



- Board of Directors  
*Engineering and Operations Committee*

11/18/2014 Board Meeting

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**8-3**

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## **Subject**

Appropriate \$3.7 million; and authorize design to repair the pipe lining in the southern reach of the Orange County Feeder (Approp. 15377)

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## **Executive Summary**

This action authorizes final design to reline an 11-mile portion of the Orange County Feeder in the cities of Santa Ana, Costa Mesa, and Newport Beach. These repairs will enhance delivery reliability to member agencies and improve pipeline access for maintenance of the feeder.

### **Timing and Urgency**

Due to over 70 years of continuous service, the internal lining of the Orange County Feeder has deteriorated and needs to be repaired. Recent video inspections of the Orange County Feeder have identified significant deterioration of the existing coal-tar enamel lining. While the pipeline's structural integrity remains sound at present, the interior lining displays blistering and disbonding which expose the pipeline to accelerated rates of corrosion and eventual leakage. The lining needs to be rehabilitated in order to maintain long-term reliability of the pipeline.

This project has been reviewed with Metropolitan's Capital Investment Plan (CIP) prioritization criteria, and is categorized as an Infrastructure Reliability project. Funds for this action are available within Metropolitan's capital expenditure plan for fiscal year 2014/15.

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## **Details**

### **Background**

The Orange County Feeder conveys treated water from the F. E. Weymouth Water Treatment Plant in La Verne to six member agencies in Los Angeles and Orange Counties. Construction of the feeder was completed in three stages. The first stage, which was placed into operation in 1941, extends 28 miles south from the Weymouth plant to the city of Santa Ana. The second stage was completed in 1942 and is known as the Orange County Feeder Extension. This portion of the line follows Bristol Street south for approximately 11 miles through the cities of Santa Ana, Costa Mesa, and Newport Beach. The Orange County Feeder Extension is constructed of welded steel pipe with a coal-tar enamel lining and has a diameter of 36 to 39 inches. Due to steel shortages during World War II, Metropolitan purchased used pipe from the city of Pasadena, refurbished it, and reinstalled it for this extension. The third stage of the Orange County Feeder was completed in 1953. It runs 1.5 miles from the hills overlooking Newport Beach harbor to the Pacific Coast Highway.

Internal inspections of the Orange County Feeder Extension have identified large areas of internal lining degradation consisting of blistering, disbonding, and rust. This deterioration has resulted from over 70 years of continuous service. If the lining is not repaired, the pipe's steel walls will continue to degrade and eventually leak. Two unplanned repairs of the line were required in recent years. In October 2007, a leak was repaired near the intersection of Bristol Street and Segerstrom Avenue. In February 2009, a leak was repaired at the intersection of Bristol Street and Jamboree Road. In order to preserve the structural integrity of the Orange

County Feeder and maintain reliable deliveries to member agencies over the long-term, staff recommends that the entire 11-mile length of the Orange County Feeder Extension be rehabilitated.

Staff evaluated several technologies for rehabilitation of pipe linings and recommends that the existing coal-tar enamel lining be replaced with cement mortar lining. The planned scope of the rehabilitation work includes removal of a segment of the pipeline at each of 40 access sites to enable the cleaning and relining machines to enter the line. The interior wall of the pipe will be cleaned by scraping and sandblasting to remove coal-tar enamel, corrosion, and debris. Damaged pipe segments and joints will be repaired. Bonding bars will be welded at pipe joints to provide an electrically continuous pipe for corrosion protection. Cement mortar will then be applied to the pipe's interior wall using a lining machine. At the access sites, new steel pipe segments with manhole outlets will be installed.

### **Orange County Feeder Lining Repairs – Final Design (\$3,700,000)**

Rehabilitation of the lining on the Orange County Feeder Extension will be accomplished in three phases. The initial phase will remove approximately 60 feet of existing pipe that will be analyzed at Metropolitan's engineering laboratories in La Verne to determine the pipe's condition. This data will be used to confirm the adequacy of the coal-tar removal method and assess the degree of pipe corrosion and pitting. This information will aid in development of the design specifications for the full-scale rehabilitation work. Under Phases 2 and 3 of the project, two construction contracts will be issued to rehabilitate the remaining 11 miles of the Orange County Feeder Extension.

Planned final design phase activities include preparation of drawings and specifications; acquisition of temporary easements; local agency permitting; shutdown planning with member agencies; and receipt of multiple bids. The planned work also includes the Phase 1 removal, analysis, and replacement of 60 feet of pipe. Metropolitan staff will perform all activities except for traffic control plan design, which is recommended to be performed by Kennedy/Jenks, as discussed below.

