



**Water Storage Investment Program: Willow Springs Water Bank Conjunctive Use Project
Continuing Eligibility and Feasibility Determination (Action Item)**

Introduction

The California Water Commission (Commission) is administering the Water Storage Investment Program (WSIP) to fund the public benefits associated with water storage projects using funds from the Proposition 1 Water Quality, Supply, and Infrastructure Improvement Act of 2014. Currently, seven projects have a WSIP maximum conditional eligibility determination (MCED), which is the amount of Proposition 1 funding potentially available to a given project and are actively working to secure a formal WSIP award amount. The Willow Springs Water Bank Conjunctive Use (WSWB) Project, promoted by its applicant, the Southern California Water Bank Authority, is one of those seven projects. For this project to remain in the WSIP, it must meet the continuing eligibility requirements described below.

Water Code section 79757 and California Code of Regulations, Title 23, Division 7, section 6013(f)(2) requires a WSIP applicant to complete the following before January 1, 2022, as a condition of continued WSIP eligibility:

- Draft environmental documentation is available for public review.
- The Director of the Department of Water Resources receives commitments for at least 75 percent of the non-public benefit cost shares of the project.
- All feasibility studies are complete.

Additionally, as a condition of continued eligibility, the Commission must, by January 1, 2022:

- Make a finding that the project is feasible and will advance the long-term objectives of restoring ecological health and improving water management for beneficial uses of the Delta.

The Commission determined final application scores and made nine determinations for each of the projects in the WSIP at its June 2018 meeting. One of the determinations made was that each project *appeared* feasible. This initial limited feasibility determination allowed the Commission to return to the full feasibility determination after each applicant completed its feasibility studies to meet the Water Code section 79757 requirements. Since the June 2018 Commission meeting, applicants continued to work toward completing the interim statutory requirements of Water Code section 79757. The WSWB Project has reached the stage where the Commission can deliberate on project feasibility.

Agenda Item: 9

Meeting Date: December 15, 2021

Page 2

This staff report presents the status of the January 1, 2022, requirements and staff's review and recommendation about the feasibility documents for consideration in the Commission's feasibility deliberations.

Background

Through the WSIP, the Commission will invest nearly \$2.6 billion in the public benefits of water storage projects, consistent with the requirements of Proposition 1 (the Water Quality, Supply, and Infrastructure Improvement Act of 2014), Chapter 8. In July 2018, the Commission made MCEDs, decisions that set the amount of Proposition 1 funding potentially available to a given project. Since then, one applicant has withdrawn from the program. In early 2021, the Commission decided to adjust two project MCEDs to their initially requested amounts. Additionally, the Commission made a 2.5 percent inflation adjustment to all seven project MCEDs. The seven remaining applicants are working to complete the Proposition 1 requirements, which include obtaining permits and final environmental documents, contracts for the administration of public benefits, and contracts for non-public benefit cost share before returning to the Commission for a final award hearing.

This agenda item implements Goal Four of the Commission's Strategic Plan, which calls on the Commission to carry out its statutory responsibilities for the Proposition 1 Water Storage Investment Program.

Meeting Overview

At the December meeting, Commission staff will present its recommendations regarding the WSWB Project's feasibility documentation and a summary of documents received that are responsive to the January 1, 2022, statutory requirements. The Commission will then decide whether to make a feasibility determination. The Commission will have the opportunity to ask questions of applicants and hear public comment before deliberating on its feasibility determination.

This is an action item.

Summary of Issues

Status of January 1, 2022 Requirements. The documents that constitute compliance with Water Code section 79757 are listed below.

Requirement	Status
Draft environmental document available for public review.	1. Kern County, 2006. Draft Environmental Impact Report. (EIR) Antelope Valley Water Bank Project: Specific Plan Amendment No. 13, Map 232, Specific Plan Amendment No. 2, Map 233 Alteration of

Requirement	Status
	<p>Boundaries of Agricultural Preserve No. 24 - Inclusion</p> <p>2. Rosamond Community Services District (CSD), 2018. Addendum to the EIR for Willow Springs Water Bank Project (Formerly Antelope Valley Water Bank Project).</p> <p>3. Antelope Valley-East Kern Water Agency (AVEK), 2018. High Desert Water Bank (HDWB) Initial Study/Mitigated Negative Declaration (IS/MND).</p> <p>4. AVEK, 2014. South North Intertie Pipeline (SNIP) Phase II Project IS/MND.</p>
75% of non-public benefit cost share submitted to the Director of DWR.	<p>Letter of commitment from WSWB and AVEK. The letter was transmitted by the California Water Commission to the Director 12/02/21.</p>
Completed feasibility documents.	<p>GEI, 2021a. Feasibility Study Willow Springs Water Bank Conjunctive Use Project, November. (available upon request)</p>

