



● **Board of Directors**  
***Engineering and Operations Committee***

5/8/2018 Board Meeting

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**8-5**

**Subject**

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Adopt CEQA determination and appropriate \$13 million; and award \$12,068,634.98 procurement contract to Ameron Water Transmission Group to provide steel liner pipe for the Second Lower Feeder (Appropriation No. 15497)

**Executive Summary**

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This action awards a procurement contract for 21,100 feet of 75-inch-diameter welded steel liner pipe. This pipe will be installed in upcoming construction contracts to rehabilitate prestressed concrete cylinder pipe (PCCP) within the Second Lower Feeder.

**Timing and Urgency**

The Second Lower Feeder is the initial pipeline to be addressed under Metropolitan's PCCP Rehabilitation Program. This pipeline has been in continuous service for 50 years, and has required urgent repairs on several occasions. Due to the reduced service life of its PCCP segments, all PCCP within the feeder will be lined with new steel liner pipe or replaced.

The subject procurement contract will provide coiled steel pipe that will be furnished to construction contractors for installation during upcoming shutdowns of the Second Lower Feeder scheduled for 2018/19 and 2019/20.

This project has been reviewed with Metropolitan's Capital Investment Plan (CIP) prioritization criteria and is included in the PCCP Rehabilitation Program. Funds for this action are available within Metropolitan's capital expenditure plan for fiscal year 2017/18.

**Details**

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**Background**

The Second Lower Feeder delivers treated water from the Robert B. Diemer Water Treatment Plant in the city of Yorba Linda to Palos Verdes Reservoir in the city of Rolling Hills Estates. The feeder was constructed in 1967 and is 39 miles long. The line originally contained approximately 30 miles of PCCP, with diameters ranging from 78 to 84 inches. The remainder of the feeder is constructed of welded steel pipe with a diameter of 84 inches. The Second Lower Feeder operates at pressures up to 300 pounds per square inch and passes through areas with highly corrosive soils. In addition, there are numerous underground utility lines, natural gas lines, and oil lines within the vicinity, which expose the feeder to significant stray current interference. The pipeline traverses a highly urbanized area and crosses several freeways, several flood control channels, and an airport. In addition to supplying water to the Central Pool portion of Metropolitan's distribution system, the Second Lower Feeder has 11 service connections for deliveries to the cities of Long Beach, Los Angeles, and Torrance; Central Basin Municipal Water District; and Municipal Water District of Orange County.

The rehabilitation of PCCP within the Second Lower Feeder will be staged over a period of eight to ten years with multiple construction and procurement contracts. Construction of the first major contract to line 23,100 feet of PCCP within the Second Lower Feeder is near completion. Including this initial contract, approximately 5.5 miles of PCCP segments within the Second Lower Feeder have been lined with a steel liner. The remaining

24.5 miles of PCCP will be lined or replaced sequentially through a series of construction contracts planned to be issued annually. This approach will provide flexibility to adapt to changing priorities and shutdown opportunities, and will help minimize impacts on water deliveries to member agencies.

The subject procurement contract will provide 21,100 feet of 75-inch-diameter welded steel pipe in 20-foot-long segments that are coiled to 65 inches in diameter for ease of delivery and installation within the existing PCCP pipe. Once the liner segments have been moved into position, the steel coils will be expanded into round pipe and welded together. Due to the lead time required for fabrication of the liner pipe, it is being procured in advance of the next two construction contracts. This step is intended to prevent any manufacturing or logistical delays from impacting scheduled shutdowns of the Second Lower Feeder. Procuring liner pipe in advance will also ensure that the pipe is available in the event of material shortages or to address an unanticipated repair, and may hedge against higher material costs in a volatile steel market. The next shutdown of the Second Lower Feeder is planned to commence in October 2018.

In January 2015, Metropolitan's Board authorized the first phase of final design to rehabilitate PCCP segments within the Second Lower Feeder, and the initiation of procurement of long-delivery items. Final design to rehabilitate the second reach of PCCP within the Second Lower Feeder, which includes installation of the subject liner pipe, is currently underway and is planned to be completed by August 2018. Award of the construction contract is scheduled for September 2018. Staff recommends award of the pipe procurement contract at this time so the installation contract may proceed on schedule during winter 2018/19.

