Appendix J

City of Brentwood's Reduced Delta Reliance Reporting

J.1 Background

The Sacramento-San Joaquin Delta Reform Act of 2009 (Delta Reform Act) established two co-equal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. As part of the Delta Reform Act, the Delta Stewardship Council (DSC) was created who then developed and adopted the Delta Plan in 2013. The Delta Plan is a comprehensive, long-term, legally enforceable plan guiding how federal, state, and local agencies manage the Delta's water and environmental resources. Included in the Delta Plan is Delta Plan Policy WR P1, *Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance* (WR P1). WR P1 is relevant to any state or local public agency that anticipate 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. Prior to initiating the implementation of that action, agencies 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 DSC. WR P1 identifies UWMPs as the tool to demonstrate consistency with state policy to reduce reliance on the Delta for an agency that carries out or takes part in a covered action.

J.2 Demonstrating Reduced Reliance on the Delta

The analysis and documentation provided below includes all of the elements described in WR P1, namely subdivisions (c)(1)(B) and (c)(1)(C), that need to be included in a water supplier's UWMP to document and quantify supplies contributing to reduced reliance on the Delta watershed and improved self-reliance. The approach is consistent with what is included in Appendix C of the DWR Guidebook. Some of the key assumptions that went into the City's reduced reliance analysis include:

- All data were obtained from the current 2020 UWMP or previously adopted UWMPs and represent average or normal water year conditions.
- No projects or programs that are described in the UWMPs as "Future Water Supply Projects or Programs" were included in the accounting of supplies.
- This analysis uses a normal water year representation of 2010 as the baseline. Data for the 2010 baseline was taken from the City's 2005 UWMP as the UWMPs generally do not provide normal water year data for the year that they are adopted (i.e., 2005 UWMP forecasts begin in 2010, 2010 UWMP forecasts begin in 2015, and so on). This approach was used for 2015 and 2020 data as well, in that it was retrieved from the City's 2010 and 2015 UWMPs, respectively. Data for 2025-2045 are from the current 2020 UWMP.

J.2.1 Water Use without Water Use Efficiency

WR P1 considers water use efficiency savings as a source of supply. Because the City does not explicitly estimate water use efficiency as a supply, the water demand data from the current and past UWMPs that was used for this assessment needed to be adjusted to properly reflect normal water year demands in the calculation of reduced reliance. The suggested approach included in Appendix C of the DWR Guidebook was utilized to make these adjustments. The approach assumes that the embedded water use efficiency savings can be calculated based on changes in forecasted per capita water use since the baseline. Once calculated, the embedded water use efficiency savings can be added to the expected outcome of water supplies that contribute to reduced reliance on Delta water. Supporting narratives and documentation for all the data shown in the tables are provided below.

The first step in the analysis involved adjusting total service area demands to reflect only demands that can implement water use efficiency measures (i.e., residential, agricultural, and commercial, industrial and institutional demands) but still include the embedded water use efficiency supply. Demands for non-potable supplies, such as recycling for the City, are subtracted from the total service area demands; this is done to reflect the demand hardening aspects of non-potable supplies. Table 1a presents the results of this adjustment.

Table 1a. Water Use for the City of Brentwood

	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Service Area Water Demands with Water Use Efficiency Accounted For	3,696	3,768	4,509	4,181	4,442	4,715	5,000	5,251
Non-Potable Water Demands	18	18	206	364	412	460	508	508
Potable Service Area Demands with Water Use Efficiency Accounted For	3,678	3,750	4,303	3,817	4,030	4,255	4,492	4,743

Notes:
Baseline (2010) values – City's 2005 UWMP, Table 5-5; Non-Potable water demand value was from the City's 2010 UWMP, Table 4-13.
2015 values – City's 2010 UWMP, Table 4-4
2020 values – City's 2015 UWMP, Table 4-4
2025-2045 values – City's 2020 UWMP, Table 4-4
Units: MG

