TECHNICAL MEMORANDUM
Water Resources and Facilities Planning Department

DATE:	**February 12, 2020**
PREPARED FOR:	**Fallbrook Public Utility District / Rainbow Municipal Water District**
PREPARED BY:	**Eastern Municipal Water District**
SUBJECT:	**Analysis of Eastern Municipal Water District's Water Supply and System Reliability with the Potential Annexation of Fallbrook Public Utility District and Rainbow Municipal Water District**

EXECUTIVE SUMMARY

The Fallbrook Public Utility District (FPUD) and the Rainbow Municipal Water District (RMWD) are retail water suppliers located in the northern-most portion of San Diego County, just south of the City of Temecula, serving primarily agricultural and residential customers. FPUD and RMWD are currently member agencies of the San Diego County Water Authority (SDCWA) and are considering a de-annexation from the SDCWA and an annexation into the Eastern Municipal Water District (EMWD).

FPUD and RMWD are currently being supplied with imported water from the Metropolitan Water District of Southern California's (Metropolitan) Robert A. Skinner Water Treatment Plant via the Metropolitan/San Diego Aqueduct, and would continue to be supplied with the same water by EMWD. The potential de-annexation of FPUD and RMWD from SDCWA is not anticipated to have any significant impacts to regional and local water supply or system reliability and no new supplies would need to be developed or imported. The de-annexation of FPUD and RMWD from the SDCWA would not result in Metropolitan, as a State Water Contractor, increasing its reliance on the Sacramento-San Joaquin Delta (Delta) since FPUD and RMWD would continue to be supplied from Metropolitan's Robert A. Skinner Water Treatment Plant.

The de-annexation of FPUD and RMWD would allow for SDCWA to reduce the amount of imported water it purchases from Metropolitan and EMWD would increase its imported water purchases from Metropolitan the amount equivalent to SDCWA's reduction. **There would be no net increase in imported water to the region.** Under all conditions presented in their respective 2015 Urban Water Management Plans, both SDCWA and EMWD include imported water supplied by Metropolitan as part of their long-term water supply portfolios, thus both remain reliant on imported water supplied by Metropolitan to meet their service area demands. Whether FPUD and RMWD are part of SDCWA or EMWD would not change SDCWA and EMWD's combined demand for imported water from Metropolitan.

FPUD and RMWD would remain dependent on the reliability and availability of Metropolitan supplies. Metropolitan has made substantial investments in large scale regional projects, local supply development, and conservation, to sustain Metropolitan's ability to provide "adequate and reliable supplies of high-quality water to meet present and future needs."

Through Metropolitan's adaptive management approach and integrated resources planning, Metropolitan is able to balance regional water supply sources, storage assets, and demand management to handle a wide range of water supply scenarios, including single year, and multi-year drought conditions and interruption in local supplies. However, Metropolitan acknowledges that severe hydrologic conditions may require the implementation of their Water Supply

Allocation Plan (WSAP), which determines how member agencies would have their supplies from Metropolitan allocated during declared shortages.

It is important to note that under the WSAP, **Metropolitan does not physically limit member agency purchases**, but instead, incentivizes demand management through rate surcharges that apply to purchases above an agency's calculated allocation. In addition, the WSAP calculates allocations based on each member agency's service area as a whole. Historically, EMWD has elected to divide Metropolitan's allocation amongst its retail agencies using the WSAP as a guide. This means that even if a particular retail agency were to exceed its portion of the allocation, as long as the region as a whole does not exceed the Metropolitan allocation, the retail agency that exceeded its portion of the allocation, would not be assessed a surcharge.

EMWD has evaluated how the annexation of FPUD and RMWD would impact its water supply portfolio in an allocation year under three planning scenarios: 2015, at the height of the statewide drought restrictions; 2019, under current day conditions; and 2035, as an evaluation of long-term conditions. This analysis examined how much of EMWD's regional demands could be met without requiring customers to pay Metropolitan's allocation surcharge under the WSAP Regional Shortage Levels of 1, 3, and 5.

The WSAP has 10 Regional Shortage Levels, but since its adoption in 2008, Metropolitan has never declared a shortage level more severe than Regional Shortage Level 3 (which was adopted during the 2014 – 2016 drought emergency). It is also reasonable to assume that should a Level 3 or Level 5 Regional Shortage be implemented, Metropolitan member agencies would initiate various levels of their Water Shortage Contingency Plans that are required by the California Water Code 10632.

Table ES-1 shows the percent of available water supply compared to EMWD's service area demands both with and without the additional FPUD and RMWD demands for each of the three planning scenarios under the different WSAP Regional Shortage Levels. Based on this analysis, EMWD has a regional buffer of up to 22 percent with the addition of FPUD and RMWD. Therefore, under all of the evaluated conditions, based on actual achieved levels of conservation (or projected conservation levels with respect to the 2035 scenario), adequate supplies existed such that no single EMWD retail agency, including RMWD and FPUD, would be subject to the Metropolitan allocation surcharge even at a WSAP Regional Shortage Level 5.

Table ES-1: Wholesaler Supply Availability Under WSAP Without Paying MWD Allocation Surcharges (% of Projected Demand Served)

Scenario	Service Area	Available Water Supply vs. Demand during WSAP Regional Shortage		
		Level 1	Level 3	Level 5
2015 Drought Conditions	Current EMWD Service Area	126.2%	116.3%	106.3%
	With FPUD/RMWD Annexation	*122.4%*	*112.1%*	*101.8%*
Current Day 2019 Conditions	Current EMWD Service Area	122.3%	112.3%	102.4%
	With FPUD/RMWD Annexation	*122.7%*	*112.1%*	*101.6%*
Projected 2035 Conditions[a]	Current EMWD Service Area	104.5%	108.1%	105.9%
	With FPUD/RMWD Annexation	*103.1%*	*106.0%*	*103.1%*

(a) 2035 scenario assumes that implementation of water supplier Water Shortage Contingency Plans result in 10 percent conservation in a Level 3 Regional Shortage, and 15 percent conservation in a Level 5 Regional Shortage

Sufficient water to meet demands would be fully available for FPUD and RMWD if their service is provided by EMWD. Furthermore, the WSAP considers all full service MWD demands and does not differentiate between water supply end uses. Therefore, agricultural demands being served by EMWD would experience the same level of reliability as the overall regional demands.

EMWD has also made substantial investments in local projects, and similar to Metropolitan, is able to balance its local and imported supplies to meet wholesale and retail demands. Even during 2015, when Metropolitan initiated the Regional Shortage Level 3, EMWD had additional water available above EMWD's service area demands and therefore would have been able to accommodate FPUD and RMWD's demands above their Metropolitan allocation without being subject to any surcharges.

Based on the analysis EMWD performed, FPUD and RMWD are forecasted to experience 100 percent water supply reliability as part of EMWD under current and future conditions and under various water supply allocation scenarios. FPUD and RMWD would also receive the same system reliability as they do currently under SDCWA since the same infrastructure would be used to treat and convey the water into their respective service areas.

INTRODUCTION

The Fallbrook Public Utility District (FPUD) and the Rainbow Municipal Water District (RMWD) are retail water suppliers located in the northern-most portion of San Diego County, just south of the City of Temecula, serving primarily customers in the agricultural and residential sectors. FPUD and RMWD are currently member agencies of the San Diego County Water Authority (SDCWA), a wholesaler that sources its water supplies from a portfolio that includes imported water from the Metropolitan Water District of Southern California (Metropolitan), water purchased/transferred from the Imperial Irrigation District (IID), and a purchase agreement for water produced by the Carlsbad Desalination Plant. All of RMWD's demands are currently being supplied by water purchased from the SDCWA. The majority of FPUD's demands are also

currently being supplied by water purchased from the SDCWA, with a small portion of FPUD's demands being supplied by a single groundwater well.

