



- **Board of Directors**
Engineering, Operations, and Technology Committee

2/13/2024 Board Meeting

8-1

Subject

Authorize increase in change order authority for three contracts to conduct urgent rehabilitation of prestressed concrete cylinder pipe on the Allen-McColloch Pipeline: (1) a \$12 million increase for Contract 2002 with Northwest Pipe Company, (2) a \$10.5 million increase for Contract 2026 with J.F. Shea Construction Inc., and (3) a \$2 million increase for Contract 2088 with Structural Preservation Systems; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA

Executive Summary

The Allen-McColloch Pipeline (AMP) is a 26-mile-long pipeline that delivers treated water from the Diemer plant to south Orange County. Constructed in the late 1970s, the AMP consists of 17 miles of welded steel pipe and nine miles of prestressed concrete cylinder pipe (PCCP). A recent electromagnetic inspection of the AMP identified 81 distressed pipe segments, 44 of which contain at least 20 broken prestressing wires, and one segment with approximately 130 wire breaks. Pipe segments with these levels of distress warrant prompt rehabilitation. Based on the locations of the distressed sections and their condition, staff recommends near-term rehabilitation of the most distressed pipe segments as soon as possible. As an interim mitigation measure, the operating pressures along the pipeline have been reduced to reduce the immediate risks to the pipeline.

To enhance Metropolitan's ability to promptly respond to these urgent conditions, staff recommends that this urgent rehabilitation work along portions of the AMP be conducted as change orders to three ongoing contracts. The three contracts are currently in place to provide steel pipe sections, install steel pipe sections, and install carbon fiber lining on other Metropolitan projects. Using existing contractors to perform the urgent work on the AMP represents the most cost-effective and expeditious means to complete the rehabilitation. The initial urgent rehabilitation work is expected to take place in April 2024. This action authorizes an increase in the General Manager's authority to execute change orders for three construction contracts currently underway to rehabilitate portions of the AMP. See **Attachment 1** for the Allocation of Funds and **Attachment 2** for the Location Map.

Proposed Action(s)/Recommendation(s) and Options

Staff Recommendation: Option #1

Option #1

Authorize increase in change order authority for three contracts to conduct urgent rehabilitation of prestressed concrete cylinder pipe on the Allen-McColloch Pipeline, as follows:

- Authorize an increase in change order authority of \$12 million to Contract 2002 with Northwest Pipe Company.
- Authorize an increase in change order authority of \$10.5 million to Contract 2026 with J.F. Shea Construction Inc.
- Authorize an increase in change order authority of \$2 million to Contract 2088 with Structural Preservation Systems.

Fiscal Impact: Expenditure of \$31.546 million in capital funds. Approximately \$6.0 million in capital funds will be incurred in the current biennium and have been previously authorized. The remaining funds for this

action will be accounted for in the Capital Investment Plan (CIP) budget for the next biennium following board approval of the budget.

Business Analysis: This option will protect Metropolitan's assets, enhance delivery reliability to member agencies, and complete rehabilitation of the most distressed PCCP pipe segments on the AMP in a timely manner.

Option #2

Do not authorize increases in change order authority to perform urgent rehabilitation of the AMP.

Fiscal Impact: None

Business Analysis: Under this option, staff would advertise the work for construction bids. The AMP would not return to normal operating pressures until Winter 2024/25, potentially limiting water deliveries to member agency service connections for a longer period.

Alternatives Considered

Staff evaluated two options to conduct urgent rehabilitation of the PCCP portions of the AMP. The first option would rehabilitate as many distressed pipe segments as possible within a three-week shutdown in April 2024. This approach would target the pipe segments with the highest number of wire breaks along the entire nine-mile PCCP portion of the AMP. However, this relatively short shutdown would not allow rehabilitation of all the pipe segments with an elevated number of wire breaks and would require reduced operating pressures for an extended period.

The second option would rehabilitate all the pipe segments north of the OC-88 Pump Station with an elevated number of wire breaks within a three-week shutdown in April 2024. This approach would allow the northern 23 miles of the AMP to be restored to normal operating pressures and service at the end of the three-week shutdown at the end of April 2024. The remaining portion of the AMP south of the OC-88 Pump Station, approximately 2.6 miles, would be isolated during the initial shutdown with a bulkhead at OC-88 Pump Station and rehabilitated during a lengthier shutdown immediately after the first shutdown is completed. This approach was chosen after consultation with the Municipal Water District of Orange County (MWDOC) and their member agencies. These discussions determined that the southern reach of the AMP could be shut down for a longer duration by utilizing alternative sources of water delivery during the extended shutdown. This alternative is a cost-effective approach that manages the risks associated with the AMP and minimizes the service interruption to member agencies.

