

CALIFORNIA WATER COMMISSION

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Armando Quintero
Chair

May 25, 2018

Carol Baker
Vice-Chair

Mark Beuhler, General Manager
Willow Springs Water Bank Conjunctive Use Project

Andrew Ball
Member

mbeuhler@wswaterbank.com

Joseph Byrne
Member

Dear Mr. Beuhler:

Daniel Curtin
Member

Attached please find the Water Storage Investment Program technical review for the Willow Springs Water Bank Conjunctive Use Project. The technical review contains the preliminary application scores and related reviewer comment. Additional documents including California Department of Fish and Wildlife and State Water Board Relative Environmental Value reviews and public benefit findings of the Department of Fish and Wildlife, Department of Water Resources, and State Water Resources Control Board, as appropriate, can be found at the following link:

Joe Del Bosque
Member

<https://cwc.ca.gov/Pages/WSIP/WSWBTEch.aspx>

Maria Herrera
Member

Catherine Keig
Member

Additionally, staff is finalizing summaries of information related to Commission determinations. We will transmit and post this information no later than 5:00 p.m. on June 4.

Staff from the Commission, Department of Fish and Wildlife, Department of Water Resources, and State Water Resources Control Board look forward to engaging with applicants and stakeholders at the scheduled meetings on June 6 and 7. These meetings are intended to focus on the preliminary scores and determination information. Any issues of clarification identified at the June 6 and 7 meetings will be reported by staff to the Commission at the June 27-29 meeting for its consideration in making final application scores and project determinations.

We look forward to your continued engagement in the Water Storage Investment Program.

Sincerely,

A handwritten signature in blue ink, appearing to read "Joe Yun", with a long horizontal flourish extending to the right.

Joe Yun
Executive Officer
California Water Commission

Water Storage Investment Program Technical Review

Willow Springs Water Bank Conjunctive Use Project

Southern California Water Bank Authority

The Southern California Water Bank Authority is proposing the Willow Springs Water Bank Conjunctive Use Project (WSWB Project). The Willow Springs Water Bank is an existing facility located in the adjudicated Antelope Valley Groundwater Basin. The WSWB Project is proposed as a conjunctive use and reservoir reoperation project that would integrate the State Water Project (SWP) reservoir and conveyance system with south-of-Delta groundwater storage. The WSWB Project will leverage 500 thousand acre feet (TAF) of existing groundwater storage facilities and operate conjunctively with the SWP and provide ecosystem benefits north of the Delta. Operations of the WSWB Project to provide ecosystem benefits would require agreements with one or more SWP partners to forego SWP delivery in exchange for receiving WSWB Project water, and agreements with the Department of Water Resources (DWR) and California Department of Fish and Wildlife (CDFW) to re-operate Oroville reservoir and manage the water to provide the ecosystem benefit.

Component Scores

The Water Storage Investment Program (WSIP) scoring components were reviewed and scored in accordance with the WSIP regulations section 6007 and 6009¹. The scores are recommendations to the Commission and the Commission will assign final scores at the June meeting.

The raw scores for Public Benefit Ratio (PBR), Relative Environmental Value (REV), and Implementation Risk component scores are in a different number scale than the regulation component score scale. The raw scores are normalized to the regulation scoring scale using the formula contained in section 6009(c)(1) of the regulations. The result is the highest raw score receives the maximum points for the scoring component and all other raw scores are assigned point values relative to where they fall in relation to the highest raw score.

Table 1 contains the staff recommended normalized scores for the various component items and the total score for the project.

Table 1. Preliminary Component Scores		
Component	Max Value	Score
Public Benefit Ratio and Non-Monetized Benefits	33	12
Relative Environmental Value	27	17
Resiliency*	25	14
Implementation Risk	15	10
Preliminary Expected Return for Public Investment Score		53

* Resiliency score is a non-normalized component score.

¹ All references to WSIP regulations refer to California Code of Regulations, title 23, section 6000 et. seq.

Public Benefit Ratio and Non-Monetized Benefit

The Commission determined the monetized value of public benefits at its May 1-3, 2018 meeting. At that meeting, the Commission afforded the applicant an opportunity to modify its funding request prior to final calculation of the PBR. The applicant altered its funding request that was contained in its February 2018 PBR Review. The PBR was calculated by dividing the total public benefits provided by the project by the applicant’s funding request and then normalized. The maximum points possible for this category is 33. The monetized public benefits accepted by the Commission for this project are:

- Ecosystem Improvement—Increased juvenile Chinook emigration
- Emergency Response

Where applicable, Non-Monetized Benefit (NMB) scores were added to the PBR score, if the normalized PBR score was less than 33. NMB scores are solely for recreation, emergency response, or flood control benefits. Ecosystem and water quality benefits that were not monetized were scored in the REV process. The applicant included NMBs in its application.

