

2015 UWMP ADDENDUM

APPENDIX J

IRWD's Reduced Delta Reliance



J.1 Background

An urban water supplier that anticipates participating in or receiving water from a proposed project (covered action) in the Sacramento-San Joaquin Delta (Delta) should provide information in their 2015 and 2020 Urban Water Management Plans (UWMP) that can be used to demonstrate consistency with the Delta Plan Policy WR P1, *Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance*. A covered action includes projects such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta.

This appendix provides the analysis and documentation to demonstrate Irvine Ranch Water District's (IRWD) improved regional self-reliance and measurable reduction in reliance on Delta water supplies. Specific elements in this appendix include:

- Background: Delta Reform Act reduced reliance policy and overview of the Delta Plan and Policy WR P1; and
- IRWD's documentation and quantification of supplies contributing to reduced reliance on the Delta watershed and improved regional self-reliance and consistency with the Delta Plan Policy WR P1.

J.1.1 Sacramento-San Joaquin Delta Reform Act and Delta Plan Policy WR P1

In 2009 the State Legislature passed a comprehensive legislation package, the Sacramento-San Joaquin Delta Reform Act (Delta Reform Act), which established coequal goals for the Delta of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. IRWD worked closely with a coalition of water agencies to develop and enact this historic legislation.

The Delta Reform Act created the Delta Stewardship Council (DSC), which is tasked with furthering the state's coequal goals for the Delta through the development of a Delta Plan. The Delta Plan is a comprehensive, long-term resource management plan for the Delta. The Delta Plan also includes a policy (WR P1) to reduce reliance on the Delta in meeting California's future water supply needs through a statewide strategy of investing in improved regional supplies, conservation and water use efficiency. The Delta Reform Act established a self-certification process for demonstrating consistency of covered actions with the Delta Plan. Public agencies proposing a covered action, must prepare a written certification of consistency with detailed findings as to whether the covered action is consistent with applicable Delta Plan policies and must submit the certification to the DSC.

Delta Plan Policy WR P1

Delta Plan Policy WR P1 details the requirements for a covered action to demonstrate consistency with reduced reliance on the Delta and improved regional self-reliance. WR P1 subsection (a) states that:

- (a) *Water shall not be exported from, or transferred through, or used in the Delta if all of the following apply:*
- (1) *One or more water suppliers that would receive water as a result of the export, transfer, or use have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with all of the requirements listed in paragraph (1) of subsection (c);*
 - (2) *That failure has significantly caused the need for the export, transfer, or use; and*
 - (3) *The export, transfer, or use would have a significant adverse environmental impact in the Delta.*

WR P1 subsection (c)(1) further defines what adequately contributing to reduced reliance on the Delta means with respect to (a)(1) above:

(c)(1) Water suppliers that have done all the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:

- (A) *Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of the Water Code;*
- (B) *Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and*
- (C) *Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with the Water Code.*

J.2 Summary of Expected Outcomes for Reduced Reliance on the Delta

IRWD receives supplemental imported water supplies from the regional water wholesaler Metropolitan Water District of Southern California (Metropolitan) through the Municipal Water District of Orange County (MWDOC), a member agency of Metropolitan that serves Orange County. Metropolitan imports water into its region from the Delta and the Colorado River.

As the regional wholesaler of imported water, Metropolitan has evaluated the expected outcomes for reduced reliance on the Delta on a region-wide scale that includes its member agencies. This is documented in Metropolitan's 2020 UWMP and in Appendix 11 Addendum to Metropolitan's 2015 UWMP. Metropolitan's findings show that its expected outcomes for regional self-reliance under both the near-term (2025) and long-term (2045) are increased over time with measurable reduced reliance on the Delta. This analysis is further described in this report under Section J.4 "Supplies Contributing to Regional Self Reliance".

While IRWD's supplies and demands factor into the Metropolitan analysis through MWDOC, this document reports IRWD's own expected outcomes for regional self-reliance and reduced reliance on the Delta. These expected outcomes have been developed using the approach and guidance described in Appendix C of Department of Water Resources' (DWR) Urban Water Management Plan Guidebook 2020 – Final Draft (Guidebook Appendix C) issued in March 2021. IRWD's results summarized below show that IRWD individually, is measurably reducing reliance on the Delta and improving regional self-reliance, both as an amount of water used and as a percentage of water used.

Summary of Expected Outcomes for IRWD's Self-Reliance

- **Near-term (2025)** – Normal water year regional self-reliance is expected to increase by 145,134 AF from the 2010 baseline; this represents an increase of about 39% percent of 2025 normal water year retail demands (See **Table J-2**).
- **Long-term (2040)** – Normal water year regional self-reliance is expected to increase by 135,140 AF from the 2010 baseline, this represents an increase of 26% percent of 2040 normal water year retail demands (See **Table J-2**).

The analysis provided in this appendix includes all the elements described in WR P1(c)(1) that need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action.

J.3 Demonstration of Reduced Reliance on the Delta

Some of the key documentation underlying IRWD’s demonstration of reduced reliance include:

- Data obtained from IRWD’s 2020 UWMP or previously adopted UWMPs for supplies and demands under average or normal water year conditions.
- All analyses were conducted at the service area level and all data reflect the total contributions of IRWD and MWDOC, in conjunction with information provided by Metropolitan.
- No projects or programs that are described in the 2020 UWMP as “under development” were included in the accounting of supplies, with the exception of future groundwater supplies. Based on projects being implemented by the Orange County Water District, it is anticipated that additional groundwater supplies will be made available by 2025 (see 2020 UWMP Section 7). IRWD assumes additional groundwater supplies for the period 2025 through 2040 and also applies these assumptions in the expected outcome calculations for increased regional self-reliance resulting in reduced Delta reliance (see Tables J-2 and J-2B).