Feasibility Document Review. California Code of Regulations, Title 23, Division 7 incorporates by reference the Technical Reference for the WSIP. The Technical Reference specifies criteria to establish technical feasibility and constructability as well as environmental, economic, and financial feasibility as follows:

- Technical Feasibility – the applicant must demonstrate that the project is technically feasible consistent with the operations plan, including a description of data and analytical methods, the hydrologic period, development conditions, hydrologic time step, and water balance analysis showing, for the with- and without-project condition, all flows and water supplies relevant to the benefits analysis.
- Constructability – the applicant must demonstrate that the project can be constructed with existing technology and availability of construction materials, work force, and equipment.
- Environmental feasibility – the applicant must demonstrate the project is environmentally feasible. The applicant must describe how significant environmental issues will be mitigated or indicate if the California Environmental Quality Act (CEQA) lead agency has or will file a Statement of Overriding Considerations (SOOC).
- Economic feasibility – the applicant must demonstrate the expected benefits of the project equal or exceed the expected costs, considering all benefits and costs related to or caused by the project.

- Financial feasibility – the applicant must demonstrate sufficient funds will be available from public (including the funds requested in the application) and nonpublic sources to cover the construction and operation and maintenance of the project over the planning horizon. It must also show that beneficiaries of non-public benefits are allocated costs that are consistent with and do not exceed the benefits they receive.

Technical Feasibility and Constructability Review. Commission staff has reviewed the project operations, facilities description, cost estimates, and construction methods for the WSWB Project and concluded that the feasibility study has demonstrated that the WSWB Project can be technically and physically constructed and operated.

The WSWB Project is proposed as a conjunctive use and reservoir reoperation project to integrate the State Water Project (SWP) reservoir and conveyance system with south-of-Delta groundwater storage and existing Antelope Valley-East Kern Water Agency (AVEK) facilities. Operations of the WSWB Project will provide ecosystem and emergency response public benefits and additional non-public benefits.

The WSWB Project will allow the capture of additional water above that in existing surface reservoirs via reservoir reoperations. Water that is in excess of SWP requirements including Table A, Article 21 and Article 56 deliveries would be delivered and stored at Willow Springs Water Bank (WSWB) and High Desert Water Bank (HDWB) using AVEK's existing and new facilities. The first 100 cfs of water will be delivered to WSWB and amount in excess of 100 cfs will be delivered to HDWB. HDWB is under development in a partnership between AVEK and Metropolitan Water District of Southern California (Metropolitan) to increase water supply reliability by storing AVEK and Metropolitan SWP supply in the Antelope Valley Groundwater Basin for use during periods of low SWP allocation. The operational priorities of HDWB between AVEK and Metropolitan are not described in the feasibility study.

A portion of project produced yield would be dedicated to public benefits with the remainder to be used by AVEK for local water supply. Pulse flows for ecosystem benefits will be initiated by CDFW in consultation with DWR and AVEK. Pulse flows will be released from Oroville in dry years and in every other below normal year and transported through the lower Feather River to the Sacramento-San Joaquin Delta. Whenever a pulse flow release is made at Oroville, an equal volume of water will be deducted from AVEK's Table A allocation for the year. It is anticipated that AVEK will make up for the shortfall in annual Table A deliveries by drawing from its banked water stored at WSWB and HDWB. Water stored in WSWB and HDWB would also provide emergency response benefits and improved water supply reliability to AVEK.

Major facilities, including distribution pipelines, recovery wells and pipelines, and a booster pump station needed for the operation of WSWB Project are described in the feasibility study. Cost estimates summary tables of the facilities are included in Appendix B with no backup

documentation or description of the level of cost estimates. Staff could not verify whether or not the cost estimates are at a feasibility level as required by WSIP. WSWB Project representatives on a call with staff on November 18, 2021 confirmed that the cost estimates are at the feasibility level.

Based on the project facilities and construction method described in the feasibility study, staff concluded that all the project facilities can be constructed with existing technology and available construction materials, work force, and equipment.

