



- Board of Directors
Engineering and Operations Committee

4/10/2012 Board Meeting

7-1

Subject

Appropriate \$240,000; and authorize preliminary design to replace valves on the Second Lower Feeder and Palos Verdes Feeder (Approp. 15441)

Description

This action authorizes two projects: (1) Preliminary design to replace a 42-inch sectionalizing valve, known as the Bixby Valve, on the Second Lower Feeder; and (2) Preliminary design to replace a 42-inch control valve, known as the Collis Valve, on the Palos Verdes Feeder.

Timing and Urgency

The 44-year-old Bixby Valve has reached the end of its service life and has deteriorated beyond repair. This 42-inch sectionalizing valve allows a portion of the Second Lower Feeder between Long Beach Boulevard and South Alameda Street to be shut down while keeping the remainder of the feeder and service connections in operation. Timely replacement of this valve is important because isolation of the Second Lower Feeder will be required to perform planned prestressed concrete cylinder pipe (PCCP) repairs on the Second Lower Feeder during a scheduled 2014 shutdown. Replacement of the Bixby Valve is planned to take place during a shutdown of the Second Lower Feeder scheduled for March 2013.

The 48-year-old Collis Valve has also reached the end of its service life and has deteriorated beyond repair. This 42-inch valve controls flows on the Palos Verdes Feeder and maintains upstream water levels at the Eagle Rock Control Tower. In the event of a valve failure, water levels within the control tower would drop and the ability to control flows within the Palos Verdes Feeder would be lost, increasing the risk of delivery interruptions for up to 11 service connections serving the cities of Los Angeles, Compton, and Torrance; Central Basin Municipal Water District; West Basin Municipal Water District; and the Upper San Gabriel Valley Municipal Water District.

These projects have been reviewed with Metropolitan's updated Capital Investment Plan (CIP) prioritization criteria, and are categorized as Infrastructure Rehabilitation projects. Funds for this action are available within Metropolitan's capital expenditure plan for fiscal year 2011/12.

Background

The Second Lower Feeder delivers treated water from the Robert B. Diemer Water Treatment Plant in Yorba Linda to Palos Verdes Reservoir in Rolling Hills Estates. The feeder is 39 miles long and was installed in the early 1970s. Approximately 30 miles of the Second Lower Feeder are constructed of PCCP with a diameter ranging from 78 inches to 84 inches, while the other 9 miles are constructed of 84-inch-diameter steel pipe.

The Bixby Valve is located within the PCCP portion of the Second Lower Feeder, west of Long Beach Boulevard within the city of Long Beach. This 42-inch sectionalizing valve is used to isolate reaches of the Second Lower Feeder for repair and maintenance, while maintaining water deliveries to other reaches from the Diemer plant or from the Palos Verdes Reservoir. During a recent shutdown of the Second Lower Feeder, it was detected that the Bixby Valve is stuck in the open position. Upon detailed inspection, staff determined that the valve has deteriorated significantly and may not be repaired in place. Since an isolation valve at this location must be functional in order to proceed with planned repairs on the Second Lower Feeder during a scheduled 2014

shutdown, staff recommends initiating the valve replacement project at this time. Replacement of the Bixby Valve is planned to take place during a planned shutdown of the Second Lower Feeder in March 2013. The replacement valve is a to-be-refurbished unit which is currently in storage at the Weymouth plant.

The Palos Verdes Feeder is a 54-inch welded steel pipeline that was constructed in 1941. The feeder is one of Metropolitan's primary supply lines serving the Central Pool portion of the distribution system. The Palos Verdes Feeder extends approximately 31 miles south from the Eagle Rock Control Tower to Palos Verdes Reservoir. It delivers treated water to the cities of Los Angeles, South Pasadena, Montebello, Compton and Torrance. The Collis Valve is located within the Collis Avenue Pressure Control Structure on the Palos Verdes Feeder, just downstream of the Eagle Rock Control Tower. This facility was constructed in 1962. The 42-inch valve is located inside a buried vault, 40 feet below the ground surface of Collis Avenue. The conical plug valve controls downstream flows on the Palos Verdes Feeder and also controls the upstream grade elevation on the Upper Feeder at the Eagle Rock Control Tower. The Collis Valve has developed a tendency to freeze in position, and has become increasingly difficult to open and close. Failure of the Collis Valve could result in cascading flows via the Eagle Rock Control Tower, causing entrapped air and subsequent reduced flows in the Palos Verdes Feeder. Upon detailed inspection, staff determined that the valve has deteriorated significantly and may not be repaired in place. The Palos Verdes Feeder is presently planned to be shut down in early 2014. Given the opportunity to replace the Collis Valve during a scheduled shutdown, and the risks to delivery reliability if the valve were to fail, valve replacement is recommended to move forward at this time. Metropolitan does not presently have any salvaged valves in stock which would be suitable for the required service at this location, nor have any other potential valves been located from external sources. As a result, staff recommends that a new valve be procured for the Collis location.

Project No. 1 – Bixby Valve Replacement – Preliminary Design Phase (\$95,000)

Planned preliminary design phase activities will include a condition assessment of a 42-inch salvaged valve which is available at Metropolitan's warehouse. The assessment will include partial disassembly of the valve, along with mechanical and electrical testing of the valve and operator. Other activities will include initiation of local agency permitting; hazardous material testing; preparation of environmental documentation; and development of a preliminary construction cost estimate. Due to the vault's location within a public street, traffic control must also be addressed. All work will be performed by Metropolitan staff.