Staff considered advertising the work on the AMP north of the OC-88 Pump Station as a separate stand-alone construction contract. The time required to implement this standard approach, including preparing detailed design drawings and specifications and soliciting and vetting bids, would delay the start of construction on the northern part of the AMP until May. Whereas under the recommended contracting approach, the planned construction would be complete and operating pressures and flows on the northern portion of the AMP could be returned to normal service in May.

Applicable 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 Metropolitan
Water District Administrative Code Section 11104: Delegation of Responsibilities

Related Board Action(s)/Future Action(s)

By Minute Item 52778, dated April 12, 2022, the Board appropriated a total of \$600 million for projects identified in the CIP for Fiscal Years 2022/2023 and 2023/2024.

By Minute Item 53096, dated January 10, 2023, the Board awarded a \$68,847,000 contract to J.F. Shea Construction Inc. to rehabilitate Reach 3B of the Second Lower Feeder.

By Minute Item 53347, dated August 15, 2023, the Board awarded a \$1,962,691 contract to Structural Preservation Systems for urgent relining of the Sepulveda Feeder.

By Minute Item 53446, dated November 14, 2023, the Board awarded a \$16,055,500 contract to Northwest Pipe Company to furnish steel pipe to rehabilitate a portion of the Lakeview Pipeline.

Future board actions are planned for the award of construction contracts for the Allen-McColloch Pipeline Rehabilitation.

Summary of Outreach Completed

Metropolitan staff has collaborated extensively with the member agencies to determine the timing and length of the AMP shutdowns. This collaboration successfully identified the recommended approach to implementing the rehabilitation work. In addition, a significant public outreach effort will be performed prior to construction to inform residents in the vicinity of construction activities.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action involves the repair of an existing pipeline less than one mile in length to prevent or mitigate an emergency. Accordingly, the proposed action qualifies for statutory exemptions (Sections 21080(b) of the Public Resources Code and Sections 15269 of the State CEQA Guidelines.)

CEQA determination for Option #2:

None required

Details and Background

Background

The AMP is a 26-mile-long pipeline that was constructed in the 1970s and conveys treated water from the Diemer plant in Yorba Linda into Orange County. The northern 17-mile portion of the AMP consists of welded steel pipe. The southern 9-mile portion consists of PCCP that varies in diameter from 54 inches to 84 inches. Metropolitan acquired the AMP from the MWDOC in 1985. The AMP delivers water to the MWDOC and its retail agencies.

Over the last several decades, water agencies throughout the United States and several other countries have found that, under certain conditions, PCCP lines have a reduced service life and elevated risk of failure as compared with other types of pipes. PCCP failures can be catastrophic and can occur without forewarning, compromising system reliability and resulting in significant costs due to interruption of service, unplanned major repairs, and potential damages to third-party properties. In response to this risk, Metropolitan initiated a comprehensive program in September 2011 to inspect, manage, and rehabilitate its 163 miles of PCCP lines.

A strategic element of Metropolitan's PCCP Rehabilitation Program is to aggressively inspect all 27 PCCP lines. In November 2023, an electromagnetic inspection was conducted on the nine miles of the PCCP section of the AMP; this is the fifth inspection within 23 years. In December 2023, Metropolitan received an inspection report, which identified 81 new distressed pipe segments; 44 pipe segments had 20 or more wire breaks, with one pipe segment having 130 wire breaks. Staff evaluated the potential risks due to the prestressing wire breaks and concluded that the distressed PCCP segments need to be rehabilitated as soon as possible. To mitigate the immediate risks, the operating pressure along the pipeline was immediately lowered. The reduced operating criteria will be in effect until the distressed portions of pipeline are rehabilitated.

Staff recommends that the rehabilitation of the AMP proceed expeditiously in two stages. The primary goal of Stage 1 is to make sufficient rehabilitations to this portion of the pipeline so that the northernmost 23 miles of the AMP can be returned to full-service conditions upon completion of the initial shutdown. Stage 1 scope of work will: (1) steel line all critical distressed PCCP pipe segments upstream of the OC-88 Pump Station with approximately 2,120 feet of welded steel liner pipe; (2) carbon fiber reinforced polymer (CFRP) line approximately 38 feet (three pipe segments) of PCCP; (3) install a temporary bulkhead just downstream of the pump station; and time permitting; and (4) steel line approximately 2,320 feet of PCCP with welded steel line pipe downstream of the OC-88 Pump Station. The work upstream of the OC-88 Pump Station will be completed

by May 2024, and this portion of the AMP will be returned to full operating pressures. Stage 2 work will reline all remaining PCCP pipe segments downstream of the OC-88 Pump Station with approximately 2.6 miles of welded steel liner pipe during a July through December 2024 shutdown. At the completion of Stage 2, all PCCP pipe south of OC-88 Pump Station will be relined. The temporary bulkhead will be removed at the conclusion of the Stage 2 work.