Baseline and Expected Outcomes

A baseline water use is needed to compare average current and future water use in order to calculate how Delta use and regional self-reliance have changed over time. The Guidebook Appendix C approach uses 2010 as the baseline year when the Delta Reform Act became effective, which is the baseline IRWD uses in its analysis.

Consistent with the Guidebook Appendix C approach, IRWD utilizes forecasted data from its 2005 UWMP to establish the 2010 baseline use. Since supplies and demands vary from year to year, UWMP-reported normal year conditions typically incorporate a range of hydrologic scenarios, to determine average or “normal” conditions, which are used in forecasts of supplies and demands. Since UWMPs generally do not provide normal water year data for the year that they are adopted, each subsequent set of data comes from the previous UWMP projections for normal year IRWD then quantified the expected outcomes for reductions in reliance on supplies from the Delta and compared this to the established baseline. Based on the Guidebook Appendix C approach, IRWD utilized its 2015 and 2020 UWMPs’ reported normal water supplies to calculate change in water use between baseline and the current UWMP to demonstrate reduced Delta reliance. Expected outcomes for 2025-2040 are from the 2020 UWMP. Documentation of the specific data sources and assumptions are included in the discussions below.

Service Area Demands without Water Use Efficiency

In alignment with the Guidebook Appendix C, as well as both the MWDOC and Metropolitan regional reduced reliance on the Delta calculations, this analysis uses normal water year demands to calculate expected outcomes for reductions in reliance on the Delta. Using normal

water year demands serves as a proxy for the volume of supplies that would be used in a normal water year. This helps alleviate issues associated with how supply capability is presented to fulfill requirements of the UWMP Act versus how supplies might be accounted for to demonstrate consistency with WR P1.

Since WR P1 considers WUE savings as a source of water supply, water suppliers such as IRWD, need to explicitly calculate and report WUE savings separately from service area demands to accurately reflect normal water year demands (as required in the calculation of reduced Delta reliance). To prevent overestimating the effect of WUE savings on regional self-reliance, Guidebook Appendix C methods indicate that WUE savings must then be added back to the normal year demands to represent demands without WUE savings.

Table J-1 shows the results of these calculations for IRWD service area demands. Supporting narratives and documentation for the all the data shown in **Table J-1** are provided below.

Table J-1: Calculation of Water Use Efficiency

Service Area Water Use Efficiency Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040
Service Area Water Demands with Water Use Efficiency Accounted For	116,710	101,972	96,445	96,556	103,993	111,430	118,483
Non-Potable Water Demands*	26,203	37,335	25,359	29,478	29,934	30,389	30,461
Potable Service Area Demands with Water Use Efficiency Accounted For	90,507	64,637	71,086	67,078	74,059	81,041	88,022
Total Service Area Population							
Total Service Area Population	Baseline (2010)	2015	2020	2025	2030	2035	2040
Service Area Population	336,876	381,463	418,163	438,663	454,165	468,472	475,762
Water Use Efficiency Since Baseline (Acre-Feet)							
Water Use Efficiency Since Baseline (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040
Per Capita Water Use (GPCD)	240	151	152	137	146	154	165
Change in Per Capita Water Use from Baseline (GPCD)		(89)	(88)	(103)	(94)	(85)	(75)
Estimated Water Use Efficiency Since Baseline		37,849	41,260	50,776	47,959	44,822	39,799

*Non-potable water demands include only recycled water. Additional data for non-potable (raw, untreated) water use projections were unavailable in some previous UWMP tables. To prevent confusion only recycled water values were used. Recycled water is produced to meet demands, so projected demand and supplies are equivalent in past UWMPs. If included non-potable, untreated values would be between an additional 1,500 – 3,000 AF per year.

Service Area Demands with Water Use Efficiency

The service area demands shown in **Table J-1** represent the total retail water demands for IRWD's service area including municipal and industrial demands, agricultural demands, recycled, and others. These demand types and the modeling methodologies used to calculate projections from 2025 to 2040 are described in Section 4 of the 2020 UWMP.

Non-Potable Water Demands

The non-potable water demands shown in **Table J-1** represent demands for recycled water only; however, IRWD also serves non-potable water (untreated water) including water for irrigation and surface reservoir storage. Due to variations in UWMP non-potable (untreated) data tables in the past, only recycled water was included for consistency in Reduced Reliance on the Delta projections and methodology. Per the Guidebook Appendix C, non-potable supplies may have a demand hardening effect due to the inability to shift non-potable supplies to meet potable water demands. When WUE or conservation measures are implemented, they fall mainly on the potable water users.

Potable Water Demands

Calculated potable water demands are determined by subtracting non-potable water demands from total service area demands in the DWR provided tables. These values are consistent with the recorded data in each UWMP data source for non-potable and total water demands.

Total Service Area Population

IRWD's total service area population as shown in **Table J-1** was generated by the Center for Demographic Research (CDR) at California State Fullerton, with actuals (2010, 2015 and 2020 from each respective UWMP) and projections further described in Section 3 of the 2020 IRWD UWMP for years 2025 to 2040.

Water Use Efficiency Since Baseline

The WUE numbers shown in **Table J-1** represent IRWD's calculated increase in WUE over time, consistent with the approach in Appendix C of the UWMP Guidebook.

Service area demands, excluding non-potable demands, are divided by the service area population to get per capita water use in the service area in gallons per capita per day (GPCD) for each five-year period. The change in per capita water use from the baseline is the comparative GPCD from that five-year period compared to the 2010 baseline. Changes in per capita water use over time are then applied back to the IRWD service area population to calculate the estimated WUE Supply. This estimated WUE Supply is considered an additional supply that may be used to show reduced reliance on Delta water supplies.