#### **Second Lower Feeder PCCP Rehabilitation – Pipe Procurement (\$13,000,000)**

Specifications No. 1925 for furnishing 21,100 feet of 75-inch-diameter coiled steel liner pipe for the Second Lower Feeder was advertised for bids on February 13, 2018. As shown in **Attachment 3**, two bids were received and opened on April 11, 2018. The low bid from Ameron Water Transmission Group in the amount of \$12,068,634.98 complies with the requirements of the specifications. This amount includes all sales and use taxes imposed by the state of California. The budgetary estimate for this material, based on a survey of vendors, ranged from \$11.3 million to \$13.8 million. For bid evaluation purposes, bidders who qualified as a Small Business Enterprise (SBE) or Disabled Veteran Business Enterprise (DVBE) received a five percent bid-price reduction credit. In addition, bidders who qualified as a Regional Business Enterprise (RBE) received a five percent bid-price reduction credit. A maximum of \$25,000 or 10 percent in bid-price reduction credit was available for a business that meets SBE or DVBE criteria and the RBE criteria. An additional bid-price adjustment was included based on the location of manufacture to reflect inspection travel costs. As a procurement contract, there are no subcontracting opportunities.

This action appropriates \$13 million and awards a \$12,068,634.98 contract to Ameron Water Transmission Group to furnish steel liner pipe for the Second Lower Feeder. In addition to the amount of the contract, the requested funds include \$715,000 for fabrication inspection; \$70,000 for review of submittals and responding to manufacturer requests for information; and \$146,365.02 for contract administration and project management. All activities will be performed by Metropolitan staff.

This project is included within capital Appropriation No. 15497, the Second Lower Feeder PCCP Rehabilitation appropriation. With the present action, the total funding for this appropriation will increase from \$98,486,650 to \$111,486,650. The total estimated cost to complete the rehabilitation of the Second Lower Feeder, including the amount appropriated to date, current funds requested, and future construction costs, is anticipated to range from \$505 million to \$575 million.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2017/18 capital expenditure plan. See **Attachment 1** for the Background and Program Status for the PCCP Rehabilitation Program, **Attachment 2** for the Financial Statement, **Attachment 3** for the Abstract of Bids, and **Attachment 4** for the Location Map.

***Project Milestone***

October 2018 – Initial delivery of steel liner pipe for the 2018/19 shutdown of the Second Lower Feeder

**Policy**

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Metropolitan Water District Administrative Code Section 5108: Appropriations

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

By Minute Item 50009, dated January 13, 2015, the Board authorized the first phase of final design to rehabilitate the PCCP portions of the Lower Feeder.

By Minute Item 50699, dated January 10, 2017, the Board certified the Final Programmatic EIR for the PCCP Rehabilitation Program, and approved the program for the Second Lower Feeder, Sepulveda Feeder, Calabasas Feeder, Rialto Pipeline, and Allen-McColloch Pipeline for the purposes of CEQA.

**California Environmental Quality Act (CEQA)**

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**CEQA determination for Option #1:**

The environmental effects from the design, construction, and operation of the proposed project were evaluated in the Prestressed Concrete Cylinder Pipe Rehabilitation Program Final Programmatic Environmental Impact Report (Final PEIR), which was certified by the Board on January 10, 2017. The Board also approved the Findings of Fact (findings), the Statement of Overriding Considerations (SOC), the Mitigation Monitoring and Reporting Program (MMRP), and the project itself. The current action is solely based on procurement of steel liner pipe for the Second Lower Feeder and not on any changes to the approved project itself. Hence, the previous environmental documentation acted on by the Board in conjunction with the proposed action fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further CEQA documentation is necessary for the Board to act on the proposed action.

The CEQA determination is: Determine that the proposed action has been previously addressed in the certified 2017 Final PEIR, findings, SOC, and MMRP, and that no further environmental analysis or documentation is required.

**CEQA determination for Option #2:**

None required

**Board Options**

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**Option #1**

Adopt the CEQA determination that the proposed action has been previously addressed in the certified 2017 Final PEIR, findings, SOC, and MMRP, and that no further environmental analysis or documentation is required, and

- a. Appropriate \$13 million; and
- b. Award \$12,068,634.98 contract to Ameron Water Transmission Group to provide steel liner pipe for the Second Lower Feeder.

**Fiscal Impact:** \$13 million of capital funds under Appropriation No. 15497

**Business Analysis:** This option will enable the rehabilitation of PCCP portions of the Second Lower Feeder to move forward efficiently and in a planned manner, and will enhance long-term reliability of the feeder.

**Option #2**

Do not award the procurement contract and include fabrication of the liner pipe within a future construction contract.