Environmental Feasibility Review. Commission staff reviewed the 2021 Feasibility Study (GEI, 2021), Draft EIR (Kern County, 2006), Addendum to the EIR (Rosamond CSD, 2018), SNIP Phase II Project Initial Study/Mitigated Negative Declaration (SNIP Project IS/MND) and HDWB Project Initial Study/Mitigated Negative Declaration (Hdwb Project IS/MND) (collectively, AVEK's IS/MNDs) to determine whether the applicant demonstrated environmental feasibility and described how significant impacts would be mitigated or whether the CEQA lead indicated they would file a SOOC. These materials demonstrate the project is environmentally feasible.

The Feasibility Study referenced Kern County's 2006 EIR, Rosamond CSD's Addendum to the 2006 EIR, AVEK's IS/MNDs, and prepared for the proposed project and included discussion of possible effects and proposed mitigation measures. The 2006 EIR indicated that the WSWB Project would result in significant and unavoidable environmental impacts related to the cumulative net increase in criteria air pollutants for which the Project region is in nonattainment. Thus, despite the reduction in potential emissions achievable through implementation of emission control and mitigation measures, the project would nonetheless result in a net increase in particulate matter and ozone precursors. Therefore, this impact would be significant and unavoidable. Kern County prepared a Statement of Overriding Considerations addressing why the project benefits outweigh the impacts. In addition, the 2006 EIR identified potentially significant but mitigable impacts that include adverse impacts to agricultural resources; biological resources; cultural resources; geology and soils; hazards and hazardous materials; hydrology and water quality; land use and planning; mineral resources; population and housing; transportation and traffic; and utilities and service systems. Kern County adopted a Mitigation Monitoring and Reporting Plan (MMRP).

The Addendum to the 2006 EIR (Rosamond CSD, 2018) indicated that the changes to the project would not result in new or more severe impacts than were identified in the 2006 EIR. It also indicated that most of the 2006 EIR's mitigation measures were determined to be adequate without modification but were updated to reflect current standards of practice and to provide further specificity to the mitigation measures. An updated MMRP was adopted by Rosamond CSD. The HDWB Project IS/MND indicated that there would not be any significant and unavoidable impacts and identified potentially significant but mitigable impacts that include agriculture, air quality, biological, cultural, geology and soils, hazards and hazardous materials,

hydrology and water quality, noise, and utilities and service systems. SNIP Project IS/MND indicated that there would not be any significant and unavoidable impacts and identified potentially significant but mitigable impacts that include air quality, biological resources, cultural resources, and noise. MMRPs were also adopted for each project.

Economic Feasibility Review. Economic feasibility is concerned with the economic benefits associated with physical benefits in comparison to all costs. Feasibility information provided by the applicant and additional information considered by staff demonstrates economic feasibility.

The project presented in WSWB's 2021 feasibility study is considerably different from that presented in 2017. Facilities proposed for funding, source of water supply, and costs are different. This different project requires that their 2021 feasibility study provide the basis for a feasibility determination. Staff has augmented the applicant's feasibility information with additional public information regarding expected costs and benefits of the project and provides its own calculations.

The modified WSWB Project relies on existing facilities owned and operated by AVEK and is operated in combination with the HDWB to provide benefits claimed. The proposed project will use some HDWB facilities, but a share of capital costs was not included. From Metropolitan (2019), their share of HDWB capital cost was estimated as \$131 million but these costs may be incomplete and the share to assign to WSWB cannot be determined.

Staff notes that, under current conditions, "Metropolitan will have an exclusive first priority right to access HDWB facilities. AVEK has an exclusive second priority right to unused capacity." This suggests that some of the future benefits claimed by the project may be reduced if Metropolitan exercises its first priority right to more of the HDWB capacity. The applicant should provide assurances that WSWB's assumed use of capacity will be available for the 50-year duration of the project.

The 2017 WSWB application relied on pre-releases from San Luis Reservoir and pre-positioning of delivery from Oroville Reservoir for its water supply. The new WSWB will rely substantially on AVEK's unused SWP Table A water for its benefits. The feasibility study does not assign a cost to this water based on its benefit without the project. Based on AVEK's Urban Water Management Plan (AVEK, 2021a) and information on AVEK's website (including annual reports), staff has determined that some of the unused Table A water was recently sold to or exchanged with other SWP water users. Revenues from water transfers and exchanges averaged \$5.875 million from 2018 to 2020. This represents a revenue benefit that AVEK will not have if the unused Table A water is stored in WSWB, so staff has included it as another cost of WSWB in the feasibility analysis.

