

- **Board of Directors**
Engineering and Capital Programs Committee

January 8, 2008 Board Meeting

9-1

Subject

Status report for the Inland Feeder Program for activities through November 2007

Description

Work Completed to Date

The Inland Feeder Program consists of 44 miles of pipelines and tunnels that will enable Metropolitan to convey up to 1,000 cubic feet per second of State Water Project (SWP) supplies from Devil Canyon Afterbay to Diamond Valley Lake (DVL). To date, eight of nine construction contracts totaling \$542 million have been completed. These completed contracts represent 36.3 miles or 82 percent of the Inland Feeder's length. Remaining program work includes completion of the Arrowhead East and West Tunnels, which are presently under construction by a joint venture of Shea/Kenny.

The completed portion of the Inland Feeder has been in service since 2003 via an interconnection that was constructed between the Inland Feeder and San Bernardino Valley Municipal Water District's Foothill Pipeline. This connection allows Metropolitan to convey SWP supplies from the East Branch of the California Aqueduct to the Inland Feeder for delivery to DVL. Over 600,000 acre-feet of SWP water have been delivered to DVL to date through this connection.

Arrowhead Tunnels

Arrowhead East Tunnel – In mid-November, the contractor encountered very weak rock in front of the tunnel boring machine (TBM). Staff estimates that this zone of weak rock extends more than 100 feet along the tunnel alignment. The contractor has initiated an extensive grouting program on this zone of rock, and as of the last week in November, has achieved slow mining progress. The TBM advanced 440 feet in November and another 110 feet in the first few weeks of December. The total length of tunnel mined through December 12 is 21,505 feet (96 percent of the tunnel's length). Staff anticipates that the TBM hole-through into the completed section of the Arrowhead East Tunnel will occur in the first quarter of 2008. The contractor continued mobilization efforts to open the City Creek tunnel portal, including the construction of temporary water treatment ponds adjacent to the portal.

Arrowhead West Tunnel – Stable geologic conditions continued through November and into early December, which resulted in good mining progress. While ground conditions remained favorable, the contractor continued to encounter relatively high groundwater inflows that required increased levels of grouting. The TBM advanced 565 feet in November and another 240 feet in the first few weeks of December. The total length of tunnel mined through December 12 is 15,250 feet (77 percent of the tunnel's length).

Program Management

Staff and the U.S. Forest Service (USFS) continued to coordinate activities related to monitoring and minimizing tunnel water inflows into the Arrowhead East Tunnel in November.

Budget and Schedule

Following board authorization of a settlement agreement and contract amendment with the Arrowhead Tunnels contractor in August 2006, staff conducted a complete review of the program budget to estimate the total projected cost to complete the Inland Feeder Program. Based on the revised September 2010 completion date of the Arrowhead Tunnels as presented to the Board in August 2006, the updated total projected cost for the Inland

Feeder is estimated to be \$1.139 billion. Total expenditures through November 2007 are \$970.7 million (see [Attachment 1](#) for the Projected Cost/Expenditures). Staff will continue to report on the status of ongoing discussions with the San Manuel Band of Mission Indians and of litigation with Campus Crusade for Christ. The board-approved budget for the entire program remains at \$1.186 billion. [Attachment 2](#) shows the actual mining progress and cash flow on both tunnels compared to the planned progress and expenditures set forth in the August 2006 contract amendment.

The payments on the contractor’s incentive/risk program are discussed with the Board on a regular basis at the Engineering and Capital Programs Committee meetings. This incentive plan is part of the contract amendment approved by the Board in August 2006. The incentive payment to the contractor for the month of November 2007 is shown in [Attachment 1](#).

Upon completion of construction, environmental mitigation measures will continue along the Arrowhead Tunnels alignment for up to two years in accordance with the program Environmental Impact Report.

Policy

Submitted per request of the Board

Fiscal Impact

Refer to [Attachment 1](#).



Roy L. Wolfe
Manager, Corporate Resources

12/14/2007
Date



Jeffrey Kightlinger
General Manager

12/17/2007
Date

[Attachment 1 – Inland Feeder Program Projected Cost/Expenditures](#)

[Attachment 2 – Arrowhead Tunnels Actual vs. Planned Mining Progress and Actual vs. Planned Cash Flow](#)

