Alameda County Water District

ADDENDUM TO THE 2015-2020 URBAN WATER MANAGEMENT PLAN

ALAMEDA COUNTY WATER DISTRICT'S REDUCE DELTA RELIANCE THROUGH IMPROVED REGIONAL WATER SELF-RELIANCE REPORTING
MAY 2021

ACWD
ALAMEDA COUNTY WATER DISTRICT

APPENDIX J
ALAMEDA COUNTY WATER DISTRICT'S REDUCED DELTA RELIANCE REPORTING

J.1 BACKGROUND

Under the Sacramento-San Joaquin Delta Reform Act of 2009, state and local public agencies proposing a covered action in the Delta,[1] prior to initiating the implementation of that 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 submit that certification to the Delta Stewardship Council.[2] Anyone may appeal a certification of consistency, and if the Delta Stewardship Council grants the appeal, the covered action may not be implemented until the agency proposing the covered action submits a revised certification of consistency, and either no appeal is filed, or the Delta Stewardship Council denies the subsequent appeal.[3]

An urban water supplier that anticipates participating in or receiving water from a proposed covered action 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 should provide information in their 2015 and 2020 Urban Water Management Plans (UWMPs) that can then be used in the covered action process to demonstrate consistency with Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (WR P1).[4]

WR P1 details what is needed 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, 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 in terms of (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 Water Code Division 6, Parts 2.55, 2.6, and 2.8;

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[1] Water Code, § 85057.5; Cal. Code Regs. tit. 23, § 5001.
[2] Water Code, § 85225; Delta Plan, App. D.
[3] Water Code, §§ 85225.10-85225.25; Delta Plan, App. D.
[4] Cal. Code Regs., tit. 23, § 5003.

(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 Water Code section 1011(a).

The analysis and documentation provided below include all of 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.2 SUMMARY OF EXPECTED OUTCOMES FOR REDUCED RELIANCE ON THE DELTA

As stated in WR P1 (c)(1)(C), the policy requires that, commencing in 2015, UWMPs include expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance. WR P1 further states that those outcomes shall be reported in the UWMP as the reduction in the amount of water used, or in the percentage of water used, from the Delta.

DWR's UWMP Guidebook (Guidebook Appendix C) proposes the use of 2010 as a baseline for such outcomes. While it is understood that a fixed year is needed to establish a baseline against which future actions to reduce reliance can be measurably compared, the District is concerned that analyses resulting from this methodology fail to recognize considerable efforts by 'early-adopter' agencies, such as the District, that have been highly proactive in reducing reliance on the Delta. After experiencing large reductions in State Water Project reliability during the 1987-1992 drought, the District's Board of Directors adopted a set of reliability policy objectives as part of its 1995 Integrated Resources Plan (IRP) to explicitly reduce reliance on imported supplies from the Delta[5], setting in motion 25 years of focused investment in local supply reliability measures. These measures included the conjunctive use groundwater storage expansion, brackish groundwater desalination, stormwater capture, and targeted water use efficiency programming. Between 1995 and 2010, the District implemented over $94 million[6] in IRP recommendations to reduce Delta reliance, including a regrade of the Quarry Lakes recharge ponds to increase the capture of local surface water and expand conjunctive use management of the Niles Cone Groundwater Subbasin ($21 million[6]); Phases 1 and 2 of the Newark Desalination Facility (Desal Facility), a brackish groundwater desalination facility that produces potable water from salt-contaminated groundwater as part of the District's Aquifer Recovery Program ($60 million[6]); and invested over $13 million[6] in water use efficiency programming. Under the Guidebook Appendix C methodology, however, the District does not receive credit for any of these proactive investments that have reduced pre-2010 reliance on Delta by at least 10,000 AF/year.