For Recreation, the applicant provided a variety of supporting materials, including the following items: a) justification that the benefits could not be monetized; b) qualitative description of the importance of benefit; c) information or supporting documentation regarding how the conjunctive operations with the SWP would allow Lake Perris and Castaic Lake to be operated for recreational enhancements; and d) other information on the construction of the trails or who they would benefit. However, the applicant did not include the building of the trails in the project cost estimates, which implies that the NMB is not a part of the proposed project and therefore, not applicable for eligibility as a NMB.

For Flood Control, the applicant claimed there will be marginal flood control benefits directly from its project, but believes that *“Although when viewed as a stand-alone project, the flood control benefits of the WSWB are marginal, flood management is an instance where, when taken within the context of other activities that may be supported by the WSIP, the reduction in flood peaks resulting from the full array of projects may generate a worthwhile flood control benefit.”* The applicant’s operations modeling indicates that shifting water from Oroville to WSWB water bank could potentially create more flood space in Oroville. No documentation or supporting information was provided regarding how this benefit would be achieved or what other WSIP-funded projects, combined with the Southern California Water Bank Authority’s project, would be needed to substantiate the claim. The applicant provided no justification why this benefit could not be monetized and no qualitative description of the importance of benefit.

Table 2 presents the PBR and associated normalized score, along with the NMB and the staff recommended scores.

Table 2. Public Benefit Ratio and Non-Monetized Benefits			
Public Benefit Ratio, as determined by Commission	Normalized PBR Score	Non-Monetized Benefit Score	Preliminary Component Score
1.00	11	1	12

Relative Environmental Value

There are two types of REV: ecosystem and water quality provided by CDFW and the State Water Board (SWB), respectively. Each application indicated the CDFW or SWB priorities the project would address. A score was assigned by the degree to which ecosystem and/or water quality improvements associated with each claimed priority would be provided by a project.

An explanation of the REV percentage and how it was calculated can be found in the CDFW and SWB REV analysis documents located on the Commission website. For applications with both ecosystem and water quality priorities, the score was split 70% ecosystem and 30% water quality. The score was then normalized to a maximum of 27 points. For applications that had only ecosystem priorities, the score is based solely on the ecosystem REV.

Table 3 presents the REV scores, as determined by CDFW, for ecosystem benefits, and the SWB, for water quality benefits.

Table 3. Relative Environmental Value		
Component	Comment	
Ecosystem	<p>The WSWB Project’s claimed ecosystem benefits would be realized through water transfers with the SWP, whereby a SWP Contractor would use water from the project in lieu of SWP water. This would allow water stored in Oroville Reservoir to be dedicated to providing instream flow benefits. The WSWB Project proposes providing up to 40 TAF of water per year to the Feather River in critically dry and dry years via pulse flow releases that would occur in April and May. The Ecosystem priorities identified by the applicant are:</p> <ul style="list-style-type: none"> • Priority 2 – Provide flows to improve habitat conditions for in-river rearing and downstream migration of juvenile salmonids. • Priority 6 – Increase attraction flows during upstream migration to reduce straying of anadromous species into non-natal tributaries. 	49.60
Water Quality	The applicant did not include water quality benefits that relate to SWB Water Quality priorities in its application. Therefore, a Water Quality REV analysis was not conducted.	NA

Table 4 shows the normalization calculation for the REV component Score

Table 4. Normalized Relative Environmental Value (REV) Calculation						
Total REV Score	Max REV Score	Max Possible Score	Preliminary Component Score			
49.60	÷	77.91	x	27	=	17

Resiliency Score

The resiliency score (total of 25 points) is made up of two pieces: the project’s integration and flexibility (10 points) and its response to an uncertain future (15 points). Applications that demonstrated a high quality of analysis and high level of integration and system flexibility scored higher than those that

demonstrated a low quality of analysis or low levels of integration and added system flexibility. Applications with a good quality of analysis, and that demonstrated their project would perform well in future climate conditions including showing water would be available during a drought, scored higher than those that demonstrating a low quality of analysis, public benefits reduced, or low performance during a drought.

Table 5 is staff recommended score for Resiliency and the evaluation of the two components:

a) Integration and Flexibility and b) Uncertainty.

