



● **Board of Directors**
Water Planning and Stewardship Committee

4/11/2017 Board Meeting

8-5

Subject

Adopt CEQA determination and appropriate \$1.5 million; and authorize agreement with the California Department of Water Resources for preliminary design of a water recovery project at Lake Perris (Appropriation No. 15402)

Executive Summary

This action authorizes the General Manager to enter into an agreement with the California Department of Water Resources (DWR) for planning, environmental analysis and review, and preliminary design of a State Water Project (SWP) water recovery project at Lake Perris. This action also authorizes Metropolitan staff to perform preliminary design of a conveyance pipeline for delivery of the recovered water to the Colorado River Aqueduct (CRA).

Timing and Urgency

DWR is currently undertaking the Lake Perris Dam Remediation project. Construction is 82 percent complete as of January 12, 2017, and the work is scheduled to be completed by the end of 2017. In conjunction with the dam remediation project, DWR has proposed a joint effort to develop a water recovery project. Conceptually, this system will recover SWP water stored at Lake Perris that has been and is seeping underneath Perris Dam, and then transport it to the CRA. It is anticipated that the system will deliver approximately 6,000 to 8,000 acre-feet (AF) per year.

This action involves two components: (1) planning, environmental analysis and review, and preliminary design of a recovery system which, if subsequently approved, would be designed, constructed, and owned by DWR; and (2) preliminary design of a conveyance pipeline to the CRA which, if subsequently approved, would be designed, constructed, and owned by Metropolitan. Upon approval of this action, the second component will be added to Metropolitan's Capital Investment Plan (CIP).

The conveyance pipeline has been reviewed with Metropolitan's CIP prioritization criteria and, if approved, will be included in the System Flexibility/Supply Reliability Program. Funds for this action are available within Metropolitan's capital expenditure plan for fiscal year 2016/17.

Details

Background

Lake Perris is located in northwestern Riverside County and is owned and operated by DWR. Construction of Perris Dam was completed in 1973. The dam is chevron-shaped with a maximum height of 128 feet and a length of two miles. Lake Perris serves as the terminus of the East Branch of the SWP, and has a storage capacity of approximately 130,000 AF.

In 2005, the seismic stability of the dam was evaluated to determine the dam's vulnerability based upon a new, higher seismic design level. This study found that the liquefaction potential of the dam foundation could lead to large displacements under the updated seismic conditions. To ensure safety, DWR lowered the maximum operating elevation in Lake Perris by 25 feet until remediation efforts could be completed.

Following completion of detailed studies and design, construction commenced on the Lake Perris Dam Remediation project in 2014. To date, the contractor has completed cement deep-soil mixing, has constructed a new toe-drain pipe to passively collect shallow seepage, and is placing and compacting berm material to strengthen the dam. Flows recovered by the shallow system are collected and discharged to the CRA. These flows are accounted for under Metropolitan's Table A supplies. As of January 12, 2017, 82 percent of the work had been completed, with final completion scheduled by the end of 2017.

In conjunction with the ongoing dam remediation effort, DWR has initiated investigation of a water recovery project that would recover and collect SWP water that has been and is seeping beneath Perris Dam and deliver it to Metropolitan. This project would be a joint effort of DWR and Metropolitan. The system would have two components:

- **Component No. 1 – Recovery System.** DWR would design and construct a system to recover and collect SWP water seeping beneath Perris Dam. This system would be located on DWR property and would include wells, pumps, and pipelines with a delivery (turnout) structure located adjacent to Perris Dam. Metropolitan staff would provide technical input and peer review of DWR's design.
- **Component No. 2 –Water Conveyance Pipeline.** Metropolitan would design and construct a pipeline that extends from DWR's turnout structure to Metropolitan's CRA, which passes to the south of Perris Dam.

Lake Perris is a terminal reservoir to the SWP transportation system. The cost of operating the SWP transportation system is included in the Transportation Charge that Metropolitan pays under its SWP contract. Therefore, the costs associated with this project would be billed under the Transportation Charge. The water collected by this project would not be charged against Metropolitan's Table A water supply. Based on a DWR estimate of the amount of SWP water that has seeped out of Lake Perris since the lake was filled, the total amount of water that potentially could be recovered is 400,000 AF. On an annual basis, the amount of water that potentially could be recovered is estimated to range from 6,000 to 8,000 AF per year. If ultimately approved, the total estimated cost to complete the project, including both DWR's and Metropolitan's components, is anticipated to range from \$25 million to \$27 million.