Accordingly, the District maintains that the Guidebook Appendix C methodology does not provide a complete picture of reduced Delta reliance for our agency and that any future consistency determination under Delta Plan Policy WR P1 should also consider pre-2010 water use efficiency savings and pre-2010 capital projects and water supply initiatives implemented to reduce Delta reliance. However, for compliance

[5] https://www.acwd.org/DocumentCenter/View/1514/1995-Integrated-Resources-Planning-Study?bidId=

[6] Historical investment estimates have been escalated to 2020 dollars.

purposes, the District has prepared the following reduced Delta reliance analysis in accordance with the Guidebook Appendix C methodology.

The expected outcomes for the District's Delta reliance and regional self-reliance were developed using the approach and guidance described in Guidebook Appendix C. The following provides a summary of the near-term (2025) and long-term (2045) expected outcomes for the District's Delta reliance and regional self-reliance. The results show that the District 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.

Expected Outcomes for Regional Self-Reliance

- Near-term (2025) – Normal water year regional self-reliance is expected to increase by 15,400 AF from the 2010 baseline; this represents an increase of about 21 percent of 2025 normal water year retail demands (Table J-2).
- Long-term (2045) – Normal water year regional self-reliance is expected to increase by more than 26,500 AF from the 2010 baseline, this represents an increase of about 23 percent of 2045 normal water year retail demands (Table J-2).

Expected Outcomes for Reduced Reliance on Supplies from the Delta Watershed

- Near-term (2025) – Using the methodology outlined in the Guidebook Appendix C that relies on normal year retail demands, normal water year reliance on supplies from the Delta watershed decreased by 5,800 AF from the 2010 baseline, this represents a decrease of about 12 percent of 2025 normal water year retail demands (Table J-3).
- Long-term (2045) – Using the methodology outlined in the Guidebook Appendix C that relies on normal year retail demands, normal water year reliance on supplies from the Delta watershed decreased by 5,800 AF from the 2010 baseline, this represents a decrease of about 22 percent of 2045 normal water year retail demands (Table J-3).

J.3 DEMONSTRATION OF REDUCED RELIANCE ON THE DELTA

The methodology used to determine the District's reduced Delta reliance and improved regional self-reliance is consistent with the approach detailed in Guidebook Appendix C. Narrative justifications for the accounting of supplies as well as the documentation of specific data sources are also consistent with DWR's recommendations in Guidebook Appendix C. Some of the key assumptions underlying the District's demonstration of reduced reliance include:

- All data were populated from the current 2020 UWMP or previously adopted UWMPs and their associated modeling runs, as well as modeling runs from the District's Integrated Surface Water and Groundwater Model (IGSM) that incorporate the same methodology used to generate the data published in the District's Sustainable Groundwater Management Act (SGMA) Annual Report. The data provided represent average or 'normal water' year conditions.
- All analyses were conducted at the service area level.
- No projects or programs that are described in the UWMPs as potential future water supply alternatives were included in the accounting of supplies.

Baseline and Expected Outcomes

A baseline is needed to calculate the expected outcomes for measurable reduction in Delta reliance and improved regional self-reliance. This analysis uses a normal water year representation of 2010 as the

baseline, which is consistent with the approach described in the Guidebook Appendix C. Documentation of the specific data sources and assumptions are included in the discussions below.

Service Area Demands

Demand data for the 2010 baseline was taken from the District's 2005 UWMP, as the UWMPs generally provide 'current year actual' data for the year in which they are adopted (i.e., 2005 UWMP forecasts begin in 2010, 2010 UWMP forecasts begin in 2015, and so on). Consistent with the 2010 baseline data approach, the demand data for reduced Delta reliance and improved regional self-reliance for 2015 was taken from the District's 2010 UWMP. Demand data for 2020-2045 were taken from the current 2020 UWMP.

In alignment with the Guidebook Appendix C, this analysis uses normal water year demands to calculate expected outcomes in terms of the percentage of water used. According to the Guidebook Appendix C, using normal water year demands can serve as a proxy for the amount of supplies that would be used in a normal water year, which 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.

