



Water Storage Investment Program: Chino Basin Program 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 Chino Basin Program, promoted by its applicant, the Inland Empire Utilities Agency (IEUA), 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 Chino Basin Program has reached the stage where the Commission can deliberate on project feasibility.

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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-Proposition 1 funding 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 November meeting, Commission staff will present its recommendations regarding Chino Basin Program'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.	Inland Empire Utilities Agency (IEUA), 2021. Draft Programmatic Environmental Impact Report (PEIR) for Chino Basin Program.
75% of non-public benefit cost share submitted to the Director of	IEUA 2021b. Letter of Commitment for Non-public Benefit Costs from Inland Empire Utilities Agency

Requirement	Status
Department of Water Resources (DWR).	The letter was transmitted by the California Water Commission to the Director 10/21/2021.
Completed feasibility documents	2017 WSIP Application. Chino Basin Program 2017-2018. WSIP staff technical review, PBR review, appeal, appeal response, and scoring recommendations IEUA 2021a. Chino Basin Program Feasibility Study October. (available upon request)

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, engineering designs and costs, and construction methods for the Chino Basin Program and concluded that the Feasibility Study report and appendices have demonstrated that the Chino Basin Program can be technically and physically constructed and operated.

The Chino Basin Program (CBP) would include advanced water purification facilities, groundwater recharge and extraction facilities, and other associated infrastructure and distribution facilities. The CBP would store up to 15,000 acre-feet per year of treated wastewater in the existing Chino Basin Water Bank. The Chino Basin Water Bank would be operated to dedicate blocks of water, in increments of 50,000 acre-feet, for ecosystem benefits. In drier conditions, this stored water would be used to provide pulse flows to enhance spring instream flows in the Feather River below Lake Oroville. A water exchange operation is required to provide the pulse flows. The exchange operation would require agreements with DWR, Department of Fish and Wildlife, and Metropolitan Water District of Southern California (MWDSC). Following a spring pulse flow release from Lake Oroville by DWR, MWDSC would forego SWP Table A deliveries equivalent to the pulse flow amount in exchange for receiving an equivalent amount of Table A water from the Chino Basin Water Bank. After 25 years of operation to provide the ecosystem benefits, pulse flows would cease, and the CBP would be operated for local water supply benefits.

Preliminary design reports were prepared and are included in the Chino Basin Program Feasibility Study (IEUA, 2021) Appendix C (Preliminary Design Report TM 1) and Appendix D (Preliminary Design Report TM 2). These reports provide descriptions of planning and design assumptions, analysis of project alternatives, proposed facilities, how the facilities would be integrated with existing Inland Empire Utilities Agency facilities, construction methods, and construction and replacement cost estimates.

Construction methods described in the feasibility report demonstrated that the project facilities can be constructed with existing technology and available construction materials, work force, and equipment.

The project facilities are also likely to be constructed using non-complex design and construction techniques and standard construction equipment. Construction materials for the advanced water purification facilities are reasonably available, and various types of skilled craftsmen and laborers will be used to construct the project facilities.

Environmental Feasibility Review. Commission staff reviewed the 2017 application materials, 2021 Final Feasibility Study (IEUA, 2021a), and 2021 Draft CBP PEIR (IEUA, 2021) and related CEQA documents 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 the Draft CBP PEIR and included possible effects of the CBP and proposed mitigation measures. The Draft CBP PEIR indicated that there would be significant and unavoidable environmental impacts as a result of the CBP related to biological resources, construction and operational-related GHG emissions, and utilities and service systems. Because specific locations for future CBP facilities are not presently known, there is a potential for future

CBP facilities to be developed in an area containing significant biological resources that cannot be avoided. Though substantial mitigation has been proposed to minimize impacts under most circumstances for future CBP facilities, no feasible mitigation exists to completely avoid impacts to biological resources within the Chino Basin. Thus, the CBP is expected to cause significant unavoidable adverse impacts to biological resources, specifically implementation of the CBP will contribute cumulatively to potential significant impacts to the Santa Ana sucker. Although mitigation measures were identified that would minimize GHG emissions, GHG emissions are anticipated to exceed South Coast Air Quality Management District thresholds, and the CBP would potentially fail to procure its electricity from carbon-neutral electricity sources by 2045.

As the CBP would result in significant and unavoidable impacts related to GHG emissions from the construction of CBP facilities, the construction of new or expansion or modifications to existing water infrastructure facilities would also cause a significant and unavoidable impact to utilities and service systems. IEUA anticipates preparing a Statement of Overriding Considerations which will address why the project benefits outweigh the CBP impacts.