This action appropriates \$3.7 million and authorizes final design phase activities for the Orange County Feeder Lining Repairs. Requested funds include \$2,168,000 for final design; \$565,000 for permitting, right-of-way activities, bidding, and project management; \$150,000 for traffic control plan design; \$464,000 for Metropolitan force construction; \$15,000 for materials; and \$338,000 for remaining budget. The cost of final design as a percentage of the estimated construction cost is approximately 10.8 percent. Engineering Services' goal for design of projects with construction cost greater than \$3 million is 9 to 12 percent. The construction cost for this project is anticipated to range from \$19 million to \$23 million. The total estimated cost to complete this project, including the amount expended to date, current funds requested, and future construction costs, is anticipated to range from \$26 million to \$30 million.

### **Traffic Control Plan Design – Kennedy/Jenks (No Action Required)**

Traffic control plan design at the 40 excavation sites is recommended to be performed by Kennedy/Jenks under an existing board-authorized agreement. The planned scope of work includes preparation of traffic control plans and securing approval of the plans by local jurisdictions. The estimated cost for these services is \$150,000.

In August 2013, Metropolitan's Board authorized an agreement with Kennedy/Jenks to provide engineering services in support of board-authorized capital projects. For this agreement, Metropolitan established a Small Business Enterprise (SBE) participation level of 18 percent. Kennedy/Jenks has agreed to meet this level of participation. Authorized subconsultants under this agreement are listed in [Attachment 3](#).

No action is required for the Kennedy/Jenks agreement at this time.

This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2014/15 capital expenditure plan. See [Attachment 1](#) for the Financial Statement and [Attachment 2](#) for the Location Map.

This project is included within capital Appropriation No. 15377, the Conveyance and Distribution System Rehabilitation Appropriation, which was initiated in fiscal year 2001/02. With the present action, the total

funding for Appropriation No. 15377 will increase from \$68,895,700 to \$72,595,700. Staff will return to the Board at a later date for award of the construction contracts.

### ***Project Milestone***

June 2016 – Completion of final design for Phases 2 and 3 of the Orange County Feeder Lining Repairs

## **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

## **California Environmental Quality Act (CEQA)**

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CEQA determination for Option #1:

To comply with CEQA and the State CEQA Guidelines, Metropolitan as the Lead Agency prepared a Mitigated Negative Declaration (MND) on the proposed project. The MND was distributed for a 30-day public review period beginning on August 7, 2014 and ending on September 6, 2014. The MND includes the Initial Study and Environmental Checklist form (see Attachment 4). Attachment 5 contains comment letters received during the public review period along with responses to those comments. As stated in the State CEQA Guidelines (Section 15074), the Board is required to review and consider the MND, the Initial Study, and comments received during the public review period prior to the adoption of the MND. Adoption of the MND is dependent on the finding by the Board that based on the whole record before it, there is no substantial evidence that, with the mitigation measures required by the MND, the proposed project will have a significant impact on the environment, and that the MND reflects the Lead Agency's independent judgment and analysis. The Mitigation Monitoring and Reporting Program (MMRP) in Attachment 6 is required under CEQA (Section 21081.6 of the California Public Resources Code) and must also be adopted by the Board prior to project approval. Attachments 4, 5, and 6 are available for review in the Board Executive Secretary's Office.

The CEQA determination is: Review and consider the information in the MND, Initial Study, and comments received during the public review period; find that based on the whole record before the Board that there is no substantial evidence that the proposed project will have a significant impact on the environment, and that the MND reflects the Lead Agency's independent judgment and analysis; adopt the MND for the proposed project; and adopt the MMRP.

CEQA determination for Option #2:

None required

## **Board Options**

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### **Option #1**

- Adopt the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program, and
- a. Appropriate \$3.7 million; and
  - b. Authorize final design to repair the pipe lining in the southern reach of the Orange County Feeder.

**Fiscal Impact:** \$3.7 million in capital funds under Approp. 15377

**Business Analysis:** This option will protect Metropolitan's assets and enhance delivery reliability to member agencies.

### **Option #2**

Do not proceed with the lining project at this time.

**Fiscal Impact:** None

**Business Analysis:** This option would forego an opportunity to reduce the risk of pipeline leaks in the southern reach of the Orange County Feeder, potentially disrupting water deliveries to member agencies.