Because WR P1 considers water use efficiency savings a source of water supply, water suppliers such as the District that explicitly calculate water use efficiency savings will need to make an adjustment to properly reflect normal water year demands in the calculation of reduced reliance. As explained in the Guidebook Appendix C, water use efficiency savings must be added back to the normal year demands to represent demands without water use efficiency savings accounted for; otherwise, the effect of water use efficiency savings on regional self-reliance would be overestimated. Table J-1 shows the results of this adjustment for the District. Supporting narratives and documentation for the all the data shown in Table J-1 are provided below. Water use efficiency savings volumes calculated based on SB X7-7 reporting methodology are presented in Attachment 1 to this Appendix J.

Table J-1
Demands without Water Use Efficiency Accounted For

Total Service Area Water Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	58,800	50,100	42,200	44,600	44,200	44,000	44,100	52,100
Reported Water Use Efficiency or Estimated Water Use Efficiency Since Baseline	4900	13,100	23,800	22,400	24,500	26,200	27,600	30,200
Service Area Water Demands without Water Use Efficiency Accounted For	63,700	63,200	66,000	67,000	68,700	70,200	71,700	82,300

Service Area Demands without Water Use Efficiency

The service area demands shown in Table J-1 represent the total retail water demands for the District's service area and includes single family residential, multi-family residential, commercial, industrial, institutional, landscape, and other use demands. These demand types and the modeling methodologies used to calculate them are described in Chapter 2 and Appendix E of the District's UWMP.

Water Use Efficiency

The water use efficiency numbers shown in Table J-1 represent the calculated water use efficiency savings (conservation) for the District's service area, including savings from active and passive water use efficiency measures. These water use efficiency volumes were calculated using the SB X7-7 gallons per capita per day (gpcd) reporting values as published in the District's 2020 UWMP Table 8-1, as these published values include all historical data needed to calculate the 2010 and 2015 water use efficiency volumes as well. All water use efficiency volumes were calculated in comparison to the SB X7-7 baseline of 170 gpcd. For the 2010 baseline year as well as 2015, the water use efficiency volumes were calculated as the differences between the 10-year running averages from 2010 and 2015, respectively, and the SB X7-7 baseline 170

gpcd value. For 2020-2045, the water use efficiency volumes were calculated as the difference between the District's 2020 WEMP future demand forecast with both passive and active water use efficiency savings and the SB X7-7 baseline of 170 gpcd value. These sources of water use efficiency and the methodologies used to calculate them are further described in Chapter 2 and Chapter 7 of the UWMP, and are presented in Attachment 1 of this Appendix J.

Although the District demonstrates a water use efficiency savings volume of 4,900 AF in Table J-1 in the 2010 baseline year, which is consistent with SB X7-7 reporting in the District's 2010 UWMP, the formulas and tables for reduced Delta reliance developed in the Guidebook Appendix C do not provide a mechanism to include this pre-2010 water use efficiency savings into any percentage metrics, i.e. the District does not receive credit for any pre-2010 conservation in either Table J-2 or Table J-3. However, the District maintains that such pre-2010 water use efficiency savings should technically be included in any future consistency determination under WR P1.

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

- Baseline (2010) values – the District's 2005 UWMP, Table 8-2: Projected Normal Year Water Supply and Demand Comparison; Attachment 1 to Appendix J: Historic and Projected Water Use Efficiency Savings as a Source of Supply based on SB X7-7 Methodology.
- 2015 values – the District's 2010 UWMP, Table 9-2: Projected Normal Year Water Supply and Demand Comparison; Attachment 1 to Appendix J: Historic and Projected Water Use Efficiency Savings as a Source of Supply based on SB X7-7 Methodology.
- 2020-2045 values – the District's 2020 UWMP, Table 9-2: Projected Normal Year Water Supply and Demand Comparison; Attachment 1 to Appendix J: Historic and Projected Water Use Efficiency Savings as a Source of Supply based on SB X7-7 Methodology.

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. Table J-2 shows expected outcomes for supplies contributing to regional self-reliance both in amount and as a percentage. The numbers shown in Table J-2 represent efforts to improve regional self-reliance for the District's service area. Supporting narratives and documentation for all of the data shown in Table J-2 are provided below.