In addition, the Draft CBP PEIR identified potentially significant but mitigable impacts that include adverse impacts to aesthetics; agriculture and forestry resources; air quality; cultural resources; geology and soils; hazards and hazardous materials; hydrology and water quality; land use and planning; mineral resources; noise; population and housing; public services; recreation; transportation; tribal cultural resources; and wildfire. IEUA anticipates preparing and considering for adoption a Mitigation Monitoring and Reporting Program.

Economic Feasibility Review. Economic feasibility is concerned with the economic benefits associated with physical benefits in comparison to all costs. Staff reviewed the economic costs and benefits analysis in the original application and the feasibility study, including any changes since the MCED determination. Staff has reviewed all cost estimates. Non-monetized and qualitative benefits and costs have been considered. These cost estimates and benefits demonstrate the project is economically feasible.

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. Staff identified a few changes to CBP plans since 2017. In particular, costs to secure an upstream commitment for a minimum discharge of 15,000 acre-feet (AF) to the Santa Ana River per year are no longer necessary. Direct recycled water use projections have decreased such that forecast total recycled supply is expected to provide for Santa Ana River minimum flows (IEUA 2021a, Appendix G). Revenues foregone because wastewater is sent to the Advanced Water Purification Facility (AWPF) are included.

Estimated costs have changed as described below. Largely, however, the CBP as presented in the Feasibility Study is the same as it was in 2017. Therefore, application materials from 2017

have also been used to support feasibility determinations in addition to the applicant's 2021 submittals.

Project Costs. In the 2017 application, total CBP costs (in 2015 dollars) were \$1.07 billion in present value. Costs included a \$95 million payment "to secure commitment for ongoing discharge of 15,000 acre-feet per year of treated wastewater from upstream sources tributary to the Santa Ana River for 25 years." After the first 25 years, a cost of \$3.75 million per year, or \$62 million in present value terms, was required to continue the commitment, so a total of \$157 million (\$95 + \$62) was required for the commitment.

Estimated total CBP costs in the 2021 Feasibility Study are \$1.17 billion. The 2021 costs do not include the cost required to "secure commitment for ongoing discharge." Costs for source wastewater for the AWP (\$225 per AF) and costs for Rialto and Jurupa Community Services District (JCSD) improvements (\$130.7 million; \$53.4 million for JCSD and \$77.3 million from Rialto) are included. These costs total \$188.3 million. Also, program costs now include variable brine disposal operating costs (\$29.1 million).

Benefits. Although the 2021 CBP appears to be almost the same project as proposed in 2017, economic benefits claimed in the Feasibility Study are 2.5 times larger than the 2017 benefits approved by staff for MCED purposes in May 2018. Some of the increase is because the 2017 MCED benefits were in 2015 dollars. Now, the feasibility study estimates are in 2019 dollars. Most of the increase can be accounted for by more complete benefits methods. The table below compares the feasibility study benefits to staff-adjusted benefits from the 2017 application.

Chino Basin Program benefits as adjusted by staff in 2017 and Feasibility Study 2021		
	2017	2021
Ecosystem Benefits	\$103.45	\$119.70
Water Quality Benefits	\$225.88	\$593.80
Emergency Supply Benefits	\$38.74	\$165.40
Water Supply Benefits	\$129.74	\$380.80
Total	\$497.81	\$1,259.70

Differences are discussed in the following subsections.

Ecosystem

The applicant's MCED was ultimately limited by the requirement that at least half of funded benefits must be ecosystem. Ecosystem benefits were estimated to be \$103.45 million and the MCED for public benefits including water quality and emergency response was double that, or

\$206.9 million. The 2021 Feasibility Study claims ecosystem benefits of \$119.7 million, practically the same as the 2017 estimates after accounting for inflation.

Water Quality

IEUA (2021a, page 1) states:

Total Dissolved Solid limits for recycled water direct non-potable use and groundwater recharge may be exceeded within the next 10 years. Additionally, contaminants such as 1,2,3-trichloropropane and perfluorooctanoic acid are entering IEUA's regional water recycling facilities, which are not designed for their removal. Together, these concerns threaten the reliability of recycled water within the region.

Water quality benefits claimed in the 2017 application were based on the costs of reducing total dissolved solids from 16,000 AF of water generally based on a current cost of \$800 per ton for salt removal. Annual cost increased from \$10.86 million in 2030 to \$16.27 million in 2070 to give a present value cost of \$204.6 million.