The demand and WUE data shown in Table J-1 were collected from the following sources:

Year and Values	Data Sources
Baseline 2010 values	IRWD's 2005 UWMP: Table 41 Table 4 (Recycled Water Only – Produced for Demands)
2015 values	IRWD's 2010 UWMP: Table 11 (only water deliveries) Table 16 (Recycled Water Only – Produced for Demands) IRWD's 2015 UWMP: DWR Table 3-1 (population actuals)**
2020 values	IRWD's 2015 UWMP: DWR Table 4-3 DWR Table 7-2 IRWD 2020 DWR Table 3-1 (population actuals)
2025-2040 values	IRWD's 2020 UWMP DWR Table 4-3B DWR Table 7-2 DWR Table 3-1 (projections)

***Note 2015 population values come from the 2015 UWMP actuals, the values found in the UWMP were used. The 2015 actuals contain a slight error for City of Tustin serviced population values that has since been corrected by CDR in the 2020 actuals and all future forecasted projections.*

It should be noted that the results may deviate from the UWMP Section 5 calculations pertaining to the Water Conservation Act of 2009 (SB X7-7) due to differing formulas and assumptions.

J.4 Supplies Contributing to Regional Self-Reliance

For a covered action to demonstrate consistency with the Delta Plan, WR P1 subsection (c)(1)(C) states that water suppliers must report the expected outcomes for measurable improvement in regional self-reliance. Water supplies that are assumed to contribute to regional self-reliance are shown in Table J-2.

Table J-2 indicates the expected outcomes for IRWD supplies contributing to regional self-reliance. These results demonstrate that IRWD's service area is continuously improving its regional self-reliance.

Table J-2: Calculation of Supplies Contributing to Regional Self-Reliance

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040
Water Use Efficiency	-	37,849	41,260	50,776	47,959	44,822	39,799
Water Recycling	26,203	37,335	25,359	29,478	29,934	30,389	30,461
Stormwater Capture and Use	-	-	-	-	-	-	-
Advanced Water Technologies	14,236	20,565	23,613	23,613	23,613	23,613	23,613
Conjunctive Use Projects	-	-	-	-	-	-	-
Local and Regional Water Supply and Storage Projects	28,914	28,914	28,914	41,267	41,267	41,267	41,267
Other Programs and Projects the Contribute to Regional Self-Reliance	-	-	-	-	-	-	-
Water Supplies Contributing to Regional Self-Reliance	69,353	124,663	119,146	145,134	142,773	140,091	135,140
Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040
Service Area Water Demands without Water Use Efficiency Accounted For	116,710	139,821	137,705	147,332	151,952	156,251	158,282
Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040
Water Supplies Contributing to Regional Self-Reliance	69,353	124,663	119,146	145,134	142,773	140,091	135,140
Change in Water Supplies Contributing to Regional Self-Reliance		55,310	49,793	75,781	73,420	70,737	65,786
Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040
Percent of Water Supplies Contributing to Regional Self-Reliance	59.4%	89.2%	86.5%	98.5%	94.0%	89.7%	85.4%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance		29.7%	27.1%	39.1%	34.5%	30.2%	26.0%

Expected Outcomes for IRWD Self-Reliance

- **Near-term (2025)** – Normal water year regional self-reliance is expected to increase by 145,134 AF from the 2010 baseline; this represents an increase of about 39% percent of 2025 normal water year retail demands (See **Table J-2**).
- **Long-term (2040)** – Normal water year regional self-reliance is expected to increase by nearly 135,140 AF from the 2010 baseline, this represents an increase of about 26% percent of 2040 normal water year retail demands (See **Table J-2**).

Water Use Efficiency

The water use efficiency information shown in **Table J-2** is taken directly from **Table J-1** above as per DWR Guidance and provided table formulas.

Water Recycling

The water recycling values shown in **Table J-2** reflects the total recycled water production in service area as described in Section 4 of the UWMP.

Advanced Water Technologies

Currently, DWR Guidance and WR P1 leave the definition of advanced water technologies to the discretion of water suppliers. IRWD considers four potable water sources to be advanced water technologies contributing to reduced reliance on the Delta. These include its Deep Aquifer Treatment System (DATS), Wells 21 and 22 Desalter, Irvine Desalter Potable Treatment Plant (PTP), and the Baker Water Treatment Plant (Baker WTP). The DATS, Wells 21 and 22 Desalter, and Irvine Desalter PTP are all groundwater treatment facilities, which remove color tint, salts and nitrates. These facilities allow IRWD to produce additional potable water from an otherwise non-potable groundwater source.

Baker WTP is an advanced surface water treatment plant that was constructed as a joint regional project that provides treated water to IRWD and four other water agencies. Baker WTP treats local surface water runoff from Irvine Lake and also raw imported water from the Colorado River system through Metropolitan. Baker WTP receives imported untreated supplies from Metropolitan's Lake Matthews reservoir. Lake Matthews is the terminus for Metropolitan's Colorado River Aqueduct and is only supplied with Colorado River. Therefore, no Delta water supplies are supplied to the Baker WTP.

Table J-2A shows the annual estimates used in **Table J-2**. The Well 21 and 22 Desalter came online after 2010 and was excluded from the baseline values in **Table J-2**. Similarly, Baker was fully operational after 2015 and was excluded from both the 2010 baselines and 2015 values accordingly. All values shown in **Table J-2A** are based on available treatment capacities.

Table J-2A: IRWD Advanced Water Technologies

Advanced Water Technologies	
Supply Description	Annual Estimate (AF)
DATS	8,618
Wells 21 and 22	6,329
Irvine Desalter PTP	5,618
Baker WTP	3,048
Total	23,613
Notes: Wells 21 and 22 went online in FY2012-13 and were excluded from the 2010 baseline. Baker Plant was online after 2015 and is excluded from the 2010 baseline and 2015 values. The values are based on available capacities.	