Agenda Item: 9

Meeting Date: December 15, 2021

Page 7

The economic feasibility analysis included in the feasibility study was found to be inconsistent with the Technical Reference requirements or inadequate in other respects as described below. Staff attempted to correct these problems to develop a staff-recommended benefit-cost ratio. Based on this exercise, the project appears feasible. However, a number of uncertainties and assumptions underlie staff's revisions, and staff is concerned that the assumed capacity of HDWB facilities is not assured for the life of the project.

Staff has reviewed all materials submitted for this Project by the applicant to develop its recommendation to the Commission for a finding under Water Code section 79757(a)(2). In addition, certain public materials were reviewed:

Antelope Valley-East Kern Water Agency (AVEK), 2021a. 2020 Urban Water Management Plan, Draft. May.

https://www.avek.org/files/2a8e325f5/AVEK+2020+UWMP_Public+Draft_210525.pdf

AVEK, 2021b. Water Transfers and Exchanges. Accessed November 2021 at:

<https://www.avek.org/water-transfers-and-exchanges>

AVEK, 2020. Antelope Valley-East Kern Water Agency. 2020 year in review. Accessed November 2021 at:

<https://www.avek.org/files/099aced78/2020+Annual+Report+V02+Final.pdf>

AVEK, 2019. Antelope Valley-East Kern Water Agency. 2019 year in review. Accessed November 2021 at: <https://www.avek.org/2019-year-in-review-0d14355c-afe7-4722-a95c-dda040aac4e5>.

AVEK, 2018. Antelope Valley-East Kern Water Agency. 2018 year in review. Accessed November 2021 at: <https://www.avek.org/2018-year-in-review>.

GEI, 2021b. Excel Spreadsheet. Copy of WSWB Alternative Analysis 2021 v2.0.003 Obtained November 12, 2021.

GEI, 2021c. CWC Meeting Notes. Received by email 11/17/2021.

Metropolitan Water District of Southern California (Metropolitan). 2019. Board of Directors Water Planning and Stewardship Committee. 1/8/2019 Board Meeting. Subject: Review of the Antelope Valley-East Kern Water Agency High Desert Water Bank Program. Accessed at:

https://mwdh2o.granicus.com/MetaViewer.php?view_id=7&clip_id=7272&meta_id=187220

Project Changes Since Application

Staff considered how the project may have changed from the 2017 application. The Technical Reference states: An applicant must identify and explain differences in assumptions, procedures, and results between its feasibility study and its application, and how those differences could affect Project feasibility. The Project has changed since the 2017 WSIP application. Of particular relevance to the economic feasibility analysis, the facilities proposed for funding have changed. GEI (2021a) includes an Alternative 2 as the “WSWB as Proposed in WSIP Application.” The “WSIP Application” facilities included a new turnout from the California Aqueduct, 350-cfs gravity fed conveyance pipelines from the California Aqueduct to the recharge basins, recharge facilities including recharge basins, recovery wells and recharge basin pipelines, an on-site piping network required for spreading water to the recharge basins, 25 new recovery wells, a recovery pipeline, and a booster pump station. 58 extraction wells required to meet emergency response benefit within 1 year were planned for future construction “as funds become available” (GEI 2021a page 38). In 2017, the estimated capital cost was \$305.8 million. In 2021, the applicant estimates Alternative 2’s capital cost, including contingency and design costs, as \$137.2 million.

The feasibility study considers four alternatives and concludes that Alternative 4, the WSWB Integration with Existing and Proposed AVEK Infrastructure, is the proposed project. Alternative 4 integrates WSWB facilities with existing AVEK facilities and the proposed HDWB. Water for recharge operations at WSWB would be conveyed from the California Aqueduct using 100 cfs of AVEK’s existing Fairmont turnout capacity of 225 cfs. From here, water would be conveyed to WSWB through the existing bidirectional recharge and recovery West Feeder transmission pipeline and other existing AVWS pipelines. Existing recharge basin capacity is 72 TAFY and six existing wells can, when equipped, provide about 25 cfs of recovery capacity. The feasibility study states that no new turnout from the California Aqueduct is required, no additional conveyance pipeline is required to convey water to the existing recharge basins, and no additional recharge basins or pipelines are needed for the new proposed project. Costs include rehabilitation costs for the 6 existing unequipped wells, and costs for four new wells each with 3.5 cfs capacity, to achieve a total of 39 cfs of recovery capacity.

Costs include additional wells required for providing emergency response water:

“Future development of 18 additional wells of similar extraction capacity is required to achieve an extraction rate of 100 cfs to exploit the full conveyance capacity of the West Feeder for implementing emergency response and other water supply operations.”