This action appropriates \$95,000 and authorizes preliminary design phase activities to replace the Bixby Valve on the Second Lower Feeder. Requested funds include \$8,000 for preliminary design; \$23,000 for permitting, preparation of environmental documentation and a construction cost estimate, and for project management; \$60,000 for disassembly and evaluation of in-stock valve by Metropolitan forces; and \$4,000 in remaining budget. Staff will return to the Board at a later date for authorization of final design and valve refurbishment.

Once the existing Bixby Valve has been removed, it will be transported to the Weymouth plant and partially disassembled. Staff's objective for the valve is that it be refurbished in the future by Metropolitan's La Verne Shops so that it may be reused within the distribution system.

Project No. 2 – Collis Valve Replacement – Preliminary Design Phase (\$145,000)

Planned preliminary design phase activities will include field surveys; hydraulic modeling; preparation of environmental documentation; initiation of local agency permitting; hazardous material testing; preparation of a valve procurement specification; and development of a preliminary construction cost estimate. Due to the vault's depth and location within a public street, excavation shoring and traffic control must be addressed. All work will be performed by Metropolitan staff.

This action appropriates \$145,000 and authorizes preliminary design phase activities to replace the Collis Valve on the Palos Verdes Feeder. Requested funds include \$109,000 for preliminary design; \$30,000 for permitting, preparation of environmental documentation and a construction cost estimate, and for project management; and \$6,000 in remaining budget. Staff will return to the Board at a later date for authorization of final design and valve procurement.

Similar to the Bixby Valve, staff's objective for the existing Collis Valve is for the unit to be stored at the Weymouth plant, so that it may be restored in the future and reused within the distribution system.

Summary

This action appropriates \$240,000 and authorizes preliminary design to replace the Bixby and Collis Valves. These projects have been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2011/12 capital expenditure plan.

These projects are included within capital Appropriation No. 15441, the Conveyance and Distribution System Rehabilitation Program - Phase 2, which was initiated in fiscal year 2006/07. Other projects authorized under Appropriation No. 15441 include the Santa Ana Bridge Seismic Upgrades, Upper Feeder Service Connection Rehabilitation, Sepulveda Canyon Control Facility Water Tanks Seismic Retrofit, and the Lake Skinner Outlet Conduit Repair. With the present action, the total funding for Appropriation No. 15441 will increase from \$38,179,000 to \$38,419,000. See [Attachment 1](#) for the Financial Statement, and [Attachment 2](#) for the Location Map.

Project Milestones

July 2012 – Completion of preliminary design to replace the Bixby Valve

August 2012 – Completion of preliminary design to replace the Collis Valve

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is statutorily exempt under the provisions of CEQA and the State CEQA Guidelines (Section 15282(k)). The maintenance, repair, restoration, removal, or demolition of an existing pipeline as set forth in Section 21080.21 of the Public Resources Code is exempt, as long as the project does not exceed one mile in length.

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under Statutory Exemption (Section 15282(k) of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination and

- a. Appropriate \$240,000; and
- b. Authorize preliminary design to replace the Bixby Valve on the Second Lower Feeder and the Collis Valve on the Palos Verdes Feeder

Fiscal Impact: \$240,000 in capital funds under Approp. 15441

Business Analysis: These projects will protect Metropolitan's assets, increase service reliability to member agencies, and reduce the risk of costly emergency repairs.

Option #2

Do not authorize the valve replacement projects at this time.

Fiscal Impact: Unknown

Business Analysis: This option would forego an opportunity to enhance delivery to Metropolitan's member agencies, and could lead to higher costs, more extensive repairs, and unplanned shutdowns.

Staff Recommendation

Option #1



Gordon Johnson
Manager/Chief Engineer,
Engineering Services

3/26/2012
Date



Jeffrey Kightlinger
General Manager

3/28/2012
Date

Attachment 1 – Financial Statement

Attachment 2 – Location Map

Ref# es12617297

Financial Statement for Conveyance and Distribution System Rehabilitation Program – Phase 2

A breakdown of Board Action No. 41 for Appropriation No. 15441 for replacement of valves on the Second Lower Feeder and Palos Verdes Feeder¹ is as follows:

	Previous Total Appropriated Amount (Mar. 2012)	Current Board Action No. 41 (Apr. 2012)	New Total Appropriated Amount
Labor			
Studies & Investigations	\$ 2,418,000	\$ 117,000	\$ 2,535,000
Final Design	3,023,293	-	3,023,293
Owner Costs (Program mgmt., envir. doc., right-of-way)	4,535,200	53,000	4,588,200
Submittals Review	193,250	-	193,250
Construction Inspection & Support	1,860,550	-	1,860,550
Metropolitan Force Construction	8,177,510	47,000	8,224,510
Materials & Supplies	1,734,400	12,000	1,746,400
Incidental Expenses	837,900	-	837,900
Professional/Technical Services	2,002,000	-	2,002,000
Equipment Use	236,200	1,000	237,200
Contracts	11,169,562	-	11,169,562
Remaining Budget	1,991,135	10,000	2,001,135
Total	\$ 38,179,000	\$ 240,000	\$ 38,419,000

Funding Request

Program Name:	Conveyance and Distribution System Rehabilitation Program – Phase 2		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15441	Board Action No.:	41
Requested Amount:	\$ 240,000	Capital Program No.:	15441-I
Total Appropriated Amount:	\$ 38,419,000	Capital Program Page No.:	281
Total Program Estimate:	\$ 106,335,000	Program Goal:	I-Infrastructure Reliability

¹ This is the initial appropriation for replacement of valves on the Second Lower Feeder and Palos Verdes Feeder.