FPUD and RMWD are considering a de-annexation from the SDCWA and annexing into the Eastern Municipal Water District (EMWD). EMWD is also a member agency of Metropolitan and provides retail and wholesale water service to an approximately 555 square mile area in western Riverside County. In addition to imported water purchased from Metropolitan, EMWD's water supply portfolio includes potable groundwater, desalinated groundwater, and recycled water.

FPUD and RMWD are evaluating water supply and system reliability as well as potential financial impacts associated with remaining a part of SDCWA compared to becoming a member agency of EMWD. This Technical Memorandum (TM) compares the water supply reliability for FPUD and RMWD if they remain a member of SDCWA or became a member agency of EMWD.

The TM includes the following sections:

- System Descriptions – This section describes SDCWA, EMWD, and Metropolitan's water supply and delivery systems as they relate to delivering water to FPUD and RMWD.
- Comparison of Wholesaler Water Supply Portfolios – This section details SDCWA and EMWD water supply portfolios.
- Water Supply and System Reliability – This section discusses the potential water supply and system reliability impacts of the FPUD and RMWD de-annexation from SDCWA at a regional level.
- Water Supply Impact of a FPUD/RMWD Annexation – This section presents a detailed case study that evaluates a variety of dry year scenarios and how EMWD may be able to mitigate the impacts of a Metropolitan allocation.
- Operational Impact of Detachment/Annexation – In this section, potential operational impacts are discussed.

SYSTEM DESCRIPTIONS

SAN DIEGO COUNTY WATER AUTHORITY

SDCWA is a water wholesaler located in the western portion of San Diego County, covering just under 1,500 square miles. SDCWA has 24 member agencies, consisting of six cities, five water districts, eight municipal water districts, three irrigation districts, a public utility district, and a federal military reservation. Many of SDCWA's member agencies have developed their own local water supplies ranging from groundwater, surface water, recycled water, and brackish groundwater recovery. The SDCWA's supplies consist of purchases from Metropolitan, water transfers from the IID, and desalinated ocean water from the Carlsbad Desalination Plant.

SDCWA receives imported water from Metropolitan via the San Diego Aqueduct, a series of pipelines that originate from Metropolitan's Robert A. Skinner Water Treatment Plant and the adjacent Lake Skinner. The pipelines are operated by Metropolitan to a delivery point six miles south of the Riverside/San Diego County boundary. In their 2015 Urban Water Management Plan (UWMP), SDCWA reported that it purchased close to 250,000 AF of water from Metropolitan in 2015, but projected that quantity to decrease to approximately 136,000 AF in

2020 due to member agencies increasing their local supplies via investments in water recycling, potable reuse, and brackish groundwater recovery. SDCWA projects the amount of imported water purchased from Metropolitan to return to 2015 levels by 2040.

With respect to FPUD and RMWD's supply from SDCWA, essentially all of their imported water deliveries come from the Robert A. Skinner Water Treatment Plant, and the majority of that quantity is delivered from the portion of the San Diego Aqueduct operated by Metropolitan.

EASTERN MUNICIPAL WATER DISTRICT

EMWD is a retail and wholesale water supplier located in western Riverside County with a service area of roughly 555 square miles that includes seven cities and several smaller water agencies. EMWD is a member agency of Metropolitan, and purchases both treated and raw imported water to supply its customers. For retail and wholesale service, treated water purchases are delivered from either Metropolitan's Henry J. Mills Water Treatment Plant or Robert A. Skinner Water Treatment Plant. Retail raw water purchases are delivered from a number of connections either directly to agricultural customers or for treatment at one of the two water filtration plants owned and operated by EMWD. EMWD's raw water system is also used to wholesale water to sub-agencies.

Local resources make up a significant portion of EMWD's water supply portfolio. In the eastern (Hemet/San Jacinto) and northern portion (Moreno Valley) of its service area, EMWD operates a number of potable groundwater wells. The groundwater in the Hemet/San Jacinto area is adjudicated under the Hemet-San Jacinto Watermaster (HSJWM), and EMWD possesses an adjusted base production right to pump from this region of the groundwater basin. In addition, EMWD owns and operates two desalination facilities (with a third under construction) that provide a potable supply from a region of brackish groundwater located in the western portion (Perris Valley) of its service area. EMWD also utilizes all of the wastewater treated at its four Regional Water Reclamation Facilities (RWRFs).

In the event of an imported water supply disruption, EMWD does maintain the ability to temporarily increase its supply available from local sources by pumping from groundwater in storage in the Hemet/San Jacinto Basin. EMWD has accumulated carry over credits with the HSJWM from the unused portion of the Soboba Settlement Water Recharge, unused adjusted base production right credits, pumping credits purchased from other entities in the region, and groundwater stored as a result of participation in Metropolitan's cyclic storage program.

EMWD's wholesale customers have a number of their own local supplies consisting primarily of groundwater, surface water, and recycled water.

For calendar year 2018, approximately 52 percent of EMWD's retail demand was met with local water supplies, while the remaining 48 percent was met via imported water. Roughly 95 percent of wholesale customer demands in 2018 were met via imported water, with the remainder being supplied with recycled water.

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Metropolitan imports water from the Colorado River (via the Colorado River Aqueduct) and Northern California (via the State Water Project). Water from these sources is stored in three major reservoirs with a combined capacity of over 1 million acre-feet, all located within Riverside

County as well as six smaller reservoirs with a combined capacity of approximately 32,000 acre-feet at various locations within the Los Angeles, Orange, and San Bernardino Counties. Imported water is treated at one of five water treatment plants located throughout Metropolitan's service area with a combined capacity of roughly 2.36 billion gallons per day.

In addition to its imported water supplies, Metropolitan has developed and/or supported a variety of storage, transfer, local supply, and educational programs aimed at increasing its overall supply reliability.

For example, Metropolitan has engaged with a number of Central Valley agricultural districts and other Southern California State Water Project contractors and formed partnerships that allow Metropolitan to store its share of State Water Project supplies during wet years for use during dry years. Similarly, Metropolitan incentivizes member agencies to store local resources (such as groundwater) during wet years by offering credits to purchase additional imported water through its cyclic storage programs. Metropolitan also supports the development of local resources within its service area through financial incentives for local agencies to develop supplies that include water recycling, groundwater recovery, and seawater desalination.

In addition, Metropolitan continues to make significant investments in conservation, public outreach, and education programs that reduce demand within its service area. These include programs such as rebates for high efficiency fixtures and turf replacement.

Finally, Metropolitan has made sizeable investments in its ability to store water. Two of Metropolitan's major reservoirs are located within EMWD boundaries: Diamond Valley Lake, which was completed in March of 2000 and has a capacity of approximately 810,000 acre-feet (roughly doubling the region's water storage capacity), serves as a lynchpin of Metropolitan's ability to serve the Southern California region's drought and emergency water supply needs for a period of up to six months; and Lake Skinner, which has a capacity of approximately 44,000 acre-feet. Metropolitan's water treatment plants in the area include the Henry J. Mills treatment plant, which provides roughly 220 million gallons per day to EMWD and the Western Municipal Water District, and the Robert A. Skinner treatment plant (fed by Lake Skinner), which has a supply capacity of 350 million gallons per day, and provides supplies to a number of agencies including EMWD, EMWD's wholesale customers, and both FPUD and RMWD.