Table 1b. Service Area Population

	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Service Area Population	51,453	56,493	65,118	68,752	72,589	76,640	80,917	85,433

Notes:
Baseline (2010) values – City's 2015 UWMP, SB X7-7 Tale 5 in Appendix F
2015 values – City's 2015 UWMP, Table 3-2
2020 values – City's 2020 UWMP, Table 3-2
2025-2045 values – City's 2020 UWMP, Table 3-2

Once the total service area water demands were adjusted, these were divided by the service area population numbers shown in Table 1b to obtain the per capita water use in GPCD, as shown in Table 1c. By calculating the incremental change in per capita water use relative to the 2010 baseline

and applying those back to the population numbers from Table 1b, the estimated water use efficiency supply can be calculated. These supply totals are shown in Table 1c.

Table 1c. Water Use Efficiency Since Baseline

	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Per Capita Water Use (GPCD)	196	182	181	152	152	152	152	152
Change in Per Capita Water Use from Baseline (GPCD)	--	(14)	(15)	(44)	(44)	(44)	(44)	(44)
Estimated Water Use Efficiency Since Baseline	--	288	352	1,098	1,159	1,223	1,292	1,364

Notes:
Units: MG

This estimated water use efficiency supply can be considered an additional supply that may be used to show reduced reliance on Delta water supplies. Table 1d provides a summary of the data that were utilized in the next steps of the analysis.

Table 1d. Water Use without Water Use Efficiency Accounted For

	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Service Area Water Demands with Water Use Efficiency Accounted For	3,696	3,768	4,509	4,181	4,442	4,715	5,000	5,251
Estimated Water Use Efficiency Since Baseline	--	288	352	1,098	1,159	1,223	1,292	1,364
Service Area Water Demands without Water Use Efficiency Accounted For	3,696	4,056	4,861	5,279	5,601	5,938	6,292	6,615

Notes:
Units: MG

J.2.2 Water Supplies Contributing to Regional Self-Reliance

As part of WR P1, agencies must include in their UWMP the expected outcome for measurable improvement in regional self-reliance as a reduction in water used from the Delta watershed. While WR P1 does not require that agencies demonstrate measurable improvement in regional self-reliance directly, the approach presented in Appendix C of the DWR Guidebook suggests agencies quantify the water supplies in their portfolio that contribute to self-reliance as a means of providing documentation that could help support a future certification of consistency for future water supply projects that are covered actions, such as the Los Vaqueros Reservoir Expansion. For this analysis it was assumed that the supplies contributing to the City's self-reliance include the water use efficiency supply calculated in Section 1.2.1, the recycled water it produces and distributes, and the City's groundwater supplies. It was assumed that the City would meet 20 percent of its potable and raw water demands through its groundwater supply as this amount most closely aligns with the amount of groundwater the City typically uses during normal years. The supply totals are summarized in Table 2a.

Table 2a. Water Supplies Contributing to Regional Self-Reliance								
Water Supplies	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Water Use Efficiency	--	288	352	1,098	1,159	1,223	1,292	1,364
Water Recycling	18	18	206	364	412	460	508	508
Stormwater Capture and Use	--	--	--	--	--	--	--	--
Advanced Water Technologies	--	--	--	--	--	--	--	--
Conjunctive Use Projects	736	750	861	763	806	851	898	949
Local and Regional Water Supply and Storage Projects	--	--	--	--	--	--	--	--
Other Programs and Projects the Contribute to Regional Self-Reliance	--	--	--	--	--	--	--	--
Water Supplies Contributing to Regional Self-Reliance	754	1,056	1,419	2,225	2,377	2,534	2,698	2,821

Notes:
Water use efficiency supply values are from Table 1c
Baseline (2010) water recycling values – City's 2010 UWMP, Table 5-1
2015 water recycling values – City's 2010 UWMP, Table 5-1
2020 water recycling values – City's 2015 UWMP, Table 6-5
2025-2045 water recycling values – City's 2020 UWMP, Table 6-6
Units: MG

Table 2b. Service Area Water Demands without Water Use Efficiency								
	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Service Area Water Demands without Water Use Efficiency Accounted For	3,696	4,056	4,861	5,279	5,601	5,938	6,292	6,615

Notes:
Water use demand values are from Table 1d
Units: MG

Using the water supplies from Table 2a, the change in water supplies contributing to regional self-reliance can be calculated relative to the 2010 baseline. These numbers are presented in Table 2c below.