Table 5. Resiliency		
Component	Comment	Score
Integration and Flexibility	<p>The application described a high level of integration of the proposed WSWB Project with the SWP to provide public benefits. The proposed project would operate conjunctively with the SWP to improve flexibility of SWP. The source of water for this project is obtained by shifting water from SWP San Luis Reservoir and Lake Oroville to the water bank through reoperation. By capturing additional wet year flows and storing them in the water bank, the stored water would be a reliable dry year supply to water users and the environment.</p> <p>The WSWB Project is an important component of the Antelope Valley Integrated Regional Water Management (IRWM) Plan which is focused on reliable supply and water quality benefits to the Antelope Valley.</p> <p>The WSWB Project is a conjunctive use and reservoir reoperation project that would integrate the SWP reservoir and conveyance system with south-of-Delta groundwater storage. Through an operations agreement with DWR, the WSWB Project could increase yield and reliability, while providing enhanced benefits to environmental resources. WSWB Project could be integrated with water recycling, water supply, water quality, and other projects to diversify portfolios included in regional and statewide IRWM plans throughout the region and the State, to provide for water supply reliability and enhanced ecological benefits.</p> <p>The WSWB Project could be used to provide storage on a short-term operating basis and a long-term carryover basis and could be operated seasonally as an expansion of San Luis Reservoir for capture of excess Delta flows. This additional storage could also be used to add operational flexibility and redundancy for water supply when San Luis Reservoir pump storage facilities are offline.</p>	10
Uncertainty	<p>The applicant did not analyze, as required by section 6004(a)(8)(A) of the regulations, how the expected public physical benefits would change under the two extreme 2070 climate scenarios (2070 Wetter/Moderate-Warming and 2070 Drier/Extreme-Warming). The applicant described the project's response to uncertain future based on the 2030 and 2070 climate conditions which are required for the quantification of the project's physical benefits. The applicant made a general statement that rising air temperatures and the shrinking snowpack due to climate change will increase the need for new</p>	4

Table 5. Resiliency		
Component	Comment	Score
	<p>storage capacity and that the WSWB Project is not impacted by sea level rise and would produce more public benefits as climate change becomes more severe.</p> <p>The applicant did not describe, as required by section 6004(a)(8)(B) of the regulations, how the public physical benefits could be affected by future projects and water management actions and how the proposed project operations could be adapted to sustain the public benefits.</p> <p>The application did not describe, as required by section 6004(a)(8)(C) of the regulations, other sources of uncertainty that would affect the proposed project’s public physical benefits or alternative operational strategies or adaptations the proposed project could be adapted to sustain the benefits. The applicant describes the project’s additional features that reduce uncertainty and increase sustainability. The additional project features include: co-located with solar-electric arrays used to supplement project energy needs, increased certainty from storing water underground, and increased certainty by avoiding dam safety issues.</p> <p>The applicant did not describe and quantify, as required by section 6004(a)(8)(D) of the regulations, the amount of water stored in the water system due to the project that could be used for public benefits at the beginning and end of a five-year drought. Instead, the applicant stated that the amount of water expected to be in storage that could be borrowed annually during a severe, multi-year drought and that the WSWB Project would add 215 TAF or approximately 43 TAF of annual yield that could be borrowed during a severe, multi-year drought.</p>	
Preliminary Component Score		14

Implementation Risk

The implementation risk score is the total of the technical, environmental, economic and financial feasibility scores. One to five points, per category, were assigned depending on whether the information provided in the application showed a high or low risk of the project being built or operated in the timeframes provided, as well as whether the information was or was not well supported. The points total, maximum of 20, was then normalized for a maximum of 15 points.

Table 6 is staff recommended score for Implementation Risk and the evaluation of the four component factors: Technical Feasibility, Financial Feasibility, Economic Feasibility, and Environmental Feasibility.