Project costs include recovery pipelines and a booster pump station. Some existing recovery conveyance capacity will be used. Groundwater would be delivered to existing storage/disinfection facilities at the Westside Water Bank using a proposed new 14,000 ft 48-

inch diameter line, and the new 48-inch diameter, 6.6-mile SNIP Phase II Pipeline would connect the SNIP Phase I Pipeline to AVEK's Quartz Hill Water Treatment Plant. Approximately 6 miles of well collection (recovery) pipelines ranging in diameter from 12-inch to 48-inch will be utilized to convey water from the extraction wells to the combination/bidirectional conveyance pipeline. In 2021, the applicant estimates the 2015 capital cost of this preferred alternative, including contingency and design costs, to be \$79 million, or \$85.7 million in 2020 dollars.

The WSWB would share some capacity with the proposed HDWB. The HDWB will require a new turnout, conveyance, and recharge facilities. The applicant only shows certain HDWB costs associated with recovery wells and recovery pipelines, stating that, for example, the recharge facilities are being built independent of the WSWB (though with sufficient capacity for it) and so their costs are not considered part of WSWB costs. This issue is detailed below.

The source of water proposed for recharge has also changed since the 2017 WSIP application. Water sources for the 2017 application project were "pre-release from San Luis" and "pre-position from Oroville," respectively 16.3 TAF and 17.6 TAF under 2030 conditions. In the current proposed project, the "pre-release from San Luis" would provide an average of 12.3 TAF. No "pre-position from Oroville" water is obtained and "Excess Table A Moved to Water Banks" (61.6 TAF) accounts for most supply. The project has changed from one that used re-operation to obtain most supply to one that allows more complete use of AVEK's SWP Table A allocations.

The WSWB as presented in the feasibility study is substantially different than it was in the 2017 application. Therefore, application materials from 2017 cannot be used to help support feasibility determinations for the proposed project.

Project Economic Analysis

The applicant's feasibility study does not consistently apply the standards outlined in the Technical Reference. Some of these concerns have been addressed in discussions with the applicant. To address these and other concerns in the quantitative analysis, staff modified the applicant's spreadsheet to develop benefits and cost measures more consistent with the Technical Reference. Staff has also assessed available information on additional costs that should be associated with the project but not included in the feasibility study. Concerns with the economic feasibility calculations are as follows.

1. No single economic feasibility analysis using 2030 and 2070 information is presented

The feasibility study Appendix B Table E provides two tables of benefit-cost results, one corresponding to 2030, and one to 2070 conditions. The applicant's Excel® spreadsheet (specifically in the tab labeled F.NPV) shows results that match the feasibility study Appendix B Table E 2070 results. The Technical Reference requires that 2030 and 2070 conditions be integrated into one analysis.

Tables 19 and 20 show that “Reliability Improvement Water” provides about 90% of project benefits. In its revised analysis below, staff modified the net present value analysis so that 2030 and 2070 quantities of this water are used in one analysis with interpolation for the intermediate years, as required by the Technical Reference.

2. The analysis does not express benefits and costs at the first year of project operations

The economic feasibility analysis assumes that project construction starts in 2023 and operations begin in 2028. In the applicant’s analysis, discounting of costs and benefits begins in 2023. Interest during construction is not shown and benefits are discounted more than they should be. The Technical Reference requires that discounting begin in 2028 with interest during construction calculated for the period from 2023 to 2028. In its revised analysis below, staff corrected this issue by recalculating net present value as of 2028 with interest during construction shown.

3. The wrong rate is used as the discount rate

The applicant’s Excel input sheet (tab labeled A. Assumptions) includes a federal discount rate of 2.75 percent as a possible input, but the NPV calculations use an input cell labeled “economic growth rate” (rate_growth) as the discount rate, equal to 5.0 percent. The input cell labeled “Discount Rate” has no effect on the net present value of benefit and cost components displayed in sheet F.NPV. In its revised analysis below, staff corrected this issue by changing the rate_growth value to 3.5 percent, which is the discount rate required in the Technical Reference for evaluation of WSIP projects.

Project Costs

In the 2017 application, adjusted project capital costs (in 2015 dollars) were \$305.8 million. In 2021, the applicant estimates the “WSIP Application” capital costs as \$137.2 million and the recommended Alternative 4 capital costs are \$79 million.