In the feasibility study, water quality benefits are shown as the entire cost of the basin compliance plan, \$593.8 million, reflecting all costs required to achieve the same water quality as the CBP. In the benefit-cost section below, staff discusses the implication if, alternatively, basin compliance is part of the baseline and only incremental costs and benefits above that are attributed to the CBP.

Emergency Supply

The emergency supply benefit for the Chino Basin Program is emergency supply related to a delta levee failure. Emergency response benefits as adjusted by staff in 2017 were \$38.65 million. These benefits were based on 50,000 AF of emergency supply, an avoided net cost of \$1,324 per AF and an emergency event occurring in 2 percent of years. In the feasibility study, 40,000 AF are provided to eliminate emergency shortage in 4.2 percent of years. This and higher unit values results in a benefit of \$165.4 million.

Due to uncertainty in several parameters, emergency response benefits are among the hardest to estimate. The widely used frequency of 4.2 percent represents an event that has not happened in modern history but is becoming more probable with sea level rise. The costs of such an event will depend substantially on the time of year and amount of water stored south of Delta when the event occurs. A severe shortage can impose costs on urban water users that are several times the retail price being paid. The average benefit of water in the feasibility study provided for emergency shortage increases from \$3,636 per AF in 2030 to \$4,866 in 2070.

These averages are reasonable for the type of shortage event assumed.

IEUA 2021a, Appendix E notes:

it is assumed that the entire new groundwater extraction capacity would be prioritized for responding to an emergency event over a full year. During an emergency event. . . a participating agency could borrow water stored in the Chino Groundwater Basin to be repaid when conditions are stabilized. . . This emergency action could result in a temporary deferral of other uses of water supplies developed by program alternatives. All other potential uses would be restored after the emergency water supplies are repaid.

One of the costs of the emergency response water supply is that other water supply benefits must be foregone in that year. The beneficiaries of the emergency supply must replace the emergency supply in the future. Potentially, the storage space vacated for emergency supplies might be refilled soon after the emergency event so that there is little effect on future supplies. However, it is prudent to assume that the use of stored water for emergency supplies results in an equivalent loss of non-emergency water supply as the storage space is being refilled. The emergency supply is 40,000 AF provided in 4.2 percent of years, so on average the loss in other water supply is 1,680 AF per year. Using the target annual water supply provided, on average 15,000 AF per year, then the reduction in other water supply benefits is approximately 11.2% (1,680/15,000). The benefit adjustment is made in the staff water supply benefit category below. The reduction represents the expected loss of average water supply benefit to replace water pumped to provide the emergency response benefit.

Water Supply

Water supply benefits in the feasibility study are 1) cost savings during the 25-year pulse flow period from reduced carriage losses and conveyance and treatment costs, and 2) benefits during the post-pulse flow period.

Cost savings during the pulse flow period are power cost savings of \$221 per AF for “CBP Pump-In Delivery” and power cost savings plus an additional treatment cost savings of \$319 per AF for “In-Lieu Delivery.” The present value of the CBP Pump-In Delivery benefit is \$10.00 million and the present value of the In-Lieu Delivery benefit is \$62.50 million.

During the post-pulse flow period, most benefits (\$249.5 million) are Metropolitan Demand Offset benefits. These water supplies are valued at Metropolitan’s Full-Service Tier 1 Treated Water Rate. Shortage Avoidance Benefits of \$58.50, valued using Allocation Surcharge rates developed by Metropolitan for their Water Supply Allocation Plan in 2014, are also counted. Total water supply benefits are \$380.80 million. As described under Emergency Response above, staff has reduced these benefits by 11.2% to \$338.15 million to account for water needed to replace the water used for emergency response supply.

Benefit-Cost Results

The table below summarizes quantified costs and benefits of the Chino Basin Program. Benefits and costs claimed by the applicant in the feasibility study are the same as recommended by

staff except that the water supply benefit has been reduced to account for water provided for emergency response. The benefit-cost ratio provided by the applicant is 1.08, staff estimates this ratio to be 1.04.

Staff also tested how benefit-cost results would change if the basin compliance condition was the baseline for purposes of measuring benefits and costs. The basin compliance alternative shown in the feasibility study is the minimum cost required to maintain water quality compliance. Therefore, staff notes that the basin compliance plan might be regarded as the baseline condition without CBP. With this assumption the CBP would provide no further water quality improvement above the baseline condition. However, the cost of the CBP would only include incremental costs of the CBP over the basin compliance plan. Under this assumption, costs would be lower and the benefit-cost ratio would be 1.08.