The general locations of these facilities are shown in Figure 1.

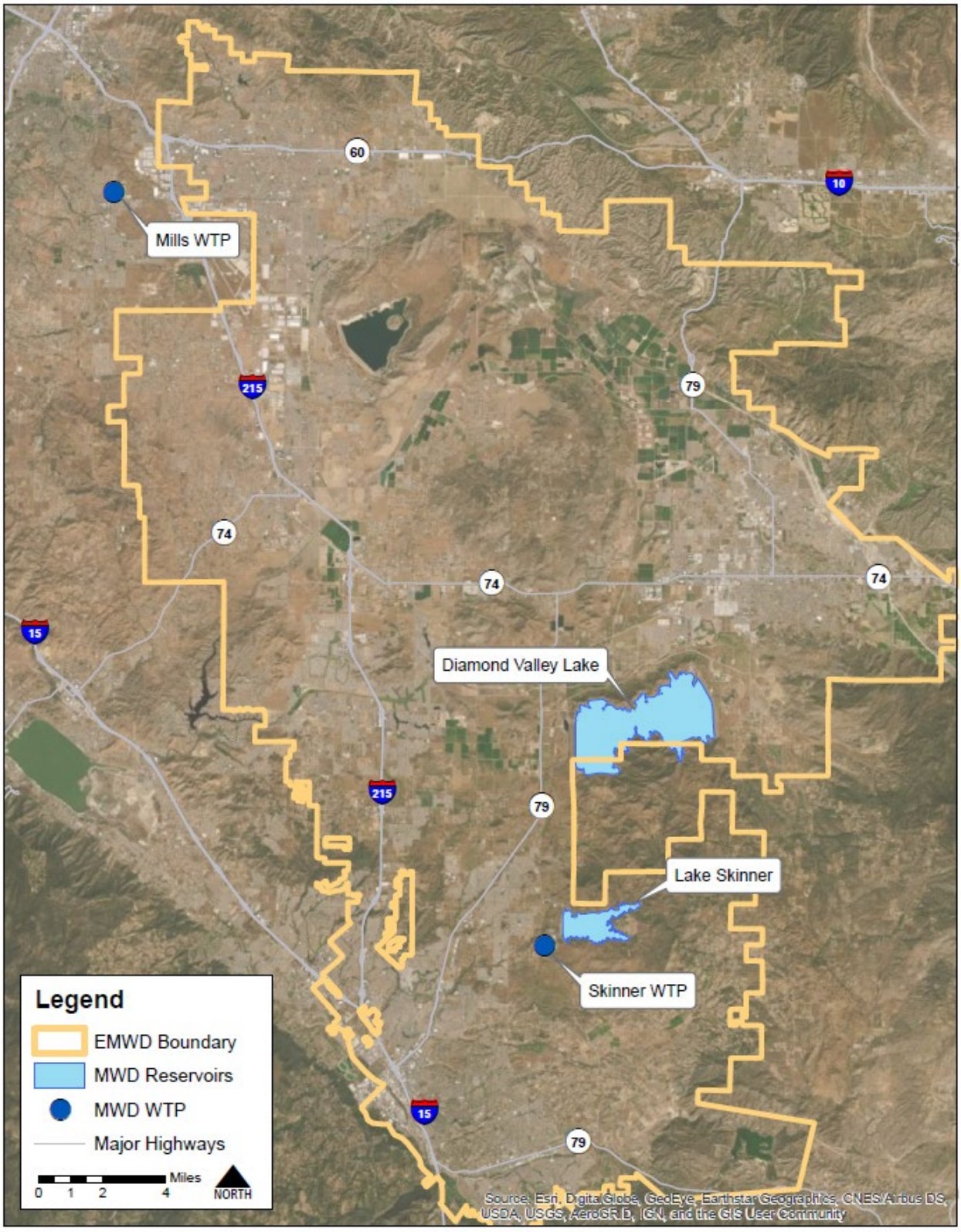

Figure 1: Major Metropolitan Facilities in the Vicinity of EMWD's Service Area

COMPARISON OF WHOLESALE WATER SUPPLY PORTFOLIOS

Details of the SDCWA and EMWD water supply portfolios are presented below. Information is taken from their respective 2015 UWMPs, with some updates made based on available information regarding local supply projects. In all cases, new local supply projects not reported in the 2015 UWMP were assumed to reduce the respective agency's reliance on water purchased from Metropolitan.

SAN DIEGO COUNTY WATER AUTHORITY

	2020	2025	2030	2035	2040
Water Authority Supplies					
IID Water Transfer	190,000	200,000	200,000	200,000	200,000
ACC and CC Lining Projects	80,200	80,200	80,200	80,200	80,200
Carlsbad Desalination Plant	50,000	50,000	50,000	50,000	50,000
Sub-Total	**320,200**	**330,200**	**330,200**	**330,200**	**330,200**
Member Agency Supplies (Verifiable Supplies)					
Surface Water	51,580	51,480	51,380	51,280	51,180
Water Recycling	40,459	43,674	45,758	46,118	46,858
San Diego Pure Water(1)	0	33,600	33,600	83,000	83,000
East County Adv. Purification	0	12,900	12,900	12,900	12,900
Seawater Desalination	6,000	6,000	6,000	6,000	6,000
Potable Reuse	3,300	3,300	3,300	3,300	3,300
Brackish GW Recovery	12,100	12,500	12,500	12,500	12,500
Groundwater	17,940	19,130	20,170	20,170	20,170
Sub-Total	**131,379**	**182,584**	**185,608**	**245,268**	**245,908**
Metropolitan Water District Supplies					
Imported Water(2)	136,002	135,340	160,913	128,963	152,665
Total Projected Supplies	**587,581**	**648,124**	**676,721**	**694,431**	**718,773**

(1) Assume Phases 2 and 3 of San Diego Pure Water both are not online until 2035

(2) SDCWA's 2015 UWMP did not include supplies available from the San Diego Pure Water and East County Advanced Purification projects. These new supplies are assumed to offset SDCWA purchases of imported water from Metropolitan.

Based on 2015 UWMP information (updated to include San Diego Pure Water and East County Advanced Purification), the portion of SDCWA's supply portfolio (when including member agency supplies) reliant on Metropolitan ranges from 19 percent (2035) to 24 percent (2030) over the next 20 years. Based on a weighted average over this period, roughly 21 percent of SDCWA's supply portfolio consists of purchases from Metropolitan.

EASTERN MUNICIPAL WATER DISTRICT

	2020	2025	2030	2035	2040
EMWD Supplies					
Groundwater*	12,303	12,303	12,303	12,303	12,303
Brackish Desalination	7,000	13,000	13,000	13,000	13,000
Perris North CPRP (GW)	0	6,700	6,700	6,700	6,700
Purified Water Replenishment	0	4,000	4,000	15,000	15,000
Recycled Water - Retail	45,245	48,334	50,017	51,800	53,300
Recycled Water - Wholesale	1,656	4,766	5,183	5,600	5,600
Subtotal	**66,204**	**89,103**	**91,203**	**104,403**	**105,903**
Sub-Agency Supplies					
Groundwater	51,998	62,948	70,393	71,120	71,826
Surface Water	290	4,500	4,500	4,500	4,500
Recycled Water	4,036	5,099	7,248	8,527	8,598
Subtotal	**56,324**	**72,547**	**82,141**	**84,147**	**84,924**
Metropolitan Water District Supplies					
Imported Water - Retail	81,197	78,397	89,797	89,897	100,397
Imported Water - Wholesale	50,500	54,100	57,700	61,200	64,800
Subtotal	**131,697**	**132,497**	**147,497**	**151,097**	**165,197**
Total Projected Supplies	**254,225**	**294,147**	**320,841**	**339,647**	**356,024**

*EMWD may elect to pump more groundwater than indicated based on availability of carry-over credits and water accumulated under the cyclic storage program

Based on 2015 UWMP information (updated to include current supply project timelines for EMWD), the portion of EMWD's supply portfolio (when including sub-agencies) reliant on Metropolitan ranges from 44 percent (2035) to 52 percent (2020) over the next 20 years. Based on a weighted average over this period, roughly 47 percent of EMWD's supply portfolio consists of purchases from Metropolitan.