**Fiscal Impact:** None

**Business Analysis:** Under this option, the next portion of scheduled rehabilitation work would not be completed during the winter 2018/19 shutdown season. The shutdown would be deferred to 2019/20, which would delay completion of the rehabilitation program and likely increase project costs.

**Staff Recommendation**

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Option #1

  
\_\_\_\_\_  
Gordon Johnson  
Manager/Chief Engineer,  
Engineering Services

4/24/2018  
Date

  
\_\_\_\_\_  
Jeffrey Nightlinger  
General Manager

4/25/2018  
Date

**Attachment 1 – Background and Program Status**

**Attachment 2 – Financial Statement**

**Attachment 3 – Abstract of Bids**

**Attachment 4 – Location Map**

Ref# es12660528

**PCCP REHABILITATION PROGRAM  
BACKGROUND AND PROGRAM STATUS**

Metropolitan’s water delivery system includes approximately 830 miles of large-diameter pipelines, of which 159 miles are currently comprised of prestressed concrete cylinder pipe (PCCP). A contract is presently underway to line 4.4 miles of PCCP within the Second Lower Feeder. Following its completion in June 2018, a total of 154.6 miles of PCCP will remain. The total original length of PCCP was 163 miles. There are PCCP reaches within 27 feeders, with diameters ranging from 54 to 201 inches. These PCCP lines were installed between 1965 and 1985, and are located in both dense urban regions and remote areas.

Over the last several decades, water agencies throughout the United States and other countries have found that under certain conditions, PCCP lines may have a reduced service life and elevated risk of failure versus other types of pipe. PCCP failures can be catastrophic and may occur without forewarning, which may compromise system reliability and result in significant costs due to interruption of service, unplanned major repairs, and potential third party damages.

In September 2011, as a proactive measure to maintain overall system reliability, Metropolitan initiated a comprehensive program to inspect, manage, and rehabilitate its PCCP feeders. This effort included preparation of a risk analysis to assess the need and priority for rehabilitation of individual PCCP lines. Through this process, five of Metropolitan’s 27 PCCP lines were identified to have experienced a disproportionate share of all prestressing wire breaks, repair length to date, and cost of repairs. The five priority lines are: (1) the Second Lower Feeder, (2) the Sepulveda Feeder, (3) the Rialto Pipeline, (4) the Calabasas Feeder, and (5) the Allen-McColloch Pipeline (AMP). The PCCP within these five lines is expected to continue to deteriorate, as indicated by a progression of wire breaks over time. While Metropolitan’s other PCCP feeders contain prestressing wire breaks in some pipe segments, they do not exhibit the same trend of increasing wire breaks over time. These other feeders may eventually need to be rehabilitated, but appear to be stable at present. Their condition will be reevaluated on a regular basis, and adjustments will be made to the program if additional feeders are determined to be at risk in the future.

The PCCP Rehabilitation Program has been organized to provide flexibility in the timing and priority of the work. In January 2015, final design commenced to rehabilitate the initial pipeline, the Second Lower Feeder. In January 2017, Metropolitan’s Board certified the Final Programmatic Environmental Impact Report (Final PEIR) for the entire PCCP Rehabilitation Program, and approved the program for all five priority PCCP lines for the purpose of compliance with the California Environmental Quality Act (CEQA). The inclusion of all five lines within a single programmatic CEQA document provides flexibility to adjust construction sequencing by enabling the rehabilitation of specific reaches of PCCP to move forward based on up-to-date condition assessments and priorities. In August 2017, the initial construction contract under the program was awarded to rehabilitate a reach of the Second Lower Feeder.

The comprehensive strategy for managing Metropolitan’s PCCP lines and maintaining their reliability is comprised of four coordinated elements. The following describes these elements and summarizes the status of activities for each.

No.	Element	Status
1	<p><b>Continued Assessment and Monitoring of PCCP Lines</b> – Metropolitan currently inspects all PCCP lines within the distribution system every three to seven years. In order to increase knowledge of the pipelines’ baseline condition to track prestressing wire breaks over time, and to identify distressed PCCP segments, staff will continue to aggressively inspect PCCP lines using state-of-the-art inspection techniques.</p>	<p>At present, electromagnetic inspection continues to be the industry’s primary technique for identification of wire breaks. A complete cycle of inspections of Metropolitan’s feeders takes approximately five to seven years to complete.</p> <p>To date, three cycles of electromagnetic inspections have been performed on all of the PCCP feeders. The fourth cycle of inspections commenced in November 2017. Inspections of portions of the Second Lower Feeder, AMP, Orange County Feeder, and the Jensen plant’s Balboa Outlet Tunnel have been completed, while inspections of portions of the</p>