The results shown in Table J-2 demonstrate that the District's service area is measurably improving its regional self-reliance. In the near-term (2025), the expected outcome for normal water year regional self-reliance increases by 15,400 AF from the 2010 baseline; this represents an increase of about 21 percent of 2025 normal water year retail demands. In the long-term (2045), normal water year regional self-reliance is expected to increase by 26,500 AF from the 2010 baseline; this represents an increase of about 23 percent of 2045 normal water year retail demands.

Table J-2
Supplies Contributing to Regional Self-Reliance

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Use Efficiency	4,900	13,100	23,800	22,400	24,500	26,200	27,600	30,200
Water Recycling	-	-	-	-	-	-	-	-
Stormwater Capture and Use	900	900	900	900	900	900	900	900
Advanced Water Technologies	-	-	-	-	-	-	-	-
Conjunctive Use Projects	13,100	13,100	13,000	13,100	13,300	13,500	13,600	15,800
Local and Regional Water Supply and Storage Projects[(1)]	2,100	-	-	-	-	-	-	600
Other Programs and Projects that Contribute to Regional Self-Reliance	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100
Water Supplies Contributing to Regional Self-Reliance	26,100	32,200	42,800	41,500	43,800	45,700	47,200	52,600

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	63,700	63,200	66,000	67,000	68,700	70,200	71,700	82,300

Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Supplies Contributing to Regional Self-Reliance	26,100	32,200	42,800	41,500	43,800	45,700	47,200	52,600
Change in Water Supplies Contributing to Regional Self-Reliance		6,100	16,700	15,400	17,700	19,600	21,100	26,500

Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Percent of Water Supplies Contributing to Regional Self-Reliance	41.0%	50.9%	64.8%	61.9%	63.8%	65.1%	65.8%	63.9%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance		10.0%	23.9%	21.0%	22.8%	24.1%	24.9%	22.9%

Notes:
(1) 1. Local and Regional Water Supply and Storage Projects includes the sum of surface water captured in Del Valle Reservoir and deep percolation less saline outflow and less default Aquifer Reclamation Program pumping. If the sum is less than zero due to greater saline outflow resulting from high groundwater levels, zero acre-feet of local supply is shown for that year.

Water Use Efficiency

The Water Use Efficiency information shown in Table J-2 is taken directly from Table J-1 above.

Water Recycling

Water recycling is not currently a source of supply for the District and therefore does not contribute to regional self-reliance as a source of supply in Table J-2. However, the District continues to evaluate future water recycling opportunities in the service area. Chapter 6 and Chapter 9 of the District's UWMP summarize potential future water supply alternatives that involve water recycling.

Stormwater Capture and Use

The Stormwater Capture and Use data shown in Table J-2 is composed of supplies that are used to recharge the local groundwater basin from direct rainfall and runoff into the District's groundwater recharge facilities. Note that this stormwater capture is separate and additive to groundwater recharge included under Conjunctive Use Projects in Table J-2, as the Conjunctive Use Projects' component only includes surface water volumes diverted into the District's recharge facilities under the District's water right on Alameda Creek. The values in Table J-2 reflect the normal year values as derived from the District's Integrated Surface Water and Groundwater Model (ISGM) using the same methodology that underpins the data published in the District's Sustainable Groundwater Management Act (SGMA) Annual Report. Since the surface area and topography of the recharge facilities has remained essentially unchanged during the period between 2010-2020 and is expected to remain unchanged for the foreseeable future, the normal year stormwater capture volume derived from the ISGM represents a static 'normal year' value appropriate for all years from 2010-2045.

Advanced Water Technologies

Advanced Water Technologies does not currently represent a source of supply for the District and therefore does not contribute to regional self-reliance as a source of supply in Table J-2. However, the District continues to evaluate future Advanced Water Technologies opportunities in the service area. Chapter 9 of the District's UWMP summarizes potential future water supply alternatives that include Advanced Water Technologies.