Local and Regional Water Supply and Storage Projects

IRWD’s major groundwater source is its Dyer Road Well Field (DRWF) wells. In the future, IRWD will recover water from the Orange Park Acres (OPA) well, and future groundwater supplies. **Table J-2B** shows the annual estimates for these supplies used in **Table J-2**. Values presented in **Table J-2B** are based on available capacities and calculated projections. Projections are consistent with methods and assumptions further described in the 2020 UWMP for a normal year.

As described in IRWD’s 2020 UWMP Section 7, based on projects being implemented by the Orange County Water District, it is anticipated that additional groundwater supplies will be made available by 2025. IRWD assumes additional groundwater supplies for the period 2025 through 2040 and also applies these assumptions in the expected outcome calculations for increased regional self-reliance resulting in reduced Delta reliance (see **Tables J-2** and **J-2B**).

Table J-2B: IRWD Local and Regional Supplies

Local and Regional Supplies	
Supply Description	Annual Estimate (AF)
DRWF Wells	28,000
Orange Park Acres (OPA) Well	914
Future Groundwater Supplies	12,352
Local Supply	41,267
Notes: Future Groundwater Supplies only included in 2025-2040 projections.	

In addition, IRWD has developed a groundwater banking program in Kern County, California, which is available for critical dry years or in the event of a Delta outage. Under a long-term agreement with a local water district, IRWD stores non-State Water Project supplies during wet years that can be made available for recovery and use during dry years. These supplies are for supplemental use during an emergency during major droughts and supply interruptions and are not included in the **Table J-2**, however these non-Delta water supplies captured in wet years do contribute to reduced reliance on the Delta and regional self-reliance.

Metropolitan and MWDOC Reduced Reliance on Delta Water Supplies

IRWD is not a state water contractor or regional water supplier and therefore must rely on data from Metropolitan and MWDOC to complete Table J-3. Metropolitan’s service area, as a whole, reduces reliance on the Delta through investments in non-Delta water supplies, local water supplies and demand management measures. Due to the regional nature of these investments, IRWD is relying on Metropolitan’s regional accounting of directly measurable reductions in supplies from the Delta Watershed. Quantifying IRWD’s investments in self-reliance, locally,

regionally, and throughout Southern California is infeasible for the reasons as noted in this **Appendix J** Sections J.5 and J.6.

Table J-3 shows the data included in Metropolitan’s Appendix 11 Addendum to its 2015 UWMP (Metropolitan Table A. 11-3), which provides the expected outcomes for Metropolitan’s reduced reliance on the Delta. The results shown in **Table J-3** demonstrate that Metropolitan’s service area, including IRWD, is measurably reducing its Delta reliance.

- In the near-term (2025), the expected outcome for normal water year reliance on supplies from the Delta watershed decreased by 301 Thousand Acre Feet (TAF) from the 2010 baseline; this represents a decrease of 3 percent of 2025 normal water year retail demands.
- In the long-term (2045), normal water year reliance on supplies from the Delta watershed decreased by 314 TAF from the 2010 baseline; this represents a decrease of just over 5 percent of 2045 normal water year retail demands.

J-3: Metropolitan Reliance on Water Supplies from the Delta Watershed

Water Supplies from the Delta Watershed (Acre-Feet)	Baseline 2010	2015	2020	2025	2030	2035	2040	2045
CVP/SWP Contract Supplies	1,472,000	1,029,000	984,000	1,133,000	1,130,000	1,128,000	1,126,000	1,126,000
Delta/Delta Tributary Diversions	-	-	-	-	-	-	-	-
Transfers and Exchanges of Supplies from the Delta Watershed	20,000	44,000	91,000	58,000	52,000	52,000	52,000	52,000
Other Water Supplies from the Delta Watershed	-	-	-	-	-	-	-	-
Total Water Supplies from the Delta Watershed	1,492,000	1,073,000	1,075,000	1,191,000	1,182,000	1,180,000	1,178,000	1,178,000

Service Area Demands without Water Use Efficiency (Acre-Feet)	Baseline 2010	2015	2020	2025	2030	2035	2040	2045
Service Area Demands without Water Use Efficiency Accounted For	5,493,000	5,499,000	5,219,000	4,925,000	5,032,000	5,156,000	5,261,000	5,374,000

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline 2010	2015	2020	2025	2030	2035	2040	2045
Water Supplies from the Delta Watershed	1,492,000	1,073,000	1,075,000	1,191,000	1,182,000	1,180,000	1,178,000	1,178,000
Change in Supplies from the Delta Watershed	NA	(419,000)	(417,000)	(301,000)	(310,000)	(312,000)	(314,000)	(314,000)

Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Percent of Supplies from the Delta Watershed	27.2%	19.5%	20.6%	24.2%	23.5%	22.9%	22.4%	21.9%
Change in Percent of Supplies from the Delta Watershed	NA	-7.6%	-6.6%	-3.0%	-3.7%	-4.3%	-4.8%	-5.2%

Source: Metropolitan 2020 UWMP, Appendix 11

J.5 Urban Water Management Plan – Implementation

In addition to the analysis and documentation described above, WR P1 subsection (c)(1)(B) requires that all programs and projects included in the UWMP that are locally cost-effective and technically feasible, which reduce reliance on the Delta, are identified, evaluated, and implemented consistent with the implementation schedule. WR P1 (c)(1)(B) states that:

(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta[.]

In accordance with Water Code Section 10631(f), water suppliers must include in their UWMP a detailed description of expected future projects and programs that they may implement to increase the amount of water supply available to them in normal and single-dry water years and for a period of drought lasting five consecutive years. The UWMP description must also identify specific projects, include a description of the increase in water supply that is expected to be available from each project, and include an estimate regarding the implementation timeline for each project or program. Sections 2, 5, 6, and 7 of the 2020 UWMP describes implementation plans, efforts, and analyses contributing to reduced reliance on the Delta. Specially, local projects, programs, and initiatives are highlighted. In addition, Section 3 of Metropolitan’s 2020 UWMP summarizes the implementation plan and continued progress in developing a diversified water portfolio to meet the region’s water needs.