Table 2c. Change in Regional Self Reliance								
	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Water Supplies Contributing to Regional Self-Reliance	754	1,056	1,419	2,225	2,377	2,534	2,698	2,821
Change in Water Supplies Contributing to Regional Self-Reliance	--	302	665	1,471	1,623	1,780	1,944	2,067

Notes:
Units: MG

The calculated values from Table 2c can also be expressed as a percentage of the water demands without water use efficiency savings accounted for. This is done by dividing the water supplies from Table 2a by the water demands included in Table 2b. The change in the percentage of regional water supplies can then be evaluated for each outcome year in the analysis compared to the baseline year to demonstrate increased regional self-reliance as shown in Table 2d.

Table 2d. Percent Change in Regional Self Reliance

	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Percent of Water Supplies Contributing to Regional Self-Reliance	20.4%	26.0%	29.2%	42.1%	42.4%	42.7%	42.9%	42.6%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance	--	5.6%	8.8%	21.7%	22.0%	22.3%	22.5%	22.2%

Notes:
Units: MG

J.2.3 Reliance on Supplies from the Delta Watershed

As part of WR P1, agencies must also include in their UWMP the expected outcomes for measurable reductions in supplies from the Delta watershed either as a quantity or as a percentage of their water supply portfolios. The City's Delta water supply stems from a permanent entitlement to purchase 14,800 AFY (4,823 MGY) of surplus irrigation water from ECCID. ECCID has pre-1914 water rights, which historically have not been subject to delivery reductions during water shortages, including regulatory restricted and drought years. Historically, the City has not used its full purchase entitlement, instead relying on a mixture of both surface and groundwater supplies to meet potable and raw water demands. For this reason, it was deemed not appropriate to include the full 4,823 MG in the analysis for reliance on supplies from the Delta watershed. Instead, the values included in Table 3a are based on the totals that most closely represent the amount of supply the City would likely rely on to meet normal year demands. For this analysis it was assumed that the City would meet 80 percent of its potable and raw water demands through its Delta purchase entitlement and the other 20 percent using groundwater. This split was based on historical water supply use trends during normal years.

Table 3a. Reliance on Water Supplies from the Delta

Water Supplies from the Delta Watershed	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
CVP/SWP Contract Supplies	--	--	--	--	--	--	--	--
Delta/Delta Tributary Diversions	2,942	3,000	3,442	3,054	3,224	3,404	3,594	3,794
Transfers and Exchanges	--	--	--	--	--	--	--	--
Other Water Supplies from the Delta Watershed	--	--	--	--	--	--	--	--
Total Water Supplies from the Delta Watershed	2,942	3,000	3,442	3,054	3,224	3,404	3,594	3,794

Notes:
Units: MG

Table 3b. Service Area Water Demands without Water Use Efficiency								
	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Service Area Water Demands without Water Use Efficiency Accounted For	3,696	4,056	4,861	5,279	5,601	5,938	6,292	6,615

Notes:
Water use demand values are from Table 1d
Units: MG

Using the water supplies from Table 3a, the change in water supplies contributing to Delta reliance can be calculated relative to the 2010 baseline. These numbers are presented in Table 3c below.