Conjunctive Use Projects

The values for Conjunctive Use Projects shown in Table J-2 represent the surface water volumes diverted into the District's recharge facilities under the District's water right on Alameda Creek. As described in the Stormwater Capture and Use discussion above, direct rainfall into the District's recharge facilities and local runoff captured within the District's service area comprises the Stormwater Capture and Use volumes and is therefore not included in the Conjunctive Use Projects' volumes. The values in Table J-2 were populated using median 'normal year' diversion data from the District's 2015 and 2020 UWMP modeling. Since the reporting methodology used in the 2010 UWMP did not provide a median 'normal year' diversion volume, the 2010 baseline borrowed the 2015 UWMP median 'normal year' diversion volume, a reasonable analog for this 'normal year' value. Chapter 4, Chapter 9, and Appendix C of the District's UWMP discusses the future of the District's groundwater management in greater depth.

Local and Regional Water Supply and Storage Programs

The data for Local and Regional Water Supply and Storage Programs shown in Table J-2 includes supplies from the District's water right on Arroyo Del Valle, which allows water to be captured and stored in Del Valle Reservoir, as well as deep percolation from direct rainfall in the service area. These supplies are described in Chapter 3, Appendix A, and Appendix B of the District's UWMP. As described in the Stormwater Capture and Use discussion above, direct rainfall into the District's recharge facilities is included separately in the Stormwater Capture and Use component; however, all other deep percolation from direct rainfall in the service area is included here under Local and Regional Water Supply and Storage Programs. Similarly, as described in the Conjunctive Use Projects discussion above, supplies from Arroyo Del Valle and deep percolation within the service area are not included in the Conjunctive Use Projects component. Lastly, groundwater system demands for saline outflow and Aquifer Reclamation Pumping to provide salt management for the Niles Cone Groundwater Subbasin are subtracted from these values so as not to over-allocate groundwater supply necessary for sustainable groundwater management.

The values in Table J-2 were populated using the results of the 2010, 2015, and 2020 UWMP modeling, with deep percolation values static throughout all years, and Aquifer Reclamation Pumping, Del Valle Reservoir volumes, and saline outflow specific to each modeling run. Since the 2010 UWMP did not provide the modeling history to obtain median 'normal year' volumes for local supply available in Del Valle Reservoir or deep percolation, the 2010 baseline year borrowed the 2015 UWMP median 'normal year' values for these two inputs, which serve as reasonable analogs for these 'normal year' values.

Other Programs and Projects that Contribute to Regional Self-Reliance

The data for Other Programs and Projects that Contribute to Regional Self-Reliance shown in Table J-2 represents supplies from the District's Newark Desalination Facility, which desalinates brackish water for potable use as part of the District's aquifer reclamation program. The Other Programs and Projects values in Table J-2 were populated using the District's 2010, 2015, and 2020 UWMPs.

The local and regional supply numbers shown in Table J-2 were obtained from the following sources:

- Baseline (2010) values – the District's 2010 and 2015 UWMPs and their associated modeling runs, modeling runs from the District's Integrated Surface Water and Groundwater Model (IGSM) that incorporate the same methodology used to generate the data published in the District's Sustainable Groundwater Management Act (SGMA) Annual Report, Table 9-2: Projected Normal Year Water Supply and Demand Comparison
- 2015 values – the District's 2015 UWMP and its associated modeling, modeling runs from the District's Integrated Surface Water and Groundwater Model (IGSM) that incorporate the same methodology used to generate the data published in the District's Sustainable Groundwater Management Act (SGMA) Annual Report, Table 9-2: Projected Normal Year Water Supply and Demand Comparison
- 2020 values – the District's 2020 UWMP and its associated modeling, modeling runs from the District's Integrated Surface Water and Groundwater Model (IGSM) that incorporate the same methodology used to generate the data published in the District's Sustainable Groundwater Management Act (SGMA) Annual Report, Table 9-2: Projected Normal Year Water Supply and Demand Comparison

Reliance on Water Supplies from the Delta Watershed

In order for a covered action to demonstrate consistency with the Delta Plan, WR P1 subsection (c)(1)(C) requires that water suppliers report the expected outcomes for measurable reductions in supplies from the Delta watershed either as an amount or as a percentage. This analysis provides both calculations. Based on the methodology described in Guidebook Appendix C, and consistent with the approach of this analysis in not including projects under development or potential future water supply alternatives, this accounting does not include any supplies from potential future covered actions. Table J-3 shows the expected outcomes for reliance on supplies from the Delta watershed for the District's service area based on normal year retail demands without water use efficiency.

