Projects

VWD is continuously investigating alternative water supply sources through the following endeavors:

1. VWD's 2007 Integrated Water Resources Plan and 2018 Master Plan identified several water supply alternatives. Two of these alternatives: seawater desalination and treated water purchases from the Olivenhain Water Treatment Plant, have been implemented as discussed in Section 6.1. Other improvements that the studies recommended for further study include:
    - Recycled water purchases from the City of Escondido
    - Expanded transmission capacity from the SDCWA
    - Treated water purchases from the Escondido Vista Water Treatment Plant
    - Treated water purchases from the City of Oceanside's Weese Water Treatment Plant in addition to water conveyed by the SDCWA transmission pipeline
2. VWD is a member of the NSDWRC and has been actively involved in the production of its Regional Recycled Water Facilities Plan, which investigates expanded recycled water use within the north San Diego County area. The Facilities Plan identifies new local and regional recycled water projects that can provide additional recycled water supplies to the member agencies, including VWD.
3. VWD has also updated their Recycled Water Master Plan in 2018 that will investigate recycled water opportunities, which include:
    - Expansion of VWD's wholesale recycled water supplies to adjacent agencies
    - Development of non-potable reuse alternatives, including expansion of VWD's MRF and development of a recycled water distribution system in conjunction with the NSDWRC
    - Potable reuse opportunities by partnering with adjacent agencies
4. As mentioned in Section 6.2, VWD funded an updated groundwater supply alternatives evaluation for investigating the potential for utilizing the San Marcos Groundwater Basin as a future water supply source.
5. The North County One Water Program includes wastewater flows and facilities from two coastal treatment facilities in North San Diego County, the EWPCF and the San Elijo Water Reclamation Facility (SEWRF), represent a unique opportunity for large-scale production of purified water.

    The EWPCF in the City of Carlsbad, California could accommodate an advanced water purification facility that could produce an estimated 17,800 AFY to 22,200 AFY or more of purified water by 2030. The EWPCF has key assets available for production of purified water such as an ocean outfall, available land for advanced treatment, treated secondary effluent and technically capable staff (refer to the Encina Wastewater Authority's [EWA] 2018 Water Reuse Feasibility Study).

    The SEWRF in the Cardiff area within the City of Encinitas, California could also accommodate an advanced water purification facility that could produce an estimated 400 AFY to 3,100 AFY of purified water by 2030. The SEWRF also has key assets

available for production of purified water such as an ocean outfall, available land for advanced treatment, treated secondary effluent and technically capable staff (refer to the 2019 Recycled Water Expansion Plan for Santa Fe Irrigation District, San Dieguito Water District, San Elijo Joint Powers Authority, Olivenhain Municipal Water District, and Leucadia Wastewater District).

The Encina Wastewater Authority (EWA) and San Elijo Joint Powers Authority (SEJPA) have been working with multiple local water agencies to develop the North County One Water Program, building on over a decade of collaborative efforts in the region by the North San Diego Water Reuse Coalition. With the combined flows, the North County One Water Program could supply an estimated 18,000 AFY to 25,000 AFY or more of purified water overall for potable reuse by 2030. VWD is supportive of this future program and benefit from the purchase of 2,200 to 5,500 AFY of purified water.

It is important to note that all the alternatives mentioned above, with the exception of recycled water, are considered concept-phase only, and are not included in VWD's projected water supply programs. The recycled water supply projects currently being considered by VWD as part of the North San Diego County Recycled Water Coalition are described in Section 6.5 and are summarized below in Table 6-7.

Table 6-7. Expected Future Water Supply Projects or Programs

Name of Future Projects of Programs	Joint Project with other Agencies?		Description	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency
Expansion of the Meadowlark Water Recycling Facility	Yes	North County Recycled Water Coalition	Expansion of the treatment plant's capacity from 5 MGD to 6.5 MGD	2030	All Year Types	550 MG per year
Recycled Water from the Hale Avenue Resource Recovery Facility	Yes	North County Recycled Water Coalition	Purchase of Recycled Water from the City of Escondido	2030	All Year Types	40 MG to 771 MG per year
North County One Water Program	Yes	Encina Wastewater Authority and San Elijo Joint Powers Authority	Advanced water purification at the EWPCF and SEWRF	2030	All Year Types	717 MG to 1,792 MG per year

6.9 Summary of Existing and Planned Water Sources

Actual water supplies for VWD in 2020 are summarized below in Table 6-8. Please note that purchases of desalinated seawater from the Claude "Bud" Lewis Carlsbad Desalination Plant are noted as a separate supply but are purchased through SDCWA water supplies.

Table 6-8. Water Supplies – Actual

Water Supply	Additional Detail on Water Supply	2020		
		Actual Volume (MG)	Water Quality	Total Right or Safe Yield
Purchased or Imported Water	From the San Diego County Water Authority	3,722	Drinking Water	N/A
Desalinated Water - Surface Water	As a local water supply owned by VWD through a Water Purchase Agreement with SDCWA	1,113	Drinking Water	N/A
Total		**4,835**		

Projected future water supplies for VWD are summarized below in Table 6-9. SDCWA water supplies are based on their long-range demand forecast. The Reasonably Available Volume from SDCWA is in addition to the 1,140 MG per year of contracted desalinated seawater supply from the Claude "Bud" Lewis Carlsbad Desalination Plant.

Table 6-9. Retail Water Supplies – Projected

Water Supply	Additional Detail on Water Supply	Projected Water Supply (MG)									
		2025		2030		2035		2040		2045 (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Purchased or Imported Water	SDCWA	4,554		4,828		5,042		5,462		6,161	
Desalinated Water – Surface Water	As a local water supply owned by VWD through a water purchase Agreement with SDCWA	1,140		1,140		1,140		1,140		1,140	
Recycled Water	From the Meadowlark Water Recycling Facility and/or City of Escondido	471		471		471		771		771	
Total		6,165		6,439		6,653		7,373		8,072	

6.10 Energy Intensity

CWC 10631.2(a)

In addition to the requirements of Section 10631, an urban water management plan shall include any of the following information that the urban water supplier can readily obtain: an estimate of the amount of energy used to extract or divert water supplies, an estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems, an estimate of the amount of energy used to treat water supplies, an estimate of the amount of energy used to distribute water supplies through its distribution systems, an estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies, an estimate of the amount of energy used to place water into or withdraw from storage, any other energy-related information the urban water supplier deems appropriate.

The Energy Intensity Analysis presented in this 2020 UWMP is reported in terms of kilowatt-hours (kWh) of energy used per MG of water (kWh/MG), and is included in Table 6-10. The information in Table 6-10 represents data from VWD from 2020 for water supply distribution.

Table 6-10. Recommended Energy Intensity – Water Supply Process Approach

Enter Start Date for Reporting Period	1/1/2020	Urban Water Supplier Operational Control							
End Date	12/30/2020								
		Water Management Process						Non-Consequential Hydropower (if applicable)	
		Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (MG)						4,835	**4,835**		**4,835**
Energy Consumed (kWh)						2,343,524	**2,343,524**		**2,343,524**
Energy Intensity (kWh/MG)						**484.7**	**484.7**		**484.7**