Concerns with project costs are summarized below:

4. A share of HDWB capital costs is not included

The economic feasibility analysis requires that all costs required to achieve project benefits be included. For alternative 4 “Storage and extraction facilities at WSWB and HDWB (High Desert Water Bank) will be developed and operated in tandem.” The feasibility study spreadsheet clearly shows operations costs of “HDWB SWP Imports” and “HDWB recovery” but no other HDWB costs are included.

Metropolitan (2019) discusses its role in the HDWB and provides their share of capital costs.

Metropolitan would pay AVEK for the capital costs for construction of monitoring and production wells, turnouts from the California Aqueduct, underground and aboveground pipelines, recharge basins, water storage, and booster pump facilities. These facilities are estimated to be \$131 million in 2018 dollars.

Staff discussed this issue with the applicant. The applicant stated that many of the costs of the HDWB will be incurred whether WSWB proceeds or not, so they should not be included as required costs of the WSWB (essentially treated as sunk costs). Capital costs do not need to be reported if they are sunk costs and they have no other opportunity cost. A well is the epitome of a sunk cost but it has value if it can be used. In this case, staff finds that the share of capacity used by WSWB represents a potential benefit to other uses and therefore should not be treated as a sunk cost. Therefore, a share of the HDWB capital costs should be counted.

The applicant states that under the WSWB Conjunctive Use Project, AVEK will

- use 100 cfs of 225 cfs, or 44.4%, of turnout capacity from the California Aqueduct
- use 100 cfs of 225 cfs, or 44.4%, of conveyance capacity from the California Aqueduct to the High Desert Water Bank, and
- use 320 acres of 1,200 acres, or 26.7%, of recharge basins.

Staff is unable to determine what share of the \$131 million of HDWB costs to include in its revised analysis below or even if the \$131 million counts all capital costs. Therefore, costs as counted by staff are understated.

5. Minor recharge costs are missing

Staff noted that no recharge O&M costs were included in the feasibility study. The applicant responded that costs were small, so they were not included. In its "CWC Meeting Notes" provided after a conference call with staff, the applicant stated that recharge O&M costs for the WSWB and HDWB should not exceed \$100,000 annually each, or \$200,000 total. For its revised analysis below, staff has added that annual cost.

6. Pulse flow compensation costs are not appropriately included

The sum of benefits used in the benefit-cost (B/C) ratio in Appendix B Table E are 1) SWP Import Offset or Water Exported to SWP, 2) Reliability Improvement Water Supply, and 3) Avoided AVEK SWP Treatment Cost. Item 1) consists of a) pulse flow compensation, and b) backstop water. Staff believes that a) is the cost of providing Feather River pulse flows, not the benefit.

In its revised analysis below, the cost of pulse flow compensation water is treated as a project cost. Staff notes that this cost (\$102.4 million) appears to be larger than the pulse flow benefit (\$85.8 million).

Project Benefits

7. Public benefits are not included in the B/C ratio

Project benefits reported in the feasibility study's benefit-cost analysis tables do not include the emergency response or ecosystem benefits. In Appendix B Table E, "Public Benefits" are listed

as “Ecosystem Benefits” and “Emergency Response Benefits,” but these dollar amounts are not included in the benefits shown in Tables 19 and 20 of the feasibility study nor are they used to calculate the B/C ratio. Instead, they add up to the current MCED of the applicant which is \$126.37 million. Staff noted that the costs paid for by the MCED amount are also not included in the benefit cost calculations shown in Tables 19 and 20 of the feasibility study.

8. Significant benefits are excluded from the B/C calculations

The sheet A. Assumptions includes input cells labeled “Value of Emergency Water,” “Emergency Water TAKE and Delivery Cost,” and “Annual Probability of Emergency Event” but the values in these cells have no effect on calculated benefits. The “Annual Probability of Emergency Event” is shown as 4.2 percent or about once in 25 years, but the text (Feasibility study page 13) states that “Up to 215,000 AF of storage will be loaned from the stored reoperation yield, with the loan to be repaid within five years. It is assumed that such an event will happen once in the 50-year life of the project, and the chance of the event is equal in all years.” This statement implies that the emergency response water would be provided once in 50 years, not once in 25 years. However, none of these assumptions or operations appear to have any influence on the benefit/cost ratio.

For its revised analysis, staff assumes that an emergency event will happen once in the 50-year life of the project, 215,000 AF are withdrawn, and the value is \$3744 minus an extraction cost of \$245 per AF, and that the beneficiaries of emergency supplies do not have to repay the amount withdrawn.