The results shown in Table J-3 demonstrate that the District's service area 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 5,800 AF from the 2010 baseline; this represents a decrease of about 12 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 5,800 AF from the 2010 baseline; this represents a decrease of about 22 percent of 2045 normal water year retail demands.

Table J-3
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 (Optional)
CVP/SWP Contract Supplies	26,700	27,400	20,900	20,900	20,900	20,900	20,900	20,900
Delta/Delta Tributary Diversions								
Transfers and Exchanges of Supplies from the Delta Watershed								
Other Water Supplies from the Delta Watershed	15,400	15,400	15,400	15,400	15,400	15,400	15,400	15,400
Total Water Supplies from the Delta Watershed	42,100	42,800	36,300	36,300	36,300	36,300	36,300	36,300

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	63,700	63,200	66,000	67,000	68,700	70,200	71,700	82,300

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Supplies from the Delta Watershed	42,100	42,800	36,300	36,300	36,300	36,300	36,300	36,300
Change in Water Supplies from the Delta Watershed		700	(5,800)	(5,800)	(5,800)	(5,800)	(5,800)	(5,800)

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 (Optional)
Percent of Water Supplies from the Delta Watershed	66.1%	67.7%	55.0%	54.2%	52.8%	51.7%	50.6%	44.1%
Change in Percent of Water Supplies from the Delta Watershed		1.6%	-11.1%	-11.9%	-13.3%	-14.4%	-15.5%	-22.0%

Note:
(1) In 2015, the District's actual imports of Water Supplies from the Delta Watershed were much lower than shown in Table J-3 due to the 2012-2016 state-wide drought and associated constraints on water supplies and deliveries, with only 17,658 AF available from the CVP/SWP Contract Supplies and only 11,797 AF available from the Other Water Supplies from the Delta Watershed (SFPUC RWS). These actual imported volumes available in 2015 would calculate as 46.6% as Percent of Water Supplies from the Delta Watershed and -19.4% as Change in Percent of Water Supplies from the Delta Watershed compared to the 2010 baseline using the same methodology shown in Table J-3.

CVP/SWP Contract Supplies

The CVP/SWP contract supplies shown in Table J-3 include the District's SWP Table A and Article 21 supplies. These supplies are described in Chapter 3 and Appendix A of the District's UWMP. The District does not have contract supplies with the CVP.

These contract supplies are representative of 'normal year' values, with the 2010 baseline year 2015 populated from the median year Table A allocations as published in the District's respective 2010 and 2015 UWMPs. 'Normal year' values for 2020-2045 were taken from the District's 2020 UWMP, which uses the agency-specific median Table A allocations from the Alternate Reporting Tables from DWR's 2019 DCR Future Conditions scenario for all years.

Transfers and Exchanges of Supplies from the Delta Watershed

For the District, no normal year supply sources fall under the Transfers and Exchanges of Supplies from the Delta Watershed category and therefore are not listed as a source of supply in Table J-2. However, the District continues to evaluate future opportunities for increased self-reliance in the service area. Chapter 9 of the District's UWMP discusses potential future water supply alternatives that could enhance regional self-reliance, including transfer and exchanges.

Other Water Supplies from the Delta Watershed

The Other Water Supplies from the Delta Watershed shown in Table J-3 includes the District's SFPUC RWS supplies. These supplies are described in Chapter 3 and Appendix A of the District's UWMP.

These contract supplies are representative of 'normal year' values, with the values taken from the 2010, 2015, and 2020 UWMP modeling.