IMPACT OF DETACHMENT/ANNEXATION ON WATER SUPPLY PORTFOLIOS

Based on their 2015 UWMPs, RMWD projects water demands of approximately 20,810 AF in 2020 and 20,660 AF in 2040, while FPUD projects water demands of approximately 12,319 AF in 2020 and 14,247 AF in 2040. If FPUD and RMWD were to de-annex from SDCWA, these quantities of imported water demand would be reduced from SDCWA's total and added to EMWD's total.

WATER SUPPLY AND SYSTEM RELIABILITY

The potential de-annexation of FPUD and RMWD from SDCWA is not anticipated to have any significant impacts to regional and local water supply and system reliability. FPUD and RMWD are currently being supplied with imported water from Metropolitan's Robert A. Skinner Water Treatment Plant via the Metropolitan/San Diego Aqueduct, and would continue to be supplied

with the same water by EMWD. FPUD and RMWD would remain dependent on the reliability and availability of Metropolitan supplies.

REGIONAL RELIABILITY – METROPOLITAN

Metropolitan remains fully committed to maintaining its current high level of service and reliability to its member agencies in varying hydrologic conditions. After the drought of 1987-1992, Metropolitan recognized the need to develop a long-term water resources strategy to reliably meet the needs of its service area. The result was an adaptive water management approach that allows Metropolitan to make continual refinements and investments in its robust regional supply portfolio, local project incentives, and conservation, which are reflected in Metropolitan's Integrated Resources Plan (IRP). The IRP is updated every 5 years, with the next update to be completed in 2020.

As with previous IRP updates, Metropolitan will re-assess the future supplies from the State Water Project and the Delta. Prior updates have resulted in Metropolitan adapting to court litigation, tighter future regulations in connection with the twin-tunnel California WaterFix approach, and will again be re-aligned with respect to the new, single-tunnel approach to Delta Conveyance. As EMWD and SDCWA are both member agencies of Metropolitan, whether FPUD and RMWD are served by EMWD or SDCWA would have a net zero impact on the Delta when considered from a regional perspective. Since FPUD and RMWD's imported water needs are currently being met with water from Metropolitan's Robert A. Skinner Water Treatment Plant, the existing condition would essentially be maintained under EMWD management and no new supplies would need to be developed or imported. The de-annexation of FPUD and RMWD from the SDCWA will not result in Metropolitan, as a State Water Contractor, to increase its reliance on the Delta as the same water currently being delivered via SDCWA would be delivered via EMWD.

Metropolitan's integrated resources planning process also identified the need to drastically increase storage capacity in anticipation of regional drought and similar local shortages, an example being Diamond Valley Lake, which secures up to six months in emergency supplies for the region.

Other opportunities identified by Metropolitan's adaptive management approach include groundwater storage programs such as cyclic storage programs, which incentivize water suppliers to import additional water in-lieu of pumping groundwater during wet years.

Metropolitan also has the capacity to provide additional imported water to agencies that have lost access to local supplies for extended periods of time. Examples include Santa Monica due to Methyl tert-butyl ether groundwater contamination, volatile organic compounds in the City of Los Angeles, environmental restrictions in the Owens Valley, and most recently, per- and poly-fluoroalkyl substances (PFAS) in Orange County.

Metropolitan has continued to encourage regional investment in local supplies and conservation by its member agencies through its Local Resource Program, Cyclic Storage Program, and ongoing conservation program funding. To date, Metropolitan has invested approximately $800 million in conservation, $470 million in recycling, and $160 million in groundwater recovery. These investments by Metropolitan's various member agencies improve the reliability of the Metropolitan region as a whole, including EMWD and SDCWA.

Metropolitan has also planned for its potential contribution to the Colorado River Drought Contingency Plan (DCP) and does not expect its supplies to be curtailed under the DCP. The unused 2018 water coupled with wetter than expected hydrology in the Colorado River Basin in 2019 has resulted in over 1 million acre-feet of water stored by Metropolitan in Lake Mead, which can be used as Metropolitan's contribution to the DCP without impacting Metropolitan's supplies should hydrologic conditions warrant reductions in agency withdrawals.

In the short term, Metropolitan's reliability will also benefit from regional growth occurring at a slower pace than anticipated over the last several planning cycles. Both Metropolitan and its member agencies have continued to make improvements to their respective water supply portfolios during this period, and accordingly, until the Southern California region hits another high growth cycle, an additional margin of supply reliability will have been added.

These programs, investments, and on-going response to changing demands have improved Metropolitan's reliability and will allow Metropolitan to maintain its historic high level of service to its member agencies in both the short and long term future.

WATER SUPPLY ALLOCATION PLAN (WSAP)

In the event that severe hydrologic conditions impact Metropolitan's supply sources, the Water Supply Allocation Plan (WSAP) calculates how member agencies, including SDCWA and EMWD, would have their supplies from Metropolitan allocated.

When implementing the WSAP, Metropolitan aims to capture each member agency's supplies and demands using a historical base period that reflects non-drought conditions. Each member agency's base period demands are adjusted for factors such as growth. The quantity of adjusted demand that would not be met by a member agency's allocation year local supplies is considered the agency's wholesale demand on Metropolitan's supply sources. Each successive regional shortage level of the WSAP encourages demand management by reducing the amount of a member agency's wholesale demand that is not subject to an allocation surcharge. The WSAP would not limit the amount of water that is actually purchased by a member agency.

Since some member agencies rely more heavily on Metropolitan's imported water supplies than others, the WSAP includes a Retail Impact Adjustment to ensure that agencies do not see any undue shortages (relative to other member agencies) during an allocation year. This adjustment is prorated on a linear scale based on each member agency's dependence on Metropolitan.

The WSAP also includes a provision for member agency investment in an "extraordinary supply" which would only be in use during a Metropolitan allocation year. When calculating a member agency's allocation year wholesale demand, extraordinary supplies are only partially included (scaled based on regional shortage level) with the member agency's total local supply. As a result, member agencies may be able to partially offset supply reductions imposed by Metropolitan under the WSAP.

A detailed example of how Metropolitan would calculate a member agency's allocation is available in Appendix G of Metropolitan's WSAP document (December 2014 Revision). The minimum percentage of base wholesale demands that Metropolitan will allocate under each Regional Shortage Level is shown below in Table 1.