The proposed agreement with DWR will establish the project's terms and conditions for planning and environmental analysis and review, and will include preliminary design of the recovery project. Staff will return to the Board to address final design, construction, and maintenance responsibility for the facilities. Based on the proposed initial agreement, DWR will conduct hydrogeological investigations, prepare environmental documentation, and perform preliminary design of the recovery system. Metropolitan will review the project's environmental documentation, review DWR's technical design, and perform preliminary design of the conveyance pipeline. The cost for all of DWR's work would be billed under the Transportation Charge in Metropolitan's annual Statement of Charges for the SWP. Metropolitan's review of DWR's work will be conducted with fiscal year 2016/17 operations and maintenance (O&M) funds, while design of the conveyance pipeline would be a capital expense executed under Metropolitan's CIP.

Component No. 1 - Lake Perris Recovery System - Agreement with Department of Water Resources For Geotechnical Investigations, Environmental Review, and Preliminary Design (No capital funds required)

Planned DWR work includes geotechnical investigations (including installation of 36 to 40 observation and aquifer testing wells), planning, environmental analysis and review, and preliminary design of a recovery and collection system. The details of the preliminary design, and needed environmental review, will be determined after DWR completes the geotechnical explorations.

The projected cost for this effort is \$7.25 million, which would be paid as a part of the Statement of Charges that DWR provides to Metropolitan for SWP costs.

Metropolitan staff activities would include peer review of DWR's preliminary design, and review of geotechnical explorations, water quality, and hydraulic analyses. The estimated cost for this effort is \$370,000, which includes \$108,000 for review of geotechnical exploration results; \$208,000 for review and coordination of environmental documentation with DWR; and \$54,000 for technical review of DWR's preliminary design of the extraction facilities.

As a responsible agency for the proposed project under CEQA, Metropolitan will review and consider the environmental document prepared by the lead agency DWR, and ultimately reach its own conclusions on whether and how to proceed with the proposed project.

Component No. 2 - Lake Perris Water Conveyance Pipeline – Preliminary Design Phase (\$1,500,000 of capital funds)

The conveyance pipeline extending from DWR's turnout structure to the CRA would include approximately one mile of 24-inch-diameter pipe; valves and metering; electrical and control systems; and a straight inlet into the CRA's cut-and-cover conduit section. Power for the recovery facilities and the conveyance pipeline would require extension of electrical service to Perris Dam area by Southern California Edison (SCE), and construction of electrical distribution facilities for onsite structures.

Planned preliminary design phase activities include hydraulic analyses; assessment of power requirements; right-of-way planning; geotechnical investigations; identification of traffic control and required permits; development of conceptual layout drawings and final design criteria; and development of a construction cost estimate.

This action appropriates \$1.5 million and authorizes preliminary design phase activities for the water conveyance pipeline. Requested funds include \$435,000 for the field and geotechnical investigations, hydraulic analyses, and preliminary design; \$400,000 for the power assessment, planning, and consultations with SCE; \$348,000 for permitting, right-of-way activities, site surveys, and project management; and \$317,000 for remaining budget. All preliminary design activities will be performed by Metropolitan staff.

Summary

This action appropriates \$1.5 million, authorizes the General Manager to execute an agreement with DWR for the study and preliminary design of a recovery project at Lake Perris, and authorizes preliminary design of a water conveyance pipeline. Metropolitan's funding for this project is comprised of three elements: 1) \$7.25 million to be paid to DWR for preliminary design of the recovery system through the annual SWP Statement of Charges; 2) \$370,000 in O&M funds for review of DWR's environmental documentation and technical design; and 3) \$1.5 million in capital funds for preliminary design of the conveyance pipeline. The conveyance pipeline has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2016/17 capital expenditure plan. Staff will return to the Board at a later date for certification of environmental documentation, authorization of final design, and agreement amendments governing construction and operation.

See [Attachment 1](#) for the Financial Statement and [Attachment 2](#) for the Location Map.