The applicant does not include a benefit estimate for the Feather River pulse flows. Table 1 in the feasibility study shows that expected pulse flows are the same as they were in 2017. Staff assumes that these flows will be the same as evaluated in 2017 so the benefit is updated to the end of 2021 using the GDP Implicit Price deflator.

9. Benefit of AVEK Table A water sold in the without-project condition is not counted as a lost benefit

The 2017 WSWB relied on pre-releases from San Luis and pre-positioning from Oroville for its water supply. The proposed WSWB will rely substantially on AVEK’s unused SWP Table A water for its benefits. The feasibility study does not assign a cost to this water based on its use without the project. From the AVEK UWMP (2017) and AVEK’s own website, staff has determined that some of the unused Table A water was recently sold or exchanged to other SWP water users. From the UWMP (2020) page 6-9 “In the past 10 years, AVEK has executed 13 exchange agreements and eight transfer agreements totaling over 170,000 AF of water.” From the AVEK website, “AVEK can profit from its water sales as an added source of revenue. As an example, in 2017, AVEK sold water to other State Water Project Contractors.”

The benefit of water transferred to other SWP users is lost when the water is stored in the WSWB. This lost benefit should be included as an offset to the revenues counted from sale of the water out of WSWB. In other words, the proposed WSWB includes the benefit of this Table

A water when it is sold from the bank but does not include the cost (the lost revenue) of the Table A water no longer being sold through transfers and exchanges. Based on AVEK's UWMP (Figure 6-6 page 6-9) and from its 2018 through 2020 annual reports, staff estimates that an average of \$5.875 million annually was recently earned by transfers and exchanges of an average 21,876 AF of Table A water. For its revised analysis, staff includes this dollar amount, less conveyance costs to the San Joaquin Valley, escalated 2.2 percent annually, as the lost benefit. The 21,876 AF is only about one-third of the "Excess Table A Moved to Water Banks" in Alternative 4. Some share of the other two thirds may represent reduced water use for AVEK or other water users.

10. The unit benefit used for most water supply is not supported

The unit value of most water supply provided is based on an "Estimated Value of Water Transfer to Other SWCs" of \$840 per AF. The value is described in the applicant's spreadsheet assumptions as the "estimated average NQH20 index for years with <= 20% Table A allocation" plus an additional \$200 per AF for delivery cost. These assumptions are not adequately documented and justified. In its revised analysis, staff adjusts the water supply benefits using WSIP 2015 Unit values escalated to 2021 price levels and includes \$200 per AF for conveyance from south of Delta to AVEK.

Concerns Regarding Reliability of Project Benefits

The proposed WSWB and the HDWB will make use of joint facilities to convey and recharge water. Capacity appears sufficient for both projects as currently planned. However, Metropolitan (2019) states that it "will have an exclusive first priority right to access High Desert Water Bank facilities. AVEK has an exclusive second priority right to unused capacity." This statement implies that Metropolitan will have first priority to access a greater share (or even all) of the capacity should it choose to in future. That would reduce capacity for WSWB, so the benefits claimed for WSWB may be unreliable in the future.

Benefit-Cost Results

Staff's revised analysis is presented in this section based on the staff adjustments to address concerns listed above in items 1 through 10. Table 1 below summarizes quantified costs and benefits of the WSWB as estimated by staff. Interest during construction is calculated assuming project capital costs are spent in equal increments for 5 years, at 3.5%. As discussed above, staff cannot determine what share of the HDWB to allocate for use by WSWB, so \$0.0 is used.

Table 1. Staff Revised B/C analysis for Willow Springs (in million \$ present value)		
	Value	Notes
Discount rate	3.50%	WSIP Technical Reference rate
WSWB WSIP eligible capital cost	\$85.7	
WSWB capital IDC	\$9.4	Interest during construction
HDWB capital costs	\$0.0	Can't determine the appropriate WSWB share Escalated at 2.2% per year. \$0.2 M recharge cost added
O&M costs + Backstop	\$922.2	
Pulse flow compensation	\$102.4	Cost to provide Feather River Flows escalated at 2.2%
Lost net revenue transfer & exchanges	\$194.2	2018 to 2020 avg revenue less conveyance, 2.2% escalation
TOTAL Costs	\$1,314.0	
Water supply benefits	\$1,144.3	WSIP Technical Reference unit values for SOD in 2020 dollars plus \$150/AF conveyance Once in 50 years, 215,000 AF at \$3499/AF. No payback
Emergency response Benefit	\$355.5	
Ecosystem benefit	\$85.8	2015 value adjusted to 2020 dollars, 8.5%
All other benefits	\$133.9	Avoided treatment cost
Total Benefits	\$1,719.6	
B/C	1.32	
Net benefit in PV terms	\$413.0	

The net present value of benefits is estimated to be \$1,794.6 billion as compared to costs of \$1,314.0 billion resulting in a B/C or 1.32. Staff notes that net benefits (\$413 million) appear large enough to cover any share of known HDWB capital costs that might be appropriate.