To accomplish the urgent Stage 1 rehabilitations, staff recommends taking advantage of change order authority on three existing contracts. Two of these contracts already involve making rehabilitations to PCCP pipelines. The third contract is supplying steel pipe for a future pipeline rehabilitation project. In January 2023, a \$68.85 million contract (Contract 2026) was awarded to J.F. Shea Construction Inc. to install approximately 19,500 feet of welded steel liner pipe within a PCCP portion of the Second Lower Feeder in the cities of Los Angeles, Torrance, and Lomita. The project, referred to as Second Lower Feeder Reach 3B, is approximately 30 percent complete and scheduled to be completed by November 2025. In August 2023, a \$1.96 million contract (Contract 2088) was awarded to Structural Preservation Systems for urgent CRFP relining of three pipe segments on the Sepulveda Feeder. The project is five percent complete and is scheduled to be completed by May 2024. In November 2023, a \$16.05 million procurement contract (Contract 2002) was awarded to Northwest Pipe Company for the fabrication of 12,500 feet of steel pipe to rehabilitate a portion of the Lakeview Pipeline. The project is 15 percent complete and is scheduled to be completed by December 2024. The project is scheduled to be completed by approximately December 2025. The use of these three existing contracts to conduct this urgent work will significantly enhance Metropolitan's ability to implement the required rehabilitations in a timely and cost-effective manner.

Metropolitan's Administrative Code authorizes the General Manager to execute change orders on construction contracts in an aggregate amount not to exceed five percent of the initial amount of the contract or \$250,000, whichever is greater. If changes occur on a construction contract that will exceed this total, additional authorization from Metropolitan's Board is required. The proposed change orders to steel line a total of 4,400 feet of PCCP, install carbon fiber lining on three pipe segments of the AMP, and fabricate 3.45 miles of steel liner pipe will exceed the General Manager's Administrative Code authority. As a result, an increase in the maximum change order amount on the three existing contracts is requested at this time.

Lakeview Pipeline Relining, Stage 2 Pipe Procurement – Increase in Change Order Authority (Contract 2002)

The recommended additional work to be added to the existing contract will include furnishing approximately 3.45 miles of steel pipe sections in diameters that vary from 48 to 72 inches. This quantity of steel pipe represents all the pipe necessary for Stages 1 and 2 work described above. Procurement of the liner pipe is a critical path activity for the urgent AMP rehabilitation plan due to the long lead time necessary to fabricate pipe. Execution of a new contract to procure this lining pipe would not allow the work to be completed within the current shutdown windows.

The type of work to be conducted by the contractor, as part of the proposed change order, is identical to the type of work the contractor has been performing under Contract 2002 for the Lakeview Pipeline Relining project. Staff is negotiating a price for this work that is appropriate and cost-effective since the contractor is already mobilized and is performing the same type of work.

Per Metropolitan's Administrative Code, the General Manager has the authority to execute change orders for this contract in an aggregate amount not to exceed five percent of the initial amount of the contract. For this contract, the maximum change order authority is \$802,775. To date, staff has not executed any change orders on this contract. To address the newly identified AMP relining, staff recommends that the change order authority be increased by \$12 million for a new maximum change order authority of \$12,802,775 for this contract.

This action authorizes an increase of \$12 million in the General Manager's authority to execute change orders for urgent relining on Contract 2002.

Second Lower Feeder Reach 3B, PCCP Rehabilitation – Increase in Change Order Authority (Contract 2026)

The recommended additional work to be added to the existing contract will include relining approximately 4,400 feet of existing PCCP segments on the AMP with steel pipe liners designed to accommodate full internal and external pressures on the line. This is a similar approach to the work on other PCCP rehabilitation projects and is identical to the type of work the contractor has been performing under Contract 2026 for the Second Lower

Feeder PCCP Reach 3B Rehabilitation project. Staff is negotiating a price for this work that is appropriate and cost-effective since the contractor is already mobilized and is performing the same type of work. Execution of a new contract to reline the deteriorated portions of the AMP would not make the work possible within the current shutdown windows.

Per Metropolitan's Administrative Code, the General Manager has the authority to execute change orders for this contract in an aggregate amount not to exceed five percent of the initial amount of the contract. For this contract, the maximum change order authority is \$3,442,350. To date, staff has not executed any change orders. To address the newly identified PCCP relining, staff recommends that the change order authority be increased by \$10.5 million, for a new maximum change order authority of \$13,942,350 for this contract.

This action authorizes an increase of \$10.5 million in the General Manager's authority to execute change orders for needed PCCP rehabilitation.