Table 3c. Change in Supplies from the Delta Watershed								
	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Total Water Supplies from the Delta Watershed	2,942	3,000	3,442	3,054	3,224	3,404	3,594	3,794
Change in Water Supplies from the Delta Watershed	--	58	500	111	282	462	651	852

Notes:
Units: MG

The calculated values from Table 3c can also be expressed as a percentage of the water demands without water use efficiency savings accounted for. This is done by dividing the water supplies from Table 3a by the water demands included in Table 3b. The change in the percentage of Delta water supplies compared to the baseline year can then be evaluated for each outcome year in the analysis to demonstrate decreased reliance on supplies from the Delta watershed as shown in Table 2d.

Table 3d. Percent Change in Supplies from the Delta Watershed (As a Percent of Demand without Water Use Efficiency)								
	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045
Percent of Water Supplies from the Delta Watershed	79.6%	74.0%	70.8%	57.8%	57.6%	57.3%	57.1%	57.4%
Change in Percent of Water Supplies from the Delta Watershed	--	-5.7%	-8.8%	-21.8%	-22.0%	-22.3%	-22.5%	-22.2%

Notes:
Units: MG

J.2.4 Summary of Expected Outcomes for Reduced Reliance on the Delta

The following provides a summary of the near-term (2025) and long-term (2045) expected outcomes for the City's self-reliance and Delta reliance. The results show that the City is measurably improving self-reliance and reducing reliance on the Delta, both as an amount of water used and as a percentage of water used.

Expected Outcomes for Self-Reliance

- **Near-term (2025)** –Self-reliance is expected to increase to 1,471 MG per year from the 2010 baseline (Table 2c); this represents an increase of over 21 percent of 2025 water demands (Table 2d).
- **Long-term (2045)** –Self-reliance is expected to increase to 2,067 MG per year from the 2010 baseline (Table 2c), this represents an increase of over 22 percent of 2045 water demands (Table 2d).

Expected Outcomes for Reduced Reliance on Supplies from the Delta Watershed

- **Near-term (2025)** – While the reliance on supplies from the Delta watershed are projected to increase to 111 MG per year from the 2010 baseline (Table 3c), this actually represents an overall decrease of over 21 percent in water supplies from the Delta that will be contributing towards meeting 2025 water demands (Table 3d).
- **Long-term (2045)** – While the reliance on supplies from the Delta watershed are projected to increase to 852 MG per year from the 2010 baseline, this actually represents an overall decrease of just over 22 percent in water supplies from the Delta that will be contributing towards meeting 2045 water demands (Table 3d).

J.3 UWMP Implementation

In addition to the analysis presented above, WR P1 also requires that all programs and projects included in the UWMP that are locally cost-effective and technically feasible, and which reduce reliance on the Delta, are identified, evaluated, and are being implemented. As part of the UWMP process, the City identified ongoing and future projects that will improve existing and future water supplies for the City. These projects include major transmission mains, new water sources, improvements to existing water wells, reservoirs, and treatment facilities. Section 6.9 of the City's UWMP includes a brief description of each of these projects that include estimates on the water supply that is expected to be available from each project and an implementation timeline for each project or program.

In addition to projects and programs described in the City's UWMP, the City also conducts an ongoing water conservation program and has committed to continue to implement water conservation measures for all customer sectors. Water conservation can be achieved through managing the water supply and water demand. Supply management is used to improve the overall system efficiency and reduce waste within the production and delivery facilities. The City uses DMMs to encourage water conservation by the consumer. Section 9 of the City's UMWP provides narrative descriptions addressing the nature and extent of each DMM implemented.

J.4 Appending the 2015 UWMP

Consistent with WR P1 requirements, the information contained in this appendix is also intended to be appended to the City's 2015 UWMP. As required by the Act, the City is making the UWMP (which includes the Reduced Delta Reliance Reporting) and WSCP available for public inspection and held a public hearing prior to adopting these documents. The City notified cities and counties within the service area more than 60 days before the public hearing (see Appendix B for documentation). The UWMP, WSCP, and Reduced Delta Reliance Reporting for the 2015 UWMP were adopted by the Brentwood City Council on May 25, 2021. A copy of the adoption resolution is provided in Appendix D.

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