Non-Monetized Benefits and Costs

A benefit-cost ratio only uses monetized benefits and costs. Significant non-monetized benefits or costs can affect whether the Project is economically feasible. The feasibility study does not claim any non-monetized benefits and costs. Staff has monetized certain benefits and costs as described above.

Staff notes that the feasibility study for another WSIP project having a similar pattern of delivery by year type to the South Coast, unit water supply were based on recent avoided recycling costs in the South Coast. Use of this method here might increase the municipal water supply benefits and improve economic feasibility.

Financial Feasibility Review

Financial feasibility means that financial resources will be available to construct and operate the project as planned. Staff has reviewed all planned cost contributions from all sources to determine if financing appears adequate to build and operate the project over its planning horizon. The applicant's commitment to pay its cost share is also accepted as evidence of financial feasibility for related non-public benefits.

The feasibility study's Section 4.4 on financial feasibility does not demonstrate or describe a cost allocation consistent with requirements in Chapter 8 of the Technical Reference. The cost allocation requirement derives from Water Code section 79755(a)(2) "The benefits available to a party shall be consistent with that party's share of total project costs." All project costs (see comments 4, 5, and 6 above) should be expressed in present value terms and allocated among beneficiary groups so that benefits and shares of total project cost are consistent. Note that specific costs (such as O&M costs of the water bank incurred only for the non-public water supply) should be allocated directly to the benefiting party.

The project has substantially changed since the 2017 application. This raises several issues about financial feasibility in the context of the MCED. In the 2017 application, as adjusted by staff, the project's public benefits were \$123.29 million of which more than half were ecosystem. The \$123.29 million was far less than the eligible capital cost for this conjunctive use project (\$305.79 million) so potential MCED was \$123.29 million. MCED was later adjusted to be \$126.4 million or 41.3 percent of the 2017 capital cost.

For the current project, capital cost is much less, public benefits are a smaller share of all benefits, and O&M costs, primarily costs of AVEK Table A water, are much larger. The project's capital costs eligible for funding have declined to \$79 million in 2015 dollars. That amount escalated for inflation to 2020 dollars would be \$85.7 million as shown in the table above. Had this been the project proposed in 2017 and accepted for funding by the Commission, maximum funding would be the lesser of double the ecosystem benefit or the capital cost (\$79 million). Its maximum eligible funding would have been \$79 million at most, and its MCED would have been no more than that amount. Similarly, had this project been provided a full MCED amount of \$79 million plus the additional 2.5% adjustment for inflation that the Commission provided all projects in January of 2020, its current MCED would be \$81 million. The applicant's current requested MCED amount of \$126.4 million represents 147% of the escalated capital cost shown in Table 1. No other applicants have a MCED that exceeds their planned capital costs. Should this project proceed to a final funding hearing, the Commission will need to consider reduced total project costs at that time.

Commission Decision

The Commission can decide to make a determination that the WSWB Project is feasible. If the Commission determines that the WSWB Project is feasible, the project will continue to be eligible for WSIP funds and work toward completing the statutory requirements that could lead to a final award hearing.

Alternatively, the Commission may opt to not make a determination. If the Commission decides not to make a determination by December 31, 2021, the project would no longer be eligible for funding through the WSIP. For projects where no determination is made and the project has an early funding agreement, staff will close the agreement.

Projects must still complete all environmental documentation, have contracts for 100% of the non-public benefit cost share, have obtained all required permits, and secure contracts for administration of public benefits (Water Code section 79755(a)) before the Commission can conduct a final funding hearing.

Staff Recommendation

Based on information received from WSWB Project Authority which includes the WSWB Project Feasibility Study, a letter of commitment from AVEK and WSWB to fund the project, and environmental documentation, staff finds that WSWB Project Authority has provided documents that meet the requirements of Water Code section 79757 including completed feasibility documents; the WSWB Project meets conditions for technical, environmental, economic and financial feasibility and constructability defined in the Technical Reference. Staff recommends that the Commission make a determination that the project is feasible.

Contact

Amy Young
Program Manager
California Water Commission
(916) 902-6664