**Staff Recommendation**

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Option #1

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

10/28/2014  
Date

  
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Jeffrey Kightlinger  
General Manager

11/5/2014  
Date

**Attachment 1 – Financial Statement**

**Attachment 2 – Location Map**

**Attachment 3 – Subconsultants to Kennedy/Jenks Consultants**

**Attachment 4 – Mitigated Negative Declaration (available for review in the Board Executive Secretary’s Office)**

**Attachment 5 – Comments from Public Review (available for review in the Board Executive Secretary’s Office)**

**Attachment 6 – Mitigation Monitoring and Reporting Program (available for review in the Board Executive Secretary’s Office)**

## Financial Statement for Conveyance and Distribution System Rehabilitation Program

A breakdown of Board Action No. 37 for Appropriation No. 15377 for lining repairs on the Orange County Feeder<sup>1</sup> is as follows:

	<b>Previous Total Appropriated Amount (June 2013)</b>	<b>Current Board Action No. 37 (Nov. 2014)</b>	<b>New Total Appropriated Amount</b>
Labor			
Studies & Investigations	\$ 4,031,700	\$ -	\$ 4,031,700
Final Design	5,470,456	2,168,000	7,638,456
Owner Costs (Program mgmt.)	6,196,050	565,000	6,761,050
Submittals Review & Record Drwgs	154,000	-	154,000
Construction Inspection & Support	2,785,550	-	2,785,550
Metropolitan Force Construction	15,734,548	464,000	16,198,548
Materials & Supplies	6,057,075	15,000	6,072,075
Incidental Expenses	1,454,620	-	1,454,620
Professional/Technical Services	1,536,500	150,000	1,686,500
Equipment Use	960,350	-	960,350
Contracts	23,540,669	-	23,540,669
Remaining Budget	974,182 <sup>2</sup>	338,000	1,312,182
<b>Total</b>	<b>\$ 68,895,700</b>	<b>\$ 3,700,000</b>	<b>\$ 72,595,700</b>

## Funding Request

<b>Program Name:</b>	Conveyance and Distribution System Rehabilitation Program		
<b>Source of Funds:</b>	Revenue Bonds, Replacement and Refurbishment or General Funds		
<b>Appropriation No.:</b>	15377	<b>Board Action No.:</b>	37
<b>Requested Amount:</b>	\$ 3,700,000	<b>Capital Program No.:</b>	15377-I
<b>Total Appropriated Amount:</b>	\$ 72,595,700	<b>Capital Program Page No.:</b>	271
<b>Total Program Estimate:</b>	\$ 121,000,000	<b>Program Goal:</b>	I-Infrastructure Reliability

<sup>1</sup> The total amount expended to date on the Orange County Feeder Lining Repairs is approximately \$1.1 million. The total estimated cost to complete this project, including the amount authorized to date, current funds requested, and future construction cost, is anticipated to range from \$26 million to \$30 million.

<sup>2</sup> Includes \$200,000 for the Orange County Feeder Lining Repairs for value engineering and additional environmental documentation to assess construction impacts; and \$96,000 for the Power Plant Discharge Elimination project for construction and permitting of a sanitary sewer connection to meet stormwater discharge regulatory requirements.

# Distribution System



### Subconsultants for Agreement No. 145994 – Kennedy/Jenks Consultants

Subconsultants currently authorized under this agreement are as follows:

<b>Consultant</b>	<b>Specialty</b>	<b>Business Enterprise Certifications</b>
CPM Construction	Cost Estimating,Scheduling	SBE/RBE
Staheli Trenchless Consultants	Tunnel/Trenchless Technologies	SBE
Flow Science Incorporated	Fluid Dynamics	SBE/RBE
GeoPentech	Geotechnical Engineering	SBE/RBE
Hilts Consulting Group	Structural Engineering and Reservoir Design	SBE/RBE
NtwoS, LP	High Voltage Electrical Engineering Design and Consulting	SBE/RBE
Michael Willits Architects	Architecture	
Kazarian Associates	Health & Safety Engineering	SBE/RBE
Degenkolb Engineers	Structural Engineering	RBE
Project Line Technical Services	Process Mechanical Engineering	SBE/RBE
TJC & Associates	Electrical, Instrumentation and Controls	SBE
Todd Engineers	Hydrology and Hydrogeologic Engineering	SBE
BRADY	Engineering Design	SBE/RBE
Nuvis	Landscape Architecture	SBE/RBE
FJS Cable Engineering	Engineering Design	RBE
AG Baggett and PJ Weber, Inc.	Water Resource Consulting	SBE
Vector Delta Design Group	Alternative Energy	SBE/RBE
John Robinson Consulting, Inc.	Recycled Water Consulting/Engineering Design/Project Management	SBE/RBE
Minagar & Associates, Inc.	Traffic/Civil/Electrical Engineering	SBE

SBE: Small Business Enterprise

RBE: Regional Business Enterprise