Due to the nature of the IRWD, MWDOC, and Metropolitan imported water supplies relationship, IRWD specific actions may not directly affect how much of Metropolitan’s allocation is taken for the region overall. Different blends of water, multiple treatment plant facilities, and the nature of individual distribution system networks complicate these accounting measures, for all member agencies, after the regional level. As a result, the following infeasibility narrative has been provided to better describe an account for these differences. Excerpts from Metropolitan’s UWMP and Appendixes has been included to account for regional actions to reduce reliance on the Delta.

J.6 Infeasibility of Accounting for Delta Watershed Supplies in Regard to Metropolitan’s Member Agencies

Metropolitan’s service area, as a whole, reduces reliance on the Delta through investments in non-Delta water supplies, local water supplies, and regional and local demand management measures. Metropolitan’s member agencies coordinate reliance on the Delta through their membership in Metropolitan, a regional cooperative providing wholesale water service to its 26 member agencies. Accordingly, regional reliance on the Delta can only be measured regionally—not by individual Metropolitan member agencies and not by the customers of those member agencies.

Metropolitan’s member agencies, and those agencies’ customers, indirectly reduce reliance on the Delta through their collective efforts as a cooperative. Metropolitan’s member agencies do not control the amount of Delta water they receive from Metropolitan. Metropolitan manages a statewide integrated conveyance system consisting of its participation in the State Water Project (SWP), its Colorado River Aqueduct (CRA) including Colorado River water resources, programs and water exchanges, and its regional storage portfolio. Along with the SWP, CRA, storage programs, and Metropolitan’s conveyance and distribution facilities, demand management programs increase the future reliability of water resources for the region. In addition, demand management programs provide system-wide benefits by decreasing the demand for imported water, which helps to decrease the burden on the district’s infrastructure and reduce system costs, and free up conveyance capacity to the benefit of all member agencies.

Metropolitan’s costs are funded almost entirely from its service area, with the exception of grants and other assistance from government programs. Most of Metropolitan’s revenues are collected directly from its member agencies. Properties within Metropolitan’s service area pay a property tax that currently provides approximately 8 percent of the fiscal year 2021 annual budgeted revenues. The rest of Metropolitan’s costs are funded through rates and charges paid by Metropolitan’s member agencies for the wholesale services it provides to them. Thus, Metropolitan’s member agencies fund nearly all operations Metropolitan undertakes to reduce reliance on the Delta, including Colorado River Programs, storage facilities, Local Resources Programs and Conservation Programs within Metropolitan’s service area.

Because of the integrated nature of Metropolitan’s systems and operations, and the collective nature of Metropolitan’s regional efforts, it is infeasible to quantify each of Metropolitan member agencies’ individual reliance on the Delta. It is infeasible to attempt to segregate an entity and a system that were designed to work as an integrated regional cooperative.

In addition to the member agencies funding Metropolitan’s regional efforts, they also invest in their own local programs to reduce their reliance on any imported water. Moreover, the customers of those member agencies may also invest in their own local programs to reduce water demand. However, to the extent those efforts result in reduction of demands on Metropolitan, that reduction does not equate to a like reduction of reliance on the Delta. Demands on Metropolitan are not commensurate with demands on the Delta because most of Metropolitan member agencies receive blended resources from Metropolitan as determined by Metropolitan—not the individual member agency—and for most member agencies, the blend varies from month-to-month and year-to-year due to hydrology, operational constraints, use of storage and other factors.

Colorado River Programs

As a regional cooperative of member agencies, Metropolitan invests in programs to ensure the continued reliability and sustainability of Colorado River supplies. Metropolitan was established to obtain an allotment of Colorado River water, and its first mission was to construct and operate the CRA. The CRA consists of five pumping plants, 450 miles of high voltage power lines, one electric substation, four regulating reservoirs, and 242 miles of aqueducts, siphons, canals, conduits and pipelines terminating at Lake Mathews in Riverside County. Metropolitan owns,

operates, and manages the CRA. Metropolitan is responsible for operating, maintaining, rehabilitating, and repairing the CRA, and is responsible for obtaining and scheduling energy resources adequate to power pumps at the CRA's five pumping stations.

Colorado River supplies include Metropolitan's basic Colorado River apportionment, along with supplies that result from existing and committed programs, including supplies from the Imperial Irrigation District (IID)-Metropolitan Conservation Program, the implementation of the Quantification Settlement Agreement (QSA) and related agreements, and the exchange agreement with San Diego County Water Authority (SDCWA). The QSA established the baseline water use for each of the agreement parties and facilitates the transfer of water from agricultural agencies to urban uses. Since the QSA, additional programs have been implemented to increase Metropolitan's CRA supplies. These include the PVID Land Management, Crop Rotation, and Water Supply Program, as well as the Lower Colorado River Water Supply Project. The 2007 Interim Guidelines provided for the coordinated operation of Lake Powell and Lake Mead, as well as the Intentionally Created Surplus (ICS) program that allows Metropolitan to store water in Lake Mead.

Storage Investments/Facilities

Surface and groundwater storage are critical elements of Southern California's water resources strategy and help Metropolitan reduce its reliance on the Delta. Because California experiences dramatic swings in weather and hydrology, storage is important to regulate those swings and mitigate possible supply shortages. Surface and groundwater storage provide a means of storing water during normal and wet years for later use during dry years, when imported supplies are limited. The Metropolitan system, for purposes of meeting demands during times of shortage, regulating system flows, and ensuring system reliability in the event of a system outage, provides over 1,000,000 acre-feet of system storage capacity. Diamond Valley Lake provides 810,000-acre feet of that storage capacity, effectively doubling Southern California's previous surface water storage capacity. Other existing imported water storage available to the region consists of Metropolitan's raw water reservoirs, a share of the SWP's raw water reservoirs in and near the service area, and the portion of the groundwater basins used for conjunctive-use storage.