No.	Element	Status
		Yorba Linda Feeder and the La Verne Pipeline are scheduled to be completed during the 2017/18 shutdown season.
2	<p><b>Monitoring of Stray Currents and Installation of Cathodic Protection</b> – Metropolitan will continue to perform corrosion surveys and monitor stray currents on a one to two-year cycle. Where indicated by corrosion monitoring, staff will install stray current drain stations or impressed current systems to minimize continued deterioration from stray current interference, which is a major cause of corrosion damage.</p>	To date, stray current protection has been installed in 31.5 miles of PCCP lines. This protection includes both current drain stations and impressed current systems. In November 2017, current drain stations were installed in PCCP portions of the AMP.
3	<p><b>Near-Term Repair of Distressed PCCP Segments</b> – Metropolitan will continue to prioritize and repair PCCP segments with elevated numbers of prestressing wire breaks, broken-back cracks, or other indications of risk or distress. During the course of the PCCP Rehabilitation Program, individual PCCP segments may be identified as distressed prior to the scheduled rehabilitation of an entire feeder. If needed, staff will recommend moving forward with near-term repairs to those individual PCCP segments.</p>	To date, over 14,400 feet of distressed PCCP segments have been repaired. Most recently, urgent repairs of distressed PCCP on the Second Lower Feeder were completed in 2013, 2014, and 2016, and on the Sepulveda Feeder in 2016.
4	<p><b>Long-Term Rehabilitation</b> – The PCCP Rehabilitation Program will complete the rehabilitation or replacement of all PCCP segments within the five priority feeders.</p>	<ul style="list-style-type: none"> <li>• For the Second Lower Feeder, following is a summary of work in progress:                             <ul style="list-style-type: none"> <li>• Construction of Reach 1 to line approximately 23,100 feet is underway.</li> <li>• Final design for Reaches 2, 3, and 4 is underway.</li> <li>• Design for the procurement of coiled steel liner pipe is complete. <b>(This action awards the contract.)</b></li> <li>• Design for the procurement of valves is underway.</li> <li>• Geotechnical investigations and specialized analyses of Reach 9, which crosses the Newport-Inglewood Fault zone, are underway.</li> <li>• Continued coordination is underway with member agencies to address construction phasing, isolation points, shutdown durations, and water quality-related issues.</li> <li>• Continued coordination is underway with local agencies to minimize traffic and other potential impacts to the public.</li> </ul> </li> <li>• Preliminary design has been authorized to rehabilitate PCCP within the AMP, Calabasas Feeder, Rialto Pipeline, and Sepulveda Feeder, and will commence shortly.</li> </ul> <p><b>This action awards a procurement contract to furnish 21,100 feet of 75-inch-diameter coiled steel liner pipe for the Second Lower Feeder.</b></p>

The goal of this comprehensive strategy for managing PCCP lines is to maintain reliable deliveries to Metropolitan's member agencies while optimizing the remaining useful life of PCCP lines. The effort includes development of a multi-year schedule and conceptual-level cost estimates with a long-term rehabilitation and replacement plan for the five priority PCCP lines. The overall schedule, cost estimates, and sequencing of work will be reassessed regularly during the development of Metropolitan's biennial capital budget.

While the Second Lower Feeder is the initial pipeline to be addressed under the PCCP Rehabilitation Program, staff's strategy for the four other priority feeders is to complete preliminary design of the rehabilitation work for the entire length of each feeder at an early stage of the program. This approach will provide flexibility to adjust construction sequencing of individual reaches if priorities change. The sequencing for rehabilitation will be determined by several factors, including: (1) updated assessments of risk; (2) supply availability and operational needs for specific feeders; (3) impacts to member agency service connections; and (4) readiness for construction. Preliminary design to rehabilitate the four other priority feeders has been authorized and will commence shortly.

System-wide hydraulic analyses are underway to assess hydraulic impacts of the PCCP rehabilitation work on Metropolitan's distribution system. The results of the analyses have been used to develop alternatives to minimize the loss of hydraulic capacity, to evaluate impacts of extended shutdowns on individual service connections, and to identify options for maintaining deliveries. The replacement of small-diameter sectionalizing valves and meters with line-sized units is an example of an approach for maintaining feeder hydraulic capacity.