Table 1: WSAP Shortage Levels

Regional Shortage Level	Wholesale Minimum Percentage	Maximum Retail Impact Adjustment Percentage
1	92.5%	2.5%
2	85.0%	5.0%
3	**77.5%**	**7.5%**
4	70.0%	10.0%
5	62.5%	12.5%
6	55.0%	15.0%
7	47.5%	17.5%
8	40.0%	20.0%
9	32.5%	22.5%
10	25.0%	25.0%

*Regional shortage level 3 has not been exceeded by Metropolitan since the adoption of the WSAP in February 2008

LOCAL IMPLEMENTATION OF THE WSAP

A number of Metropolitan's member agencies, including EMWD, serve both retail and wholesale customers (sub-agencies). In these cases, Metropolitan's WSAP does not set individual allocations for sub-agencies, and instead considers the supplies and demands of member agencies as a whole, inclusive of both retail and wholesale service. The member agency would then locally administer the distribution of allocated water amongst individual sub-agencies and if necessary, assess surcharges to cover costs incurred by sub-agencies exceeding their allocation.

Historically, EMWD has elected to use Metropolitan's WSAP formula to determine each sub-agency's initial share of Metropolitan's allocation. However, since Metropolitan only evaluates demands from EMWD in aggregate (without accounting for whether the demands come from EMWD retail customers or specific wholesale customers), this provides an opportunity to mitigate the impact of the WSAP for sub-agencies that are unable to sufficiently reduce demands.

In the event that a sub-agency uses water above their portion of the allocation, EMWD would not assess a surcharge on the sub-agency as long as EMWD as a whole does not exceed its overall Metropolitan allocation. However, should EMWD as a whole exceed its overall allocation, EMWD would pass through any surcharges levied by Metropolitan based on a sub-agency's usage.

For example, if sub-agency "A" were to exceed their portion of the allocation by 50 AF, but sub-agencies "B" and "C" each were under their portion by 25 AF (and EMWD's retail service area, along with all other sub-agencies use exactly their share of the allocation), EMWD would not assess a fee on sub-agency "A".

However, if sub-agency "A" is the only sub-agency to exceed their portion of the allocation (with EMWD's retail service area and all other sub-agencies using their exact share of the overall allocation), then sub-agency "A" would be charged the full allocation surcharge incurred by EMWD.

IMPACT OF WSAP

Under the WSAP's 2014 revision, in the event of an allocation year, agencies would be subject to a surcharge of $1,480 per acre-foot for water use between 100 percent and 115 percent of their allocated imported water supply, or a surcharge of $2,960 per acre-foot for water use over 115percent of their annual allocation. Metropolitan does not physically limit the amount of water available to a member agency at any Regional Shortage Level of its WSAP.

EMWD expects to be able to alleviate impacts of a Metropolitan allocation through several extraordinary supply projects that are currently under development. EMWD is a participant in the Santa Ana River Conservation and Conjunctive Use Program (SARCCUP), which is a watershed scale program involving five partner agencies (EMWD, Inland Empire Utilities Agency, Orange County Water District, San Bernardino Valley Municipal Water District, and Western Municipal Water District) of which a major component involves the recharge and storage of surface water in local groundwater basins during wet years. Beyond SARCCUP, EMWD is also pursuing its Enhanced Recharge and Recovery Program (ERRP), which would give EMWD an additional resource for wet year storage.

EMWD currently projects 6,500 acre-feet of extraordinary (dry year) supply from SARCCUP and up to 23,500 acre-feet of dry year supply available upon the completion of all phases of ERRP. The availability of these supplies would mitigate cutbacks that EMWD would otherwise experience under the WSAP.

In addition to the forthcoming availability of extraordinary supplies, EMWD is also able to mitigate the impact of cutbacks under the WSAP directly as a retail agency via demand management measures such as increased conservation messaging and adjusting customer water budgets through EMWD's Water Shortage Contingency Plan. During the recent drought emergency, EMWD was able to reduce retail demands by approximately 20 percent, which was significantly greater than the required reduction under the WSAP. This potential demand management could allow wholesale agencies to take a greater proportion of Metropolitan's supply allocation if needed.

WATER SUPPLY IMPACT OF A FPUD/RMWD ANNEXATION

To quantify how the annexation of FPUD and RMWD would impact dry year supplies under a Metropolitan allocation, EMWD has prepared an analysis of how the WSAP would have been applied to EMWD under 3 planning horizons: calendar year 2015 (at the height of the statewide drought restrictions), calendar year 2019 (to reflect present day conditions), and calendar year 2035 (to reflect long term/future conditions).

SCENARIO 1: 2015 DROUGHT CONDITIONS

The first scenario considered by this analysis examines how EMWD's customers, along with FPUD and RMWD, would have fared during the severe drought conditions that resulted in the 2014 – 2016 emergency conservation order issued by Governor Brown.

The calculations for this scenario utilize the following assumptions and methodologies:

1. The base period used to calculate Metropolitan's allocation is calendar year 2013 and 2014 – this is similar to the base period used by Metropolitan during the drought conditions (Metropolitan calculated using fiscal year data).
2. FPUD and RWMD are assumed to be 100 percent reliant on imported water, and their base period demands were assumed to be equivalent to the 2013 totals reported to the State Water Resources Control Board under the emergency conservation regulation.
3. The growth adjustment for each agency was based on population estimates generated by the California Department of Finance. Since the base period was 2013-2014, the growth rate was calculated as the growth from the 2013-2014 average population value to the 2015 population value.
4. Allocation year local supplies were assumed to be equal to actual local supply usage in calendar year 2015 in most cases.
5. No adjustments documented in the WSAP for conservation demand hardening or low per-capita use were assumed to be available.
6. No extraordinary supplies were considered.
7. The calculated supplies available (before reaching Metropolitan's allocation surcharge) was compared against each agency's actual usage in calendar year 2015.

The initial evaluation of these conditions took place assuming that Regional Shortage Level 1 of the WSAP is in effect. In this case, due to effective demand management measures taken by water suppliers during the drought, demand was reduced to such a significant degree below the WSAP baseline such that there would have been no need for any supplier within EMWD's service area to purchase water subject to Metropolitan's allocation surcharge. This remains the case even if FPUD and RMWD had been part of EMWD's service area at the time. The results are shown below in Table 2.

Table 2: Supplies Available Under WSAP Allocation, Shortage Level 1 (Values in Acre-Feet)

Service Area	Total Potable Demand	Local Potable Supply	Est. MWD Allocation	Est. Supply Available (w/o Surcharge)	% Demand Supplied (w/o Surcharge)
EMWD Retail Service Area	75,912	21,858	66,359	88,216	116.2%
City of Hemet	3,768	3,768	1,065	4,833	128.3%
City of Perris	2,201	659	1,872	2,531	115.0%
City of San Jacinto	2,271	2,271	602	2,873	126.5%
Lake Hemet MWD	13,999	9,689	6,589	16,278	116.3%
Murrieta County WD	727	0	1,331	1,331	183.0%
Nuevo Water Company	1,069	822	416	1,238	115.8%
Rancho California WD	33,675	23,088	28,379	51,467	152.8%
Service Area Total	**133,623**	**62,155**	**106,510**	**168,665**	**126.2%**
Fallbrook PUD	11,727	0	12,851	12,851	109.6%
Rainbow MWD	20,062	0	21,125	21,125	105.3%
Expanded Service Area Total	**165,412**	**62,155**	**140,392**	**202,547**	**122.4%**

These conditions were then evaluated with Regional Shortage Level 3 of the WSAP in effect. This represents the actual allocation level enacted by Metropolitan during the drought conditions. In this case, FPUD and RMWD would have been subject to an allocation surcharge had they been able to independently purchase water from Metropolitan. However, since EMWD's retail customers, along with the remainder of EMWD's wholesale customers, were able to significantly reduce their demands during the drought emergency, sufficient buffer (of roughly 20,000 acre-feet) remained within EMWD's allocation that FPUD and RMWD would not have had to purchase water subject to the allocation surcharge. The results are documented below in Table 3.