Supplies from the Delta Watershed shown in Table J-3 are from the following sources.

- Baseline (2010) values – the District's 2010 UWMP, Table 3-3: District Supply Request and Projected Availability of SWP Supplies
- 2015 values – the District's 2015 UWMP, Table 3-3: District Supply Request and Projected Availability of SWP Supplies
- 2020-2045 values – the District's 2020 UWMP, Table 3-3: District Supply Request and Projected Availability of SWP Supplies

J.4 UWMP 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 already 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.

Chapter 9 of the District's UWMP summarizes the implementation plan and continued progress in developing a diversified water portfolio to meet the region's water needs. Chapter 9 also covers a range of potential future water supply alternatives that include water use efficiency, water recycling, advanced water technologies, conjunctive use projects, local and regional water supply and storage programs, other projects and programs that contribute to regional self-reliance, and transfers and exchanges of the supplies from the Delta watershed.

J.5 2015 UWMP APPENDIX J

The information contained in this Appendix J is also intended to be attached as a new Appendix J to the District's 2015 UWMP consistent with WR P1 subsection (c)(1)(C) *(*Cal. Code Regs. tit. 23, § 5003). The District provided notice of the availability of the draft 2020 UWMP (including this Appendix J which will also be a new Appendix J to its 2015 UWMP) and 2020 WSCP and the public hearing to consider adoption of both plans 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 drafts of the 2020 UWMP, Appendix J to the 2015 UWMP, and the 2020 WSCP were posted prominently on the District's website, acwd.org, on April 23, 2021, in advance of the public hearing on May 13, 2021. The notice of availability of the documents was sent to the cities and the county in the District's service area as well as numerous other agencies. In addition, a public notice advertising the public hearing was published in two regional Bay Area newspapers (*The Argus* and *The Tri-City Voice*) on April 27 and May 4, 2021 for *The Tri-City* Voice and April 30 and May 7, 2021 for *The Argus* 2021. Copies of: (1) the notification letter sent to the cities and the county in the District's service area and numerous other agencies, and (2) the notice published in the newspapers are included in the 2020 UWMP Appendix I. Thus, this

Appendix J to the District's 2020 UWMP, which was adopted with the District's 2020 UWMP, is also appended to the District's 2015 UWMP.

ATTACHMENT 1

Historic and Projected Water Use Efficiency Savings as a Source of Supply based on SB X7-7 Methodology