Appropriation No. 15402 was initiated in 2002 as the Hayfield Groundwater Storage Program. This action expands the scope of the appropriation to include potential work on Lake Perris recovery project, and changes its name to the Hayfield and Lake Perris Groundwater Recovery Appropriation to reflect this new scope. In addition, this action includes funding for preliminary design of the Lake Perris water conveyance pipeline within capital Appropriation No. 15402. Thus, with this action, the total funding for Appropriation No. 15402 will increase from \$27,715,000 to \$29,215,000.

If ultimately approved, the total estimated cost to complete the Lake Perris Recovery Project, including both DWR's and Metropolitan's components, is anticipated to range from \$25 million to \$27 million.

Project Milestone

October 2017 – Completion of preliminary design of the recovery facilities and conveyance pipeline

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed actions are categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed actions consist of basic data collection and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource. This may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. Accordingly, the proposed actions qualify under a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed actions qualify under a Categorical Exemption (Class 6, Section 15306 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination that the proposed actions are categorically exempt, and

- a. Appropriate \$1.5 million in capital funds;
- b. Authorize agreement with DWR for preliminary design and environmental review of a proposed recovery system at Lake Perris; and
- c. Authorize preliminary design of a water conveyance pipeline to the Colorado River Aqueduct.

Fiscal Impact: \$1.5 million in capital funds under Appropriation No. 15402 and \$370,000 in O&M funds for fiscal year 2016/17.

Business Analysis: This option would increase Metropolitan’s water supply by 400,000 AF at a rate of an estimated 6,000 to 8,000 AF per year.

Option #2

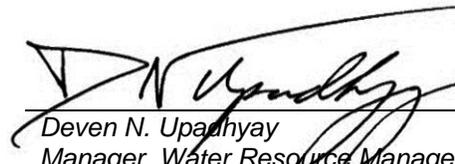
Do not proceed with a recovery system at Lake Perris.

Fiscal Impact: None

Business Analysis: This option would forego an opportunity to develop a cost-effective and efficient approach for recovery of water at Lake Perris.

Staff Recommendation

Option #1



 Deven N. Upadhyay
 Manager, Water Resource Management

3/28/2017
Date



 Jeffrey Kightlinger
 General Manager

3/29/2017
Date

Attachment 1 – Financial Statement

Attachment 2 – Location Maps

Financial Statement for Hayfield and Lake Perris Groundwater Recovery Appropriation

A breakdown of Board Action No. 5 for Appropriation No. 15402 for the Lake Perris seepage water conveyance pipeline¹ is as follows:

	Previous Total Appropriated Amount (Mar. 2010)	Current Board Action No. 5 (Apr. 2017)	New Total Appropriated Amount
Labor			
Studies & Investigations	\$ 500,000	\$ 825,000	\$ 1,325,000
Final Design	81,000	-	81,000
Owner Costs (Program mgmt., right of way, permitting)	3,369,071	294,000	3,663,071
Submittals Review & Record Drwgs	-	-	-
Construction Inspection & Support	-	-	-
Metropolitan Force Construction	-	-	-
Materials & Supplies	75,000	-	75,000
Incidental Expenses	65,000	26,000	91,000
Professional/Technical Services	10,061,000	-	10,061,000
Right-of-Way	1,499,000	38,000	1,537,000
Equipment Use	5,000	-	5,000
Contracts	-	-	-
Remaining Budget	3,174,000 ²	317,000	3,491,000
Undistributed Funds	8,885,929	-	8,885,929
Total	\$ 27,715,000³	\$ 1,500,000	\$ 29,215,000

Funding Request

Appropriation Name:	Hayfield and Lake Perris Groundwater Recovery		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15402	Board Action No.:	5
Requested Amount:	\$ 1,500,000	Budget Page No.:	N/A
Total Appropriated Amount:	\$ 29,215,000	Total Appropriation Estimate:	\$ 29,215,000

¹ This is the initial appropriation for the Lake Perris Water Conservation Project conveyance pipeline. The total estimated cost to complete this project is anticipated to range from \$6 million to \$8 million.

² Includes previous reallocation of \$186,000 from Remaining Budget to the Hayfield Groudwater Extraction project for preliminary design investigations.

³ Includes a correction of the previous total appropriated amount due to typographic error in the March 2002 action which merged Appropriation No. 15325 funds and expenditures in their entirety, into Appropriation 15402. In that action, the total appropriated amount was incorrectly shown as \$25,715,000.