Table 3: Supplies Available Under WSAP Allocation, Shortage Level 3 (Values in Acre-Feet)

Service Area	Total Potable Demand	Local Potable Supply	Est. MWD Allocation	Est. Supply Available (w/o Surcharge)	% Demand Supplied (w/o Surcharge)
EMWD Retail Service Area	75,912	21,858	58,496	80,354	105.9%
City of Hemet	3,768	3,768	907	4,675	124.1%
City of Perris	2,201	659	1,649	2,308	104.8%
City of San Jacinto	2,271	2,271	512	2,783	122.5%
Lake Hemet MWD	13,999	9,689	5,681	15,370	109.8%
Murrieta County WD	727	0	1,191	1,191	163.8%
Nuevo Water Company	1,069	822	357	1,179	110.3%
Rancho California WD	33,675	23,088	24,703	47,791	141.9%
Service Area Total	**133,623**	**62,155**	**93,187**	**155,342**	**116.3%**
Fallbrook PUD	11,727	0	11,498	11,498	98.0%
Rainbow MWD	20,062	0	18,901	18,901	94.2%
Expanded Service Area Total	**165,412**	**62,155**	**123,305**	**185,461**	**112.1%**

These conditions were also evaluated with the WSAP's Regional Shortage Level 5 in effect. Note that Metropolitan has never implemented this level of their WSAP since the adoption of the plan in 2008. Similar to the Regional Shortage Level 3 results, sufficient buffer remained in the overall Metropolitan allocation for EMWD's service area (roughly 10,000 acre-feet) that FPUD and RMWD would not have had to purchase water subject to the allocation surcharge. The results are documented below in Table 4.

Table 4: Supplies Available Under WSAP Allocation, Shortage Level 5 (Values in Acre-Feet)

Service Area	Total Potable Demand	Local Potable Supply	Est. MWD Allocation	Est. Supply Available (w/o Surcharge)	% Demand Supplied (w/o Surcharge)
EMWD Retail Service Area	75,912	21,858	50,633	72,491	95.5%
City of Hemet	3,768	3,768	748	4,516	119.9%
City of Perris	2,201	659	1,426	2,085	94.7%
City of San Jacinto	2,271	2,271	422	2,693	118.6%
Lake Hemet MWD	13,999	9,689	4,772	14,461	103.3%
Murrieta County WD	727	0	1,051	1,051	144.5%
Nuevo Water Company	1,069	822	298	1,120	104.8%
Rancho California WD	33,675	23,088	21,027	44,115	131.0%
Service Area Total	**133,623**	**62,155**	**79,863**	**142,018**	**106.3%**
Fallbrook PUD	11,727	0	10,145	10,145	86.5%
Rainbow MWD	20,062	0	16,678	16,678	83.1%
Expanded Service Area Total	**165,412**	**62,155**	**106,219**	**168,374**	**101.8%**

It should be noted that EMWD continues to make investments that will maintain and further improve this water supply reliability. Since the conclusion of the 2014-2016 conservation order, EMWD has elected to participate in Metropolitan's Cyclic Storage Program, enabling EMWD to further accumulate carry over credits in the adjudicated portion of its groundwater basin, and is implementing various water banking projects as discussed in the extraordinary supply section of this memorandum.

SCENARIO 2: CURRENT DAY CONDITIONS (2019)

The second scenario considered by this analysis examines how EMWD's customers, along with FPUD and RMWD, would have fared had Metropolitan implemented the WSAP during 2019.

The calculations for this scenario utilize the following assumptions and methodologies:

1. The base period used to calculate Metropolitan's allocation remains calendar year 2013 and 2014 – this represents the most recent period where demands were not influenced

by drought response both at the local and state level and is consistent with Metropolitan's intent to define a base period that reflects non-drought conditions.
2. FPUD and RWMD are assumed to be 100 percent reliant on imported water, and their base period demands were assumed to be equivalent to the totals reported to the State Water Resources Control Board under the voluntary conservation reporting.
3. The growth adjustment for each agency was based on population estimates generated by the California Department of Finance. Since the base period was 2013-2014, the growth rate was calculated as the growth from the 2013-2014 average population value to the 2019 population value.
4. Allocation year local supplies were assumed to be equal to actual local supply usage in calendar year 2019.
5. No adjustments documented in the WSAP for conservation demand hardening or low per-capita use were assumed to be available.
6. No extraordinary supplies were considered.
7. The calculated supplies available (before reaching Metropolitan's allocation surcharge) was compared against each agency's actual usage in calendar year 2019.
8. EMWD's local and imported supplies were adjusted to represent what the values would have been had EMWD not participated in Metropolitan's Cyclic Storage Program.
9. While 2019 was actually a wet year rather than a dry year, the hydrology still resulted in reduced service area demands – accordingly, 2019 totals were assumed to reflect a dry year with some degree of customer conservation in place.
10. 2019 data was not fully available for all agencies when this TM was written – in these cases, either 2018 data was substituted, or partial 2019 values were extrapolated to give an estimate for the full year.

If Metropolitan had declared a Regional Shortage Level 1, and no agencies achieved any level of conservation beyond what is reflected in their 2019 totals, no agency would have been required to pay an allocation surcharge. These results are shown below in Table 5.

Table 5: Supplies Available Under WSAP Allocation, Shortage Level 1 (Values in Acre-Feet)

Service Area	Total Potable Demand	Local Potable Supply	Est. MWD Allocation	Est. Supply Available (w/o Surcharge)	% Demand Supplied (w/o Surcharge)
EMWD Retail Service Area	77,738	19,961	72,578	92,540	119.0%
City of Hemet	3,685	3,685	1,288	4,973	135.0%
City of Perris	2,289	629	2,024	2,653	115.9%
City of San Jacinto	2,260	2,260	771	3,031	134.1%
Lake Hemet MWD	12,739	12,441	4,955	17,396	136.6%
Murrieta County WD	1,605	0	1,417	1,417	88.3%
Nuevo Water Company	961	558	748	1,306	135.9%
Rancho California WD	43,164	20,967	32,448	53,414	123.7%
Service Area Total	**144,439**	**60,501**	**116,089**	**176,590**	**122.3%**
Fallbrook PUD	9,430	0	12,952	12,952	137.4%
Rainbow MWD	17,910	0	21,292	21,292	118.9%
Expanded Service Area Total	**171,780**	**60,501**	**150,251**	**210,752**	**122.7%**

This scenario then evaluated the potential outcome had Metropolitan declared a Regional Shortage Level 3. Under these conditions, supplies remain sufficient such that no water purchases subject to the allocation surcharge are required. These results are documented below in Table 6.

Table 6: Supplies Available Under WSAP Allocation, Shortage Level 3 (Values in Acre-Feet)

Service Area	Total Potable Demand	Local Potable Supply	Est. MWD Allocation	Est. Supply Available (w/o Surcharge)	% Demand Supplied (w/o Surcharge)
EMWD Retail Service Area	77,738	19,961	64,105	84,066	108.1%
City of Hemet	3,685	3,685	1,099	4,784	129.8%
City of Perris	2,289	629	1,785	2,414	105.5%
City of San Jacinto	2,260	2,260	658	2,918	129.1%
Lake Hemet MWD	12,739	12,441	4,237	16,678	130.9%
Murrieta County WD	1,605	0	1,267	1,267	79.0%
Nuevo Water Company	961	558	652	1,210	125.9%
Rancho California WD	43,164	20,967	28,346	49,313	114.2%
Service Area Total	**144,439**	**60,501**	**101,733**	**162,234**	**112.3%**
Fallbrook PUD	9,430	0	11,589	11,589	122.9%
Rainbow MWD	17,910	0	19,050	19,050	106.4%
Expanded Service Area Total	**171,780**	**60,501**	**132,127**	**192,628**	**112.1%**

Finally, under the conditions of Scenario 2, water supplies were assessed under the assumption that Metropolitan had declared an unprecedented allocation at Regional Shortage Level 5. Even under these conditions, conservation efforts limited demand in the region such that no retail agency would have been subject to an allocation surcharge. These results are documented below in Table 7.