Staff will return to the Board in 2020 to certify environmental documentation for the AMP, Calabasas Feeder, Rialto Pipeline, and Sepulveda Feeder, and to authorize final design for the rehabilitation of those feeders.

### **Financial Statement for Second Lower Feeder PCCP Rehabilitation**

A breakdown of Board Action No. 4 for Appropriation No. 15497 to rehabilitate PCCP portions of the Second Lower Feeder<sup>1</sup> is as follows:

	<b>Previous Total Appropriated Amount (Aug. 2017)</b>	<b>Current Board Action No. 4 (May 2018)</b>	<b>New Total Appropriated Amount</b>
Labor			
Studies and Investigations	\$ 1,103,000	\$ -	\$ 1,103,000
Final Design	4,584,000	-	4,584,000
Owner Costs (Contract admin. & program mgmt.)	5,159,900	146,365	5,306,265
Submittals Review & Record Drwgs.	916,000	70,000	986,000
Construction Inspection & Support	4,879,000	715,000	5,594,000
Metropolitan Force Construction	3,591,901	-	3,591,901
Materials & Supplies	3,483,517	-	3,483,517
Incidental Expenses	340,644	-	340,644
Right-of-Way	6,281,000	-	6,281,000
Equipment Use	10,000	-	10,000
Professional/Technical Services	20,583,304	-	20,583,304
Contracts	38,185,614	-	38,185,614
Ameron Water Transmission Group	-	12,068,635	12,068,635
Remaining Budget	9,368,770	-	9,368,770
<b>Total</b>	<b>\$ 98,486,650</b>	<b>\$ 13,000,000</b>	<b>\$ 111,486,650</b>

### **Funding Request**

<b>Appropriation Name:</b>	Second Lower Feeder PCCP Rehabilitation		
<b>Source of Funds:</b>	Revenue Bonds, Replacement and Refurbishment or General Funds		
<b>Appropriation No.:</b>	15497	<b>Board Action No.:</b>	4
<b>Requested Amount:</b>	\$13,000,000	<b>Budget Page No.:</b>	254
<b>Total Appropriated Amount:</b>	\$111,919,650	<b>Total Appropriation Estimate</b>	\$606,400,000

<sup>1</sup> The total amount expended to date to rehabilitate PCCP on the Second Lower Feeder is approximately \$49.52 million. The total estimated cost to complete the rehabilitation of this pipeline, including the amount appropriated to date, current funds requested, and future construction costs, is anticipated to range from \$505 million to \$575 million.



**The Metropolitan Water District of Southern California**

**Abstract of Bids Received on April 11, 2018 at 2:00 P.M.**

**Specifications No. 1925  
Furnishing Steel Pipe for Second Lower Feeder PCCP Rehabilitation**

The contract furnishes 21,100 feet of 75-inch-diameter coiled steel liner pipe to rehabilitate prestressed concrete cylinder pipe (PCCP) within the Second Lower Feeder.

**Estimated Range of Cost: \$11,300,000 to \$13,800,000**

<b>Bidder and Location</b>	<b>Base Bid Price Total<sup>1</sup></b>	<b>Small Business or Disabled Veteran Business (Y/N)</b>	<b>Regional Business (Y/N)</b>	<b>Bid Price Reduction for SBE/DVBE or RBE<sup>2</sup></b>	<b>Bid Price Increase for Inspection</b>	<b>Total Evaluated Bid Price</b>
<b>Ameron Water Transmission Group, Rancho Cucamonga, CA</b>	<b>\$12,068,634.98</b>	<b>N</b>	<b>N</b>	<b>N</b>	<b>\$17,920</b>	<b>\$12,086,554.98</b>
Northwest Pipe Company, Adelanto, CA	\$12,834,263.81	N	N	N	0	\$12,834,263.81

<sup>1</sup> Includes sales and use taxes of 9.5 percent for the City of Los Angeles, City of Carson, and County of Los Angeles; and taxes of 10.25 percent for the City of Long Beach.

<sup>2</sup> For bid evaluation purposes, bidders who qualified as a Small Business Enterprise (SBE) or Disabled Veteran Business Enterprise (DVBE) received a five percent bid-price reduction credit. In addition, bidders who qualified as a Regional Business Enterprise (RBE) received a five percent bid-price reduction credit. A maximum of \$25,000 or 10 percent in bid-price reduction credit was available for a business that meets SBE or DVBE criteria and the RBE criteria. An additional bid-price adjustment was included based on the location of manufacture.

# Distribution System

