

December 15, 1998

To: Board of Directors (Budget and Finance Committee--Action)
(Engineering and Operations Committee--Action)

From: General Manager _____

Submitted by: G. M. Snyder _____
Chief Engineer

Subject: Authorize Construction Extra Work Orders for Arrowhead East Tunnel of the
Inland Feeder Project

Reference: Appropriation No. 15122

RECOMMENDATION(S)

To construct the Arrowhead East Tunnel of the Inland Feeder Project, it is recommended that your Board authorize the General Manager to execute change orders for tunnel realignment in excess of five percent in contract value to the contractor of the Arrowhead East Tunnel, in an amount not to exceed \$24,000,000.

EXECUTIVE SUMMARY

The Inland Feeder Project Arrowhead East Tunnel stretches approximately 5.7 miles through U.S. Forest Service property between City Creek above the City of Highland and the Arrowhead Springs area north of the City of San Bernardino. The tunnel passes through areas of varying ground and geologic conditions including groundwater levels in excess of 800 feet of head and at least two major fault zones. During the design of the tunnel, a value engineering study found that, by shifting the tunnel alignment to the south, a potential cost savings of up to \$30 million could be realized. The tunnel alignment was adopted, and in January 1997 the Board authorized a contract in the amount of \$88,373,316 to construct the Arrowhead East Tunnel on the southerly alignment. Shortly after contract award, the U.S. Forest Service threatened to revoke Metropolitan's permit to tunnel due to a protest and potential legal action by the Bureau of Indian Affairs that claimed their groundwater resources could potentially be impacted at the nearby San Manuel Indian Reservation. Based on the foregoing and a belief that potential litigation could stop contract work, Metropolitan shifted to the northerly alignment and so notified your Board in a detailed briefing on the subject in May 1997. Approval of this recommendation will increase the General Manager's authority, as required by Administrative Code 8115(d), to issue extra work orders that in the aggregate will not exceed \$24,000,000 to cover the anticipated costs associated with the northerly alignment. Also, depending on the actual geologic conditions encountered in the remainder of the tunnel, additional costs of approximately \$7,500,000 payable under the unit price provisions of the contract is anticipated to be required. Funds for the anticipated additional costs are available in the Arrowhead East Tunnel budget, which was funded to permit

construction of the northerly alignment pending receipt of all permits for the southerly alignment. The Inland Feeder Project estimate remains unchanged at \$1,188,000,000.

JUSTIFICATION

The Arrowhead East Tunnel is an integral component of the Project and is therefore essential to the Project. The extra work orders are necessary to complete construction of the tunnel.

ALTERNATIVE(S) TO PROPOSED ACTION

Do Not Authorize the General Manager to Award Extra Work Orders.

Since the Arrowhead East Tunnel is essential to the Project, the only feasible alternative is to continue with the construction of the tunnel. If change orders are not issued, construction of the tunnel cannot be completed.

ACTIONS AND MILESTONES

- Complete Construction of Arrowhead East Tunnel in mid-2002

CEQA COMPLIANCE / ENVIRONMENTAL DOCUMENTATION

All California Environmental Quality Act (CEQA) requirements have been satisfied for the proposed action. In February 1993, your Board certified the Final Environmental Impact Report for the Inland Feeder Project which included the northerly alignment for the Arrowhead East Tunnel. This action satisfied the provisions of CEQA, and no further environmental documentation or reviews are necessary for your Board to take action on this recommendation.

DETAILED REPORT

The Arrowhead East Tunnel segment is located in the San Bernardino Mountains between City Creek above the City of Highland and the Arrowhead Springs area north of the City of San Bernardino. It spans approximately 5.7 miles through United States Forest Service (USFS) land reaching depths up to 2,000 feet. It passes through a variety of ground and geologic conditions including at least two major fault zones and areas of high groundwater pressure.

The Arrowhead East Tunnel specifications were advertised based on an alignment that passed in a more southerly direction than the current alignment. The southerly alignment was adopted based on the recommendation of a value engineering study that indicated a potential cost savings of up to \$30 million could be realized by shifting the alignment thus reducing the overall length of the tunnel by 3,400 feet. The southerly alignment was also designed to pass through more favorable ground and geologic conditions including lower groundwater pressures. Initial feedback from the USFS and neighboring property owners concerning the southerly alignment had been positive. However, shortly after awarding the contract, Metropolitan was notified by the USFS that the Bureau of Indian Affairs (BIA) threatened to file legal action against the USFS and Metropolitan on the grounds that the alignment could potentially have negative impacts on the groundwater

resources of the nearby San Manuel Indian Reservation. Metropolitan conducted numerous discussions with the BIA and representatives of the San Manuel Indian Reservation to resolve their concerns, but were unable to establish an acceptable agreement. To avoid litigation with the BIA, the USFS threatened to revoke Metropolitan's permit unless the alignment was shifted to the northerly location. Your Board was informed of the situation in May 1997 and was advised that a future request would be made to increase the contract amount to cover the increased costs of the northerly alignment. A brief update was also given during the Chief Engineer's Report at the Engineering and Operations Committee meeting in December 1998.

To construct the Arrowhead East Tunnel along the northerly alignment, it is necessary to increase the amount payable under the contract by approximately \$31,500,000. Costs include: (1) mining of an additional 3,400 feet of tunnel; (2) additional grouting required to control groundwater intrusion into the tunnel due to higher groundwater pressures expected in the northerly alignment; and (3) a thicker pipe required to withstand significantly higher groundwater pressures. Because a portion of the anticipated increased costs associated with the change to the northerly alignment will be paid under the unit price provisions of the contract, extra work orders aggregating approximately \$24,000,000 of the total anticipated increased cost are required to be issued to the contractor.

Section 8115(d) of the Metropolitan Water District Administrative Code requires the approval of the Board for funding of extra work orders when the cumulative amount exceeds the greater of five percent of the contract bid amount, or \$250,000. For this contract, five percent of the original contract amount of \$88,373,316 is \$4,418,666. To cover a portion of the additional costs for the northern alignment, it is requested that your Board authorize the General Manager the authority to issue extra work orders that in the aggregate will not exceed \$24,000,000 for the Arrowhead East Tunnel contract.

The budget for the Arrowhead East Tunnel has been maintained at levels sufficient for the northerly alignment. Budget for the additional costs associated with the realignment is available within the existing budget and no additional funding is required. The estimate for the Inland Feeder Project remains unchanged at \$1,188,000,000.

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