Table 7: Supplies Available Under WSAP Allocation, Shortage Level 5 (Values in Acre-Feet)

Service Area	Total Potable Demand	Local Potable Supply	Est. MWD Allocation	Est. Supply Available (w/o Surcharge)	% Demand Supplied (w/o Surcharge)
EMWD Retail Service Area	77,738	19,961	55,631	75,592	97.2%
City of Hemet	3,685	3,685	911	4,596	124.7%
City of Perris	2,289	629	1,546	2,176	95.1%
City of San Jacinto	2,260	2,260	545	2,805	124.1%
Lake Hemet MWD	12,739	12,441	3,520	15,961	125.3%
Murrieta County WD	1,605	0	1,118	1,118	69.7%
Nuevo Water Company	961	558	556	1,114	115.9%
Rancho California WD	43,164	20,967	24,244	45,211	104.7%
Service Area Total	**144,439**	**60,501**	**87,377**	**147,878**	**102.4%**
Fallbrook PUD	9,430	0	10,225	10,225	108.4%
Rainbow MWD	17,910	0	16,809	16,809	93.9%
Expanded Service Area Total	**171,780**	**60,501**	**114,003**	**174,504**	**101.6%**

An additional analysis was conducted using a more conservative base period of 2017-2018 (where demands were influenced by drought response actions) and compared against 2019 actuals. This analysis generated similar results to the conditions evaluated in Scenario 2.

SCENARIO 3: FUTURE CONDITIONS (2035)

The final scenario considered by this analysis examines how EMWD's customers, along with FPUD and RMWD, would fare in the future. This scenario utilizes UWMP data from the 2035 planning horizon.

The calculations for this scenario utilize the following assumptions and methodologies:

1. The base period used to calculate Metropolitan's allocation is calendar year 2035 under average hydrology of the UWMP.
2. FPUD and RWMD are assumed to be 100% reliant on imported water – this is a conservative assumption as FPUD's 2015 UWMP projects 3,200 acre-feet of local groundwater supply available by 2035.
3. No growth adjustment was made in the calculations since the base period and the allocation period are both 2035.

4. Allocation year local supplies were assumed to be equal to dry year supplies documented for the 2035 planning horizon in the UWMP. EMWD supplies were updated to reflect projects anticipated to be complete by 2035.
5. No adjustments documented in the WSAP for conservation demand hardening or low per-capita use were assumed to be available.
6. EMWD assumes that SARCCUP and Phase II of its ERRP project are available as extraordinary supplies, however to be conservative, supplies that would be available from EMWD's Purified Water Replenishment project are not considered in this scenario.
7. No other extraordinary supplies are assumed to be available.

For scenario 3 conditions, if Metropolitan were to implement a Regional Shortage Level 1 allocation in 2035, EMWD would have a buffer of roughly three percent of the total service area demands available before reaching the threshold for an allocation surcharge. These results are documented below in Table 8.

Table 8: Supplies Available Under WSAP Allocation, Shortage Level 1 (Values in Acre-Feet)

Service Area	Est. Potable Demand	Local Potable Supply	Extraord. Supply	Est. MWD Allocation	Est. Supply Available (w/o Surcharge)	% Demand Supplied (w/o Surcharge)
EMWD Retail Service Area	134,000	32,103	17,700	95,855	145,658	108.7%
City of Hemet	5,110	5,542	0	0	5,542	108.5%
City of Perris	2,750	650	0	1,983	2,633	95.7%
City of San Jacinto	3,614	3,422	0	178	3,600	99.6%
Lake Hemet MWD	17,235	17,310	0	0	17,310	100.4%
Murrieta County WD	6,500	0	0	6,175	6,175	95.0%
Nuevo Water Company	1,420	820	0	561	1,381	97.3%
Rancho California WD	45,865	30,886	0	13,979	44,865	97.8%
Service Area Total	**216,494**	**90,733**	**17,700**	**117,899**	**226,332**	**104.5%**
Fallbrook PUD	14,247	0	0	13,535	13,535	95.0%
Rainbow MWD	20,850	0	0	19,808	19,808	95.0%
Expanded Service Area Total	**251,591**	**90,733**	**17,700**	**151,083**	**259,516**	**103.1%**

Should Metropolitan implement a Regional Shortage Level 3 in 2035, and EMWD customers are able to achieve 10 percent conservation against average year conditions, supplies remain sufficient to avoid paying the allocation surcharge, with an overall buffer (with FPUD and RMWD) of roughly six percent. These results are shown below in Table 9.

Table 9: Supplies Available Under WSAP Allocation, Shortage Level 3, with 10% Conservation (Values in Acre-Feet)

Service Area	Adjusted Potable Demand	Local Potable Supply	Extraord. Supply	Est. MWD Allocation	Est. Supply Available (w/o Surcharge)	% Demand Supplied (w/o Surcharge)
EMWD Retail Service Area	120,600	32,103	17,700	83,772	133,575	110.8%
City of Hemet	4,599	5,542	0	0	5,542	120.5%
City of Perris	2,475	650	0	1,748	2,398	96.9%
City of San Jacinto	3,253	3,422	0	150	3,572	109.8%
Lake Hemet MWD	15,512	17,310	0	0	17,310	111.6%
Murrieta County WD	5,850	0	0	5,525	5,525	94.4%
Nuevo Water Company	1,278	820	0	484	1,304	102.0%
Rancho California WD	41,279	30,886	0	11,976	42,862	103.8%
Service Area Total	**194,845**	**90,733**	**17,700**	**102,173**	**210,606**	**108.1%**
Fallbrook PUD	12,822	0	0	12,110	12,110	94.4%
Rainbow MWD	18,765	0	0	17,723	17,723	94.4%
Expanded Service Area Total	**226,432**	**90,733**	**17,700**	**131,530**	**239,963**	**106.0%**

Finally, should Metropolitan implement a Regional Shortage Level 5 allocation in 2035, and customers are able to achieve 15 percent conservation against average conditions, supplies would be sufficient to avoid the allocation surcharge, with an overall buffer (including FPUD and RMWD) of roughly three percent. These results are shown below in Table 10.