Since the early twentieth century, DWR and Metropolitan have constructed surface water reservoirs to meet emergency, drought/seasonal, and regulatory water needs for Southern California. These reservoirs include Pyramid Lake, Castaic Lake, Elderberry Forebay, Silverwood Lake, Lake Perris, Lake Skinner, Lake Mathews, Live Oak Reservoir, Garvey Reservoir, Palos Verdes Reservoir, Orange County Reservoir, and Metropolitan's Diamond Valley Lake (DVL). Some reservoirs such as Live Oak Reservoir, Garvey Reservoir, Palos Verdes Reservoir, and Orange County Reservoir, which have a total combined capacity of about 3,500 AF, are used solely for regulating purposes. The total gross storage capacity for the larger remaining reservoirs is 1,757,600 AF. However, not all of the gross storage capacity is available to Metropolitan; dead storage and storage allocated to others reduce the amount of storage that is available to Metropolitan to 1,665,200 AF.

Conjunctive use of the aquifers offers another important source of dry year supplies. Unused storage in Southern California groundwater basins can be used to optimize imported water

supplies, and the development of groundwater storage projects allows effective management and regulation of the region's major imported supplies from the Colorado River and SWP. Over the years, Metropolitan has implemented conjunctive use through various programs in the service area; the following table lists the groundwater conjunctive use programs that have been developed in the region.

Metropolitan Demand Management Programs

Demand management costs are Metropolitan's expenditures for funding local water resource development programs and water conservation programs. These Demand Management Programs incentivize the development of local water supplies and the conservation of water to reduce the need to import water to deliver to Metropolitan's member agencies. These programs are implemented below the delivery points between Metropolitan's and its member agencies' distribution systems and, as such, do not add any water to Metropolitan's supplies. Rather, the effect of these downstream programs is to produce a local supply of water for the local agencies and to reduce demands by member agencies for water imported through Metropolitan's system. The following discussions outline how Metropolitan funds local resources and conservation programs for the benefit of all of its member agencies and the entire Metropolitan service area. Notably, the history of demand management by Metropolitan's member agencies and the local agencies that purchase water from Metropolitan's members has spanned more than four decades. The significant history of the programs is another reason it would be difficult to attempt to assign a portion of such funding to any one individual member agency.

Local Resources Programs

In 1982, Metropolitan began providing financial incentives to its member agencies to develop new local supplies to assist in meeting the region's water needs. Because of Metropolitan's regional distribution system, these programs benefit all member agencies regardless of project location because they help to increase regional water supply reliability, reduce demands for imported water supplies, decrease the burden on Metropolitan's infrastructure, reduce system costs and free up conveyance capacity to the benefit of all the agencies that rely on water from Metropolitan.

For example, the Groundwater Replenishment System (GWRS) operated by the Orange County Water District is the world's largest water purification system for indirect potable reuse. It was funded, in part, by Metropolitan's member agencies through the Local Resources Program. Annually, the GWRS produces approximately 103,000 acre-feet of reliable, locally controlled, drought-proof supply of high-quality water to recharge the Orange County Groundwater Basin and protect it from seawater intrusion. The GWRS is a premier example of a regional project that significantly reduced the need to utilize imported water for groundwater replenishment in Metropolitan's service area, increasing regional and local supply reliability and reducing the region's reliance on imported supplies, including supplies from the State Water Project.

Metropolitan's local resource programs have evolved through the years to better assist Metropolitan's member agencies in increasing local supply production. The following is a description and history of the local supply incentive programs.

A. Local Projects Program

In 1982, Metropolitan initiated the Local Projects Program (LPP), which provided funding to member agencies to facilitate the development of recycled water projects. Under this approach, Metropolitan contributed a negotiated up-front funding amount to help finance project capital costs. Participating member agencies were obligated to reimburse Metropolitan over time. In 1986, the LPP was revised, changing the up-front funding approach to an incentive-based approach. Metropolitan contributed an amount equal to the avoided State Water Project pumping costs for each acre-foot of recycled water delivered to end-use consumers. This funding incentive was based on the premise that local projects resulted in the reduction of water imported from the Delta and the associated pumping cost. The incentive amount varied from year to year depending on the actual variable power cost paid for State Water Project imports. In 1990, Metropolitan's Board increased the LPP contribution to a fixed rate of \$154 per acre-foot, which was calculated based on Metropolitan's avoided capital and operational costs to convey, treat, and distribute water, and included considerations of reliability and service area demands.

B. Groundwater Recovery Program

The drought of the early 1990s sparked the need to develop additional local water resources, aside from recycled water, to meet regional demand and increase regional water supply reliability. In 1991, Metropolitan conducted the Brackish Groundwater Reclamation Study which determined that large amounts of degraded groundwater in the region were not being utilized. Subsequently, the Groundwater Recovery Program (GRP) was established to assist the recovery of otherwise unusable groundwater degraded by minerals and other contaminants, provide access to the storage assets of the degraded groundwater, and maintain the quality of groundwater resources by reducing the spread of degraded plumes.

C. Local Resources Program

In 1995, Metropolitan's Board adopted the Local Resources Program (LRP), which combined the LPP and GRP into one program. The Board allowed for existing LPP agreements with a fixed incentive rate to convert to the sliding scale up to \$250 per acre-foot, similar to GRP incentive terms. Those agreements that were converted to LRP are known as "LRP Conversions."