Sepulveda Feeder PCCP, Urgent Carbon Fiber Lining – Increase in Change Order Authority (Contract 2088)

The recommended additional work to be added to the existing contract will include carbon fiber lining three PCCP segments on the AMP. The PCCP segments are 66, 69, and 78 inches in diameter, with lengths of 8 feet, 19 feet, and 11 feet, respectively. The type of work to be conducted by the contractor, as part of the proposed change order, is identical to the type of work the contractor has been performing under Contract 2088 for the Sepulveda Feeder Urgent CFRP Relining project. Execution of a new contract to procure this carbon fiber lining would not make the work possible within the current shutdown windows. Staff is negotiating a price for this work that is appropriate and cost-effective since the contractor is already mobilized and is performing the same type of work on the Sepulveda Feeder.

Per Metropolitan's Administrative Code, the General Manager has the authority to execute change orders for this contract in an aggregate amount not to exceed five percent of the initial amount of the contract. For this contract, the maximum change order authority is \$250,000. To date, staff has not executed any change orders. To address the newly identified PCCP relining, staff recommends that the change order authority be increased by \$2 million, for a new maximum change order authority of \$2.25 million for this contract.

This action authorizes an increase of \$2 million in the General Manager's authority to execute change orders for urgent PCCP carbon fiber lining.

Allen-McColloch Pipeline, Urgent PCCP Rehabilitation– Metropolitan Staff Activities

To address the urgent relining, additional Metropolitan staff activities will be required including: (1) obtaining permits; (2) shutdown of the feeder and establishment of clearances; (3) final disinfection and water quality testing; (4) return of the pipeline to service; and (5) construction inspection and technical support during construction.

A total of \$31.546 million is required for this work. The total increase to the existing contract amounts for the work described above is \$24.5 million, with other budgeted funds including the following: \$1,490,000 for shutdown-related activities and materials by Metropolitan staff; \$2,622,000 for fabrication and construction inspection; \$960,000 for submittals review, technical support during construction, responding to requests for information, and preparation of record drawings; \$774,000 for contract administration, outreach, permits, and project management; and \$1,200,000 for remaining budget. The total estimated cost to complete the rehabilitation of all PCCP portions of the AMP, including the amount appropriated to date, this current board action, and all future design and construction costs, is anticipated to range from \$230 million to \$270 million.

Summary

This action authorizes an increase in the General Manager's authority to execute change orders for three construction contracts currently underway to rehabilitate portions of the AMP. The recommended change order increases are based on the original contract costs and are appropriate and cost-effective. However, Metropolitan staff has not completed negotiations with the contractors on the additional scope and price of the work and will return to the Board if additional change order authority is required.

The urgent work on the AMP, recommended in this action, which comprise Stage 1 and Stage 2 rehabilitations, will address the highest priority portions of the pipeline that need to be rehabilitated based on the results of the 2023 inspections. These newly recommended activities effectively accelerate Metropolitan's overall planned activities to rehabilitate the PCCP portions of the AMP ahead of the schedule that is currently shown in the current CIP Appendix. Planned CIP expenditures for Metropolitan's overall PCCP program for the upcoming biennium will be adjusted accordingly upon board approval of the recommended urgent relining work on the AMP.



Project Milestones

December 2023 – Began mitigation measures to reduce AMP operating pressures.

January 2024 – Began steel pipe fabrication under existing change order authority.

May 2024 – Return AMP north of OC-88 Pump Station to normal operating conditions.

December 2024 – Return AMP south of OC-88 Pump Station to normal operating conditions.

 _____ John V. Bednarski Manager/Chief Engineer Engineering Services	1/23/2024 Date
 _____ Adel Hagekhalil General Manager	1/26/2024 Date

Attachment 1 – Allocations of Funds

Attachment 2 – Location Map

Ref# es12692068

Allocation of Funds for Urgent PCCP Rehabilitation – Allen-McColloch Pipeline

	Current Board Action (Feb. 2024)
Labor	
Studies & Investigations	\$ -
Final Design	-
Owner Costs (Program mgmt., envir. monitoring)	674,000
Submittals Review & Record Drwgs.	460,000
Construction Inspection & Support	2,622,000
Metropolitan Force Construction	1,340,000
Materials & Supplies	100,000
Incidental Expenses	50,000
Professional/Technical Services	
Brown & Caldwell	500,000
Public Outreach	50,000
Enviromental Monitoring	50,000
Right-of-Way	-
Equipment Use	-
Contracts	-
Northwest Pipe Company	12,000,000
J.F. Shea Construction Inc.	10,500,000
Structural Preservation Systems	2,000,000
Remaining Budget	1,200,000
Total	\$ 31,546,000

The amount expended to date to rehabilitate prestressed concrete cylinder pipe (PCCP) portions of the Allen-McColloch Pipeline is \$3.36 million. The total estimated cost to complete all the PCCP Rehabilitation of the Allen-McColloch Pipeline, including the funds allocated for the work described in this action, and future actions is anticipated to range from \$230 million to \$270 million.