Table 10: Supplies Available Under WSAP Allocation, Shortage Level 5, with 15% Conservation (Values in Acre-Feet)

Service Area	Adjusted Potable Demand	Local Potable Supply	Extraord. Supply	Est. MWD Allocation	Est. Supply Available (w/o Surcharge)	% Demand Supplied (w/o Surcharge)
EMWD Retail Service Area	113,900	32,103	17,700	71,689	121,492	106.7%
City of Hemet	4,344	5,542	0	0	5,542	127.6%
City of Perris	2,338	650	0	1,513	2,163	92.5%
City of San Jacinto	3,072	3,422	0	121	3,543	115.3%
Lake Hemet MWD	14,650	17,310	0	0	17,310	118.2%
Murrieta County WD	5,525	0	0	4,875	4,875	88.2%
Nuevo Water Company	1,207	820	0	407	1,227	101.6%
Rancho California WD	38,985	30,886	0	9,974	40,860	104.8%
Service Area Total	**184,020**	**90,733**	**17,700**	**86,448**	**194,881**	**105.9%**
Fallbrook PUD	12,110	0	0	10,685	10,685	88.2%
Rainbow MWD	17,723	0	0	15,638	15,638	88.2%
Expanded Service Area Total	**213,852**	**90,733**	**17,700**	**111,978**	**220,411**	**103.1%**

AGRICULTURAL SUPPLY RELIABILITY

The WSAP is based on an agency's total demands and does not differentiate supply by use, for example water supplied for agricultural uses. Agriculture is an important part of EMWD's service area, and EMWD maintains the same level of reliability for agricultural uses as for all other demands. Based on the reliability analyzed above under the WSAP Regional Shortage Level 3, there would have been no impact to EMWD's, FPUD or RMWD's agriculture customers during the 2015 drought conditions.

SYSTEM RELIABILITY

FPUD and RMWD rely on the imported water that is transported through the San Diego Aqueduct operated by Metropolitan. Pipelines 4 and 5, which are part of this aqueduct system, cross the Elsinore Fault Zone in the Temecula Valley, with portions of the pipelines in areas with moderate to high liquefaction potential and may consequently be subject to disruption in the event of a major earthquake. However, Metropolitan maintains an emergency response plan for maintaining or quickly restoring service to its member agencies following a major earthquake or other catastrophic event.

The La Verne Shops, which include machine, fabrication, coating, and valve shops, are set up to provide emergency services for Metropolitan and their member agencies. The fabrication shop can roll pipe on a 24-hour-per-day basis and is able to fabricate two pipe sections up to 12 feet in diameter simultaneously. Metropolitan also maintains stockpiles and materials on hand, and has its own construction equipment and crews ready to mobilize as needed. Pre-selected urgent repair contractors can also provide additional construction support in case of an emergency. This emergency response plan and the ability to roll pipe at the La Verne shops expedited the emergency repairs necessary as a result of the Northridge earthquake, where Metropolitan was able to repair a line break on an eight-foot section of 84-inch pipe and restore service within 72 hours.

Maintaining these manufacturing and construction capabilities supports Metropolitan's efforts to efficiently operate and maintain its infrastructure and to expedite the repair of pipelines 4 and/or 5 should they be damaged in a major earthquake.

Metropolitan has also adopted a policy that allows for isolation of Metropolitan's system for the purpose of conveying potable water. This would allow either EMWD or Rancho California Water District (an agency covering much of the Temecula area that receives wholesale water service from EMWD and the Western Municipal Water District) to provide potable water through existing connections to the Metropolitan system to supply water to FPUD and RMWD in the event of an emergency.

OPERATIONAL IMPACT OF DETACHMENT/ANNEXATION

Operationally, the potential detachment of FPUD and RMWD from SDCWA is anticipated to cause little to no impact for all agencies. FPUD and RMWD are currently being supplied with imported water from Metropolitan's Robert A. Skinner Water Treatment Plant via the San Diego Aqueduct, and would continue to be supplied with the same water by EMWD. These connections are shown below in Figure 2.

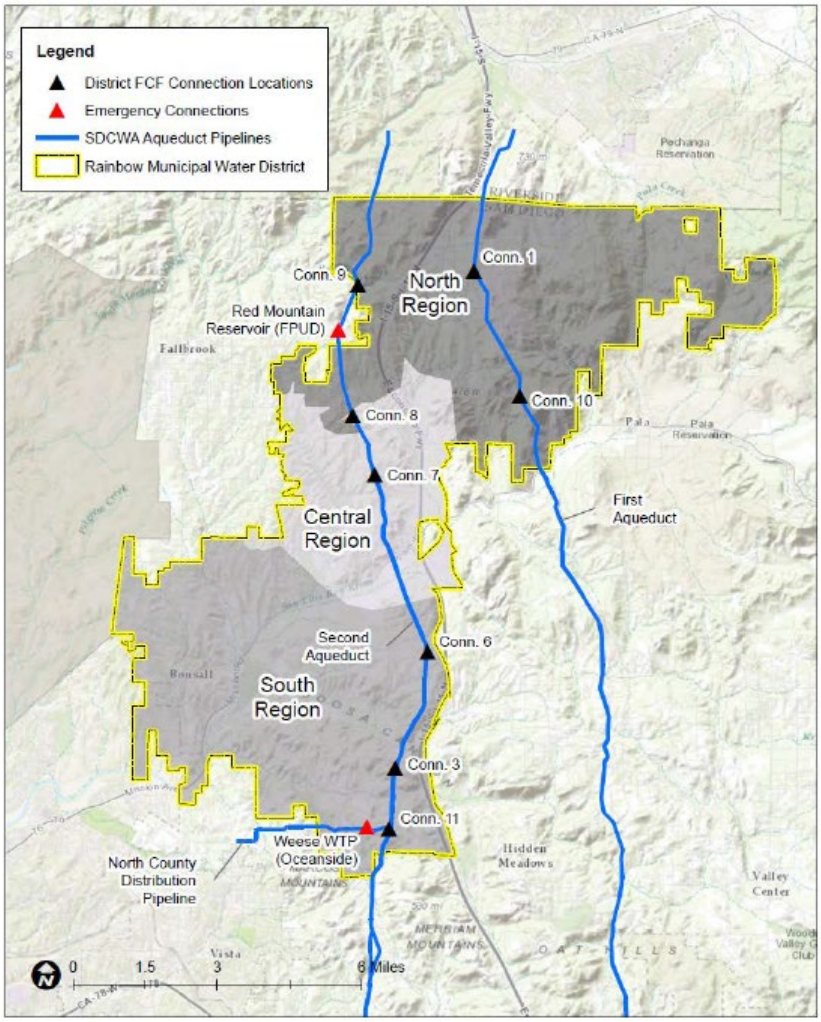

Figure 2: FPUD / RMWD Connections to San Diego Aqueduct

IMPACT OF SOUTHERN CALIFORNIA RELIANCE ON DELTA SUPPLIES

As EMWD and SDCWA are both member agencies of Metropolitan, this move would have a net zero impact on the California Delta when considered from a regional perspective. Since FPUD and RMWD's imported water needs are currently being met with water from Metropolitan's Robert A. Skinner Water Treatment Plant, the existing condition would essentially be maintained under EMWD management and no new supplies would need to be developed or imported.

CONCLUSIONS

EMWD would remain a highly reliable water supplier even with the addition of FPUD and RMWD to its service area as wholesale customers and FPUD and RMWD would experience 100 percent water supply reliability as part of EMWD. This reliability will be maintained in the future with EMWD's commitment to its ongoing development of local and extraordinary water supplies. These projects include a third brackish groundwater desalination plant that is under construction, the development of additional potable groundwater wells, and significant investment in water banking projects such as SARCCUP and ERRP. Furthermore, EMWD's

robust conservation program and long term supply planning has allowed EMWD to mitigate the impacts of Metropolitan's WSAP even under historically severe drought conditions.

Similarly, Metropolitan's regional reliability has improved significantly over the several preceding decades with numerous storage and reliability programs including the construction of its Diamond Valley Lake reservoir, the implementation of its cyclic storage program, and ongoing funding of local resource projects and conservation programs. This increased reliability means that even during dry year conditions requiring implementation of its WSAP, Metropolitan does not physically limit member agency purchases, but instead, incentivizes demand management through allocation surcharges that apply to purchases above an agency's calculated allocation.