D. Competitive Local Projects Program

In 1998, the Competitive Local Resources Program (Competitive Program) was established. The Competitive Program encouraged the development of recycled water and recovered groundwater through a process that emphasized cost-efficiency to Metropolitan, timing new production according to regional need while minimizing program administration cost. Under the Competitive Program, agencies requested an incentive rate up to \$250 per acre-foot of production over 25 years under a Request for Proposals (RFP) for the development of up to 53,000 acre-feet per year of new water recycling and groundwater recovery projects. In 2003, a second RFP was issued for the

development of an additional 65,000 acre-feet of new recycled water and recovered groundwater projects through the LRP.

E. Seawater Desalination Program

Metropolitan established the Seawater Desalination Program (SDP) in 2001 to provide financial incentives to member agencies for the development of seawater desalination projects. In 2014, seawater desalination projects became eligible for funding under the LRP, and the SDP was ended.

F. 2007 Local Resources Program

In 2006, a task force comprised of member agency representatives was formed to identify and recommend program improvements to the LRP. As a result of the task force process, the 2007 LRP was established with a goal of 174,000 acre-feet per year of additional local water resource development. The new program allowed for an open application process and eliminated the previous competitive process. This program offered sliding scale incentives of up to \$250 per acre-foot, calculated annually based on a member agency's actual local resource project costs exceeding Metropolitan's prevailing water rate.

G. 2014 Local Resources Program

A series of workgroup meetings with member agencies was held to identify the reasons why there was a lack of new LRP applications coming into the program. The main constraint identified by the member agencies was that the \$250 per acre-foot was not providing enough of an incentive for developing new projects due to higher construction costs to meet water quality requirements and to develop the infrastructure to reach end-use consumers located further from treatment plants. As a result, in 2014, the Board authorized an increase in the maximum incentive amount, provided alternative payment structures, included onsite retrofit costs and reimbursable services as part of the LRP, and added eligibility for seawater desalination projects. The current LRP incentive payment options are structured as follows:

- Option 1 – Sliding scale incentive up to \$340/AF for a 25-year agreement term
- Option 2 – Sliding scale incentive up to \$475/AF for a 15-year agreement term
- Option 3 – Fixed incentive up to \$305/AF for a 25-year agreement term

H. On-site Retrofit Programs

In 2014, Metropolitan's Board also approved the On-site Retrofit Pilot Program which provided financial incentives to public or private entities toward the cost of small-scale improvements to their existing irrigation and industrial systems to allow connection to existing recycled water pipelines. The On-site Retrofit Pilot Program helped reduce recycled water retrofit costs to the end-use consumer which is a key constraint that limited recycled water LRP projects from reaching full production capacity. The program incentive was equal to the actual eligible costs of the on-site retrofit, or \$975 per acre-foot of up-front cost, which equates to \$195 per acre-foot for an estimated five years of water savings (\$195/AF x 5

years) multiplied by the average annual water use in previous three years, whichever is less. The Pilot Program lasted two years and was successful in meeting its goal of accelerating the use of recycled water.

In 2016, Metropolitan's Board authorized the On-site Retrofit Program (ORP), with an additional budget of \$10 million. This program encompassed lessons learned from the Pilot Program and feedback from member agencies to make the program more streamlined and improve its efficiency. As of fiscal year 2019/20, the ORP has successfully converted 440 sites, increasing the use of recycled water by 12,691 acre-feet per year.

I. Stormwater Pilot Programs

In 2019, Metropolitan's Board authorized both the Stormwater for Direct Use Pilot Program and a Stormwater for Recharge Pilot Program to study the feasibility of reusing stormwater to help meet regional demands in Southern California. These pilot programs are intended to encourage the development, monitoring, and study of new and existing stormwater projects by providing financial incentives for their construction/retrofit and monitoring/reporting costs. These pilot programs will help evaluate the potential benefits delivered by stormwater capture projects and provide a basis for potential future funding approaches. Metropolitan's Board authorized a total of \$12.5 million for the stormwater pilot programs (\$5 million for the District Use Pilot and \$7.5 million for the Recharge Pilot).

J. Current Status and Results of Metropolitan's Local Resource Programs

Today, nearly one-half of the total recycled water and groundwater recovery production in the region has been developed with an incentive from one or more of Metropolitan's local resource programs. During fiscal year 2020, Metropolitan provided about \$13 million for production of 71,000 acre-feet of recycled water for non-potable and indirect potable uses. Metropolitan provided about \$4 million to support projects that produced about 50,000 acre-feet of recovered groundwater for municipal use. Since 1982, Metropolitan has invested \$680 million to fund 85 recycled water projects and 27 groundwater recovery projects that have produced a cumulative total of about 4 million acre-feet.

Conservation Programs

Metropolitan's regional conservation programs and approaches have a long history. Decades ago, Metropolitan recognized that demand management at the consumer level would be an important part of balancing regional supplies and demands. Water conservation efforts were seen as a way to reduce the need for imported supplies and offset the need to transport or store additional water into or within the Metropolitan service area. The actual conservation of water takes place at the retail consumer level. Regional conservation approaches have proven to be effective at reaching retail consumers throughout Metropolitan's service area and successfully implementing water saving devices, programs and practices. Through the pooling of funding by Metropolitan's member agencies, Metropolitan is able to engage in regional campaigns with wide-reaching impact. Regional investments in demand management programs, of which conservation is a key part along with local supply programs, benefit all member agencies regardless of project location. These programs help to increase regional water supply reliability, reduce demands for imported water supplies, decrease the burden on Metropolitan's

infrastructure, reduce system costs, and free up conveyance capacity to the benefit of all member agencies.

A. Incentive-Based Conservation Programs

Conservation Credits Program

In 1988, Metropolitan's Board approved the Water Conservation Credits Program (Credits Program). The Credits Program is similar in concept to the Local Projects Program (LPP). The purpose of the Credits Program is to encourage local water agencies to implement effective water conservation projects through the use of financial incentives. The Credits Program provides financial assistance for water conservation projects that reduce demands on Metropolitan's imported water supplies and require Metropolitan's assistance to be financially feasible.