Chino Basin Project Estimated Costs and Benefits in the Feasibility Study, and as Adjusted by Staff		
Cost or Benefit item	As presented in Feasibility Study	As adjusted by Staff
Total Capital Cost (2019 \$ million)	\$665.90	\$665.90
PV Cost (2019 \$ million)	\$1,171.00	\$1,171.00
<i>Capital and Replacement Cost</i>	\$589.20	\$589.20
-Loan Payment	\$469.00	\$469.00
-Replacement Cost	\$120.20	\$120.20
<i>Annual Costs</i>	\$393.50	\$393.50
-O&M Cost	\$364.40	\$364.40
-NRW Cost	\$29.10	\$29.10
<i>Recycled Water Import Cost</i>	\$188.30	\$188.30
PV Benefit	\$1,259.70	\$1,217.05
Water Supply Benefits	\$380.80	\$338.15
Water Quality Benefits	\$593.80	\$593.80
Emergency Supply Benefits	\$165.40	\$165.40
Ecosystem Benefits	\$119.70	\$119.70
Net Present Value	\$88.70	\$46.05
Benefit–Cost Ratio	1.08	1.04

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 applicant lists the following non-monetized benefits for this project

- Water supply resiliency

- Water quality resiliency
- Subsidence avoidance
- Environmental benefits

The 2017 application also provides discussion of non-monetized ecosystem, emergency response and water quality benefits¹.

Staff believes that the non-monetized environmental, water quality and emergency response benefits as stated largely support the alternative cost method for benefits quantification rather than representing additional dollar benefits.

Reduced subsidence and supply resiliency could be additional benefits of the CBP. The feasibility study cost allocation section lists subsidence avoidance as a project purpose and states that “new groundwater recharge and extraction capacity” would be “strategically located to avoid subsidence-related impacts.” No physical analysis of subsidence is provided and it is unclear if the project would reduce subsidence compared to the without-project alternative.

The Technical Reference also allows for emergency response benefits to include water used to replace water lost to accidental or intentional chemical contamination, water for firefighting, and improved water supply reliability following an earthquake. Some of these benefits could potentially be provided by the CBP.

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. Staff’s review indicates:

- Funds from all sources are sufficient to cover all costs based on the applicant’s commitment to pay non-MCED costs.
- Costs allocated to the non-public beneficiaries (the applicant, IEUA) do not exceed the benefits that the applicant receives.
- The applicant is the primary beneficiary of non-public benefits, and the only beneficiary expected to provide a financial commitment for the project. It is a public agency with legal authority to charge rates and assessments to its customers as necessary to cover the costs it has committed to pay for the proposed project which supports financial feasibility.

The applicant’s commitment to pay its cost share is also accepted as evidence of financial feasibility for related non-public benefits. The applicant has a strong rate base and history of meeting financial obligations. The applicant states its commitment on page 82 of its feasibility

¹ IEUA_A7 Non-Monetized Public Benefits 2017.

study, and reiterates this commitment in its letter of commitment to the Director of the Department of Water Resources (IEUA, 2021b).

The feasibility study further states on page 82:

“Specific funding plans for capital and continuing annual costs will be refined and presented through a Cost of Service (COS) study that is underway. The COS will describe the specific means for collecting revenue required for financing the program.”

The regulations (Technical Reference section 3.5) require that beneficiaries of non-public benefits are allocated costs that do not exceed the benefits they receive. Staff has reviewed costs allocated to beneficiaries and compared them to their benefits. Costs allocated to and borne by the applicant include the non-capital costs and any capital costs that exceed the MCED provided from WSIP. Non-capital costs to be borne by the applicant are \$394 million per year (IEUA, 2021a, Table 5-2). Any other capital costs not funded by the MCED, for example capital cost increases due to inflation, may also need to be borne by the applicant, but these are currently unknown.

Commission Decision

The Commission can decide to make a determination that the Chino Basin Program is feasible. If the Commission determines that the Chino Basin Program 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 IEUA which includes the Chino Basin Program Feasibility Study, a letter of commitment from IEUA to fund the project, and draft environmental documentation, staff finds that IEUA has provided documents that meet the requirements of Water Code section 79757 including completed feasibility documents; the Chino Basin Program 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.

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