Table 6. Implementation Risk		
Implementation Risk	Comments	Score
Technical Feasibility	<p>The applicant demonstrated that the project can be constructed with existing technology and available construction materials, work force, and equipment. The applicant also demonstrated that the project is technically feasible consistent with the preliminary operations plan, as discussed below.</p> <p>Feasibility level cost estimates, design drawings, and conceptual construction schedule indicated the project can be constructed. The preliminary operations plan contains the four required components and are well supported by the information provided. There is a high certainty that the project can be operated to provide the substantiated public benefits, as described in the preliminary operations plan.</p> <p>Preliminary operations plan components, as required by the regulations, are listed below:</p> <ul style="list-style-type: none"> • Project operations and public benefits under a range of hydrologic conditions, including wettest and driest years and multiple dry years - Well supported • The actions that will be taken to meet the desired public benefit objectives - Well supported • How operations will be monitored to ensure public benefit outcomes - Well supported • Preliminary adaptive management strategies – Well supported <p>The applicant provides a range of operations and public benefits under a range of hydrologic conditions.</p> <p>The applicant describes actions that will be taken to meet desired public benefit objectives through well supported information in the Preliminary Operations Plan and Project Conditions attachments.</p> <p>The applicant’s operations monitoring plan is well supported with descriptions of pulse flow monitoring, juvenile survival rates and outmigration timing, and monitoring of adult spring-run. The adaptive management plan is well described and relies on historic and ongoing fisheries monitoring, performed by DWR as part of the Oroville Facilities Federal Energy Regulatory Commission Relicensing and compliance monitoring program (No. 2100-134).</p>	5
Financial Feasibility	<p>The applicant has not fully demonstrated that sufficient funds are likely to be available from public and non-public sources to cover the construction</p>	1

Table 6. Implementation Risk		
Implementation Risk	Comments	Score
	<p>and operation and maintenance (O&M) of the project over the planning horizon.</p> <p>The applicant’s analysis indicates a high risk of being unable to build or operate the project. The monetized non-public benefits are approximately fifty percent of the non-public costs. The applicant reduced its funding request to be equal to the eligible funding amount and reviewers could not identify another funding source in the application to replace that funding. The applicant’s financial feasibility is not well-supported by the applicant’s documentation. The applicant did not provide a financial plan or detailed revenue analysis but instead stated that it can use revenue from water sales to fund non-public capital costs and O&M costs (see pp. 16-17 of WSWB_FeasibilityDocs_1of1.pdf). The applicant does not show that it has an established rate base to help cover non-public costs.</p>	
Economic Feasibility	<p>Considering all benefits and costs quantified and monetized by the applicant and adjusted by staff, the calculated benefit/cost (B/C) ratio is 0.64. Expected benefits of the project are substantially less than expected costs. Public benefits include ecosystem and emergency response, which are about 43% of total benefits. Non-public benefits include water supply benefits and are about 57% of total benefits.</p> <p>The applicant’s analysis indicates a medium-high risk of being unable to build or operate the project. Total costs exceed total monetized public and non-public benefits, as adjusted by staff, resulting in a B/C ratio substantially less than 1.0. Additionally, the costs associated with arrangements that will be required to exchange stored water for Lake Oroville stored water were not monetized. Potential non-monetized benefits are described in the file “WSWB_NonMonetizedBen_1of1.pdf”.</p>	2
Environmental Feasibility	<p>Review of the application indicates that this project has a moderate implementation risk. The application did not include a timeframe or schedule for the permits and agreements needed for this project, with the exception of encroachment permits. However, the applicant appears to have completed its CEQA compliance.</p> <p>The applicant mentioned throughout the application that an Environmental Impact Report (EIR) was approved for this project. A 2006 Draft EIR for the Antelope Valley Water Bank Project was attached to the application, but a Final EIR was not submitted. The schedule does not show CEQA as part of the project and it is assumed that CEQA is complete.</p> <p>The application and Draft EIR both describe how potential significant environmental impacts will be reduced or mitigated and identified a significant and unavoidable impact of the cumulative net increase in criteria air pollutants (Draft EIR, Page 170) for which the project region is in</p>	3

Table 6. Implementation Risk		
Implementation Risk	Comments	Score
	<p>nonattainment. Despite reduction in potential emissions achievable through implementation of emission control and mitigation measures, the Project will nonetheless result in a net increase in particulate matter and ozone precursors.</p> <p>The schedule shows that permit planning is scheduled to be complete by mid-2018. In the permit document, the applicant states that the owner may need to revise an existing water right to change point of use and will need to comply with U. S. Fish and Wildlife Service’s requirements found in the EIR. The Draft EIR identifies the users of the CEQA Document as the owner/operator of the project or users of the project which could include water agencies in various counties, including Kern, Los Angeles, Orange, and San Diego.</p>	
Staff Recommended Resiliency Score		11

Table 7 shows the normalization calculation for the Implementation Risk Score

Table 7.- Normalized Implementation Risk (IR)			
Total IR Score	Maximum IR Score	Maximum Possible Score	Preliminary Component Score
11	÷ 17	x 15	= 10