Initially, the Credits Program provided 50 percent of a member agency's program cost, up to a maximum of \$75 per acre-foot of estimated water savings. The \$75 Base Conservation Rate was established based Metropolitan's avoided cost of pumping SWP supplies. The Base Conservation Rate has been revisited by Metropolitan's Board and revised twice since 1988, from \$75 to \$154 per acre-foot in 1990 and from \$154 to \$195 per acre-foot in 2005.

In fiscal year 2020 Metropolitan processed more than 30,400 rebate applications totaling \$18.9 million.

Member Agency Administered Program

Some member agencies also have unique programs within their service areas that provide local rebates that may differ from Metropolitan's regional program. Metropolitan continues to support these local efforts through a member agency administered funding program that adheres to the same funding guidelines as the Credits Program. The Member Agency Administered Program allows member agencies to receive funding for local conservation efforts that supplement, but do not duplicate, the rebates offered through Metropolitan's regional rebate program.

Water Savings Incentive Program

There are numerous commercial entities and industries within Metropolitan's service area that pursue unique savings opportunities that do not fall within the general rebate programs that Metropolitan provides. In 2012, Metropolitan designed the Water Savings Incentive Program (WSIP) to target these unique commercial and industrial projects. In addition to rebates for devices, under this program, Metropolitan provides financial incentives to businesses and industries that created their own custom water efficiency projects. Qualifying custom projects can receive funding for permanent water efficiency changes that result in reduced potable demand.

B. Non-Incentive Conservation Programs

In addition to its incentive-based conservation programs, Metropolitan also undertakes additional efforts throughout its service area that help achieve water savings without the use of rebates. Metropolitan's non-incentive conservation efforts include:

- residential and professional water efficient landscape training classes
- water audits for large landscapes
- research, development and studies of new water saving technologies
- advertising and outreach campaigns
- community outreach and education programs
- advocacy for legislation, codes, and standards that lead to increased water savings

Current Status and Results of Metropolitan's Conservation Programs

Since 1990, Metropolitan has invested \$824 million in conservation rebates that have resulted in a cumulative savings of 3.27 million acre-feet of water. These investments include \$450 million in turf removal and other rebates during the last drought which resulted in 175 million square feet of lawn turf removed. During fiscal year 2020, 1.06 million acre-feet of water is estimated to have been conserved. This annual total includes Metropolitan's Conservation Credits Program; code-based conservation achieved through Metropolitan-sponsored legislation; building plumbing codes and ordinances; reduced consumption resulting from changes in water pricing; and pre-1990 device retrofits.

Infeasibility of Accounting Regional Investments in Reduced Reliance Below the Regional Level

The accounting of regional investments that contribute to reduced reliance on supplies from the Delta watershed is straightforward to calculate and report at the regional aggregate level. However, any similar accounting is infeasible for the individual member agencies or their customers. As described above, the region (through Metropolitan) makes significant investments in projects, programs and other resources that reduce reliance on the Delta. In fact, all of Metropolitan's investments in Colorado River supplies, groundwater and surface storage, local resources development and demand management measures that reduce reliance on the Delta are collectively funded by revenues generated from the member agencies through rates and charges.

Metropolitan's revenues cannot be matched to the demands or supply production history of an individual agency, or consistently across the agencies within the service area. Each project or program funded by the region has a different online date, useful life, incentive rate and structure, and production schedule. It is infeasible to account for all these things over the life of each project or program and provide a nexus to each member agency's contributions to Metropolitan's revenue stream over time. Accounting at the regional level allows for the incorporation of the local supplies and WUE programs done by member agencies and their customers through both the regional programs and through their own specific local programs. As shown above, despite the infeasibility of accounting reduced Delta reliance below the

regional level, Metropolitan’s member agencies and their customers have together made substantial contributions to the region’s reduced reliance.

J.7 Amended 2015 UWMP – Appendix J

The information contained in **Appendix J** attached to IRWD’s 2015 UWMP is consistent with the IRWD 2020 UWMP Appendix C and WR P1 subsection (c)(1)(C) (Cal. Code Regs. tit. 23, § 5003). IRWD provided notice of the draft 2020 UWMP (including Appendix C to the 2020 UWMP), the Addendum to IRWD’s 2015 UWMP (Appendix J to the 2015 UWMP), and IRWD’s 2020 Water Shortage Contingency Plan (WSCP) at three separate public hearings and Board meeting to consider adoption of each document in accordance with CWC Sections 10621(b) and 10642, and Government Code Section 6066, and Chapter 17.5 (starting with Section 7290) of Division 7 of Title 1 of the Government Code.

The public review of the Addendum to the 2015 UWMP (**Appendix J**) was posted prominently on IRWD’s website, www.irwd.com. The notice of availability of the document was sent to the County of Orange and cities in IRWD’s service area.

In addition, a public notice advertising each public hearing was published in the Orange County Register, a Southern California newspaper, on June 6 and June 13, 2021. Copies of: (1) the notification letter sent to the County of Orange and cities in IRWD’s service area, and (2) the notice published in the newspapers are included in the 2020 UWMP **Appendix D**.

IRWD held a public hearing to adopt the 2015 UWMP Addendum – Appendix J “Reduced Delta Reliance” on Monday June 28, 2021. The public hearing provided an opportunity for the public to provide input to the 2015 Addendum before it was adopted. No comments were received from the public. The adoption of the 2015 Addendum was combined with the public hearing. Following the public hearing, IRWD’s Board of Directors adopted the 2015 Addendum by Resolution No. 2021- 10.

In conclusion, this adopted **Appendix J** will be attached as an addendum to IRWD’s 2015 UWMP. Thereby demonstrating compliance, “commencing in 2015,” as indicated in the CWC. As noted, the 2015 Addendum (Appendix J to the 2015 UWMP) was reviewed at a separate public hearing and adopted independent of the 2020 plans.