	Population Estimate (CA DOF and US Census)	Historic and Projected Production Demand (AF/yr.)	Historic and Projected Private Pumping Demand (AF/yr.)	Total Demand (AF/yr.)	Total Demand (GPCD)	SBX7-7 10 yr. Moving Average (GPCD)	Water Use Efficiency Savings: Historic 10-yr. Moving Average relative to baseline (AF/yr.)	Water Use Efficiency Savings: Projected year relative to baseline (AF/yr.)
1990	264,962	46,639	5,913	52,552	177			
1991	265,853	39,696	4,592	44,288	149			
1992	269,396	42,873	5,206	48,079	159			
1993	274,105	46,211	4,730	50,941	166			
1994	275,940	46,375	4,620	50,995	165			
1995	278,182	47,958	4,823	52,781	169			
1996	280,812	52,115	4,501	56,616	180			
1997	286,734	55,797	4,580	60,377	188			
1998	295,661	51,549	3,158	54,707	165			
1999	304,006	54,532	2,845	57,377	168			
2000	312,753	55,727	3,901	59,628	170.2			
2001	316,401	55,751	2,984	58,735	165.7			
2002	319,589	55,574	3,540	59,114	165.1			
2003	319,048	54,204	3,466	57,670	161.4			
2004	317,523	55,082	3,846	58,928	165.7	170		
2005	316,780	52,815	3,290	56,105	158.1	169	400	
2006	316,304	52,526	2,864	55,390	156.3	166	1,237	
2007	317,739	54,497	2,577	57,074	160.3	164	2,226	
2008	320,468	54,302	2,081	56,383	157.1	163	2,536	
2009	323,043	49,018	2,129	51,147	141.3	160	3,539	
2010	325,741	46,596	1,709	48,305	132.4	156	**4,948**	
2011	329,596	46,810	1,764	48,574	131.6	153	6,267	
2012	333,994	48,140	2,033	50,173	134.1	150	7,511	
2013	337,400	50,250	1,759	52,009	137.6	147	8,486	
2014	341,649	40,555	2,106	42,661	111.5	142	10,667	
2015	345,656	36,519	1,935	38,454	99.3	136	**13,068**	
2016	348,113	38,162	1,874	40,036	102.7	131	15,253	
2017	350,649	40,866	1,671	42,537	108.3	126	17,408	
2018	352,602	41,954	1,689	43,643	110.5	121	19,344	
2019	355,229	41,576	1,670	43,246	108.7	118	20,788	
2020	356,823	42,223	1,924	44,147	110.4	N/A	N/A	**23,762**
2021	358,246	42,658	1,924	44,582	111.1	N/A	N/A	23,598
2022	359,669	43,158	1,924	45,082	111.9	N/A	N/A	23,369
2023	361,092	43,620	1,924	45,544	112.6	N/A	N/A	23,178
2024	362,515	44,102	1,924	46,026	113.3	N/A	N/A	22,966
2025	362,442	44,637	1,924	46,561	114.7	N/A	N/A	**22,418**
2026	364,165	44,595	1,924	46,520	114.0	N/A	N/A	22,787
2027	365,887	44,500	1,924	46,424	113.3	N/A	N/A	23,210
2028	367,609	44,388	1,924	46,312	112.5	N/A	N/A	23,650
2029	369,332	44,279	1,924	46,203	111.7	N/A	N/A	24,087
2030	371,054	44,184	1,924	46,108	110.9	N/A	N/A	**24,510**
2031	372,649	44,112	1,924	46,037	110.3	N/A	N/A	24,884
2032	374,243	44,056	1,924	45,980	109.7	N/A	N/A	25,244
2033	375,838	44,026	1,924	45,950	109.1	N/A	N/A	25,577
2034	377,432	44,008	1,924	45,932	108.6	N/A	N/A	25,899
2035	379,027	43,999	1,924	45,923	108.2	N/A	N/A	**26,212**
2036	380,620	44,003	1,924	45,927	107.7	N/A	N/A	26,510
2037	382,213	44,016	1,924	45,941	107.3	N/A	N/A	26,800
2038	383,807	44,037	1,924	45,961	106.9	N/A	N/A	27,083
2039	385,400	44,065	1,924	45,989	106.5	N/A	N/A	27,358
2040	386,993	44,148	1,924	46,072	106.3	N/A	N/A	**27,579**
2041	398,016	45,709	1,924	47,633	106.8	N/A	N/A	28,115
2042	409,038	47,303	1,924	49,228	107.4	N/A	N/A	28,619
2043	420,061	48,902	1,924	50,826	108.0	N/A	N/A	29,118
2044	431,084	50,503	1,924	52,427	108.6	N/A	N/A	29,615
2045	442,106	52,062	1,924	53,986	109.0	N/A	N/A	**30,154**

Notes:

(1) Water Use Efficiency Savings values for 2005-2019 are based on historic values and were calculated as the difference between the 10-year moving average gallons per capita per day (gpcd) value and the SB X7-7 10-year average baseline value of 170 gpcd, converted to acre-feet. Additional information on SB X7-7 can be found in Chapter 8 of the UWMP.

(2) Water Use Efficiency Savings values for 2020-2045 were calculated as the difference between the District's 2020 Water Efficiency Master Plan (WEMP) future demand forecast with both passive or active water use efficiency savings and the SB X7-7 10-year average baseline value of 170 gpcd, converted to acre-feet. Additional information on the WEMP can be found in Chapter 2 and Appendix E of the UWMP.

(3) Future private pumping demand projections are estimated from the UWMP modeling as presented in Chapter 9 of the UWMP.