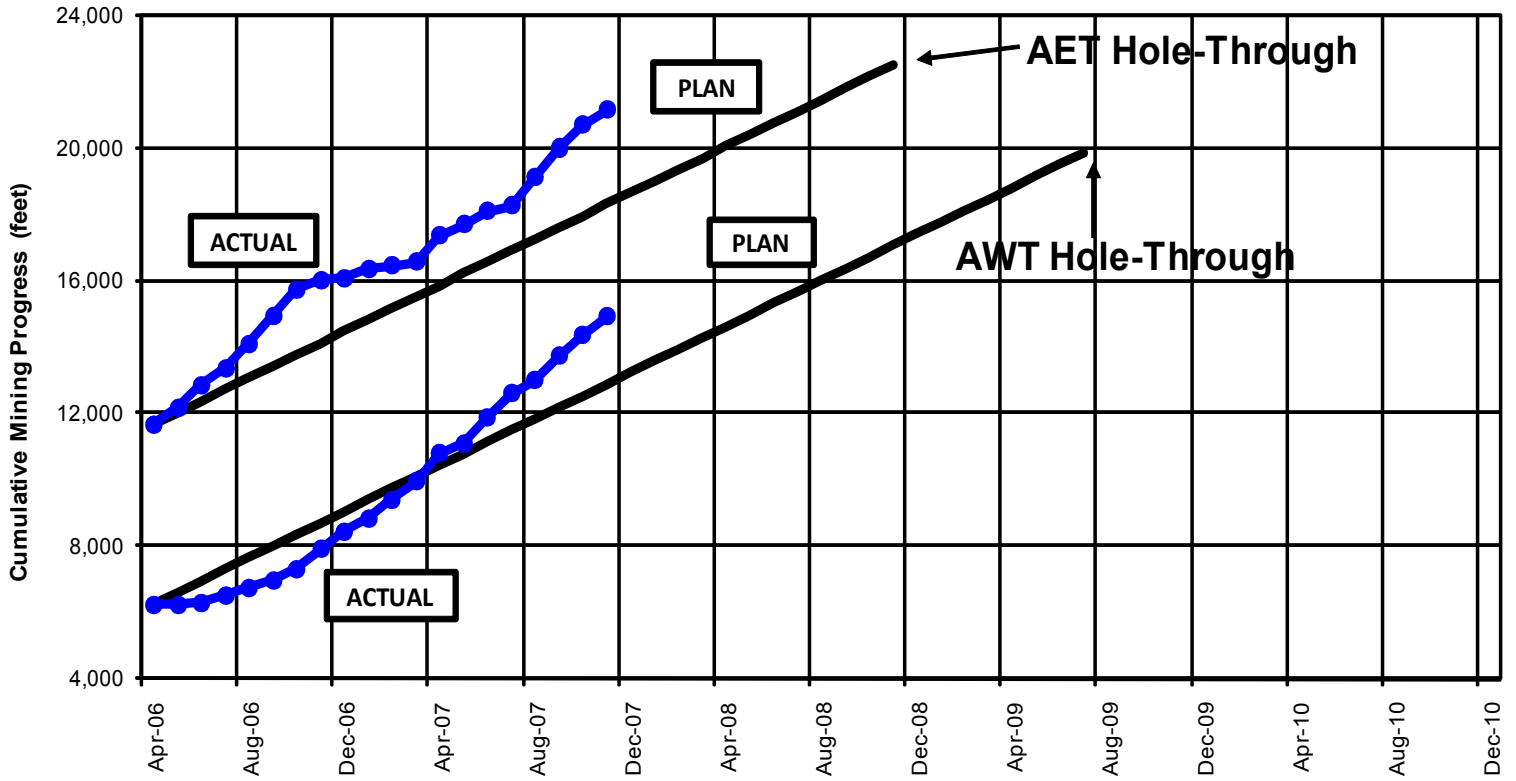
Inland Feeder Program Projected Cost/Expenditures (\$ in Millions)				
	Projected Cost To Complete (Updated Nov 2007)	Expenditures This Month (Nov 2007)	Expenditures To Date (Nov 2007)	% Complete Based on Expenditures (Nov 2007)
<u>Active Construction</u>				
Arrowhead Tunnels Const. Contract	\$ 397.0	\$ 5.0	\$ 253.0	64%
Construction Inspection and Support	\$ 58.0	\$ 0.6	\$ 41.4	71%
Subtotal, Active Construction	\$ 455.0	\$ 5.6	\$ 294.4	65%
<u>Other Components</u>				
Completed Projects	\$ 578.2	\$ 0.0	\$ 576.4	100%
Others (R/W, Env., Prog. Mgmt.)	\$ 106.1	\$ 0.1	\$ 99.9	94%
Subtotal, Other Components	\$ 684.3	\$ 0.1	\$ 676.3	99%
Expended To Date		\$ 5.8	\$ 970.7	82%
Subtotal, All Projects	\$ 1,139.3	← Projected Cost to Complete		
Remaining Budget	\$ 47.2			
Board-Authorized Budget	\$ 1,186.5	← Total Project Budget		
Length of Tunnels Mined Through 12/12/07				
Arrowhead East	21,505 ft	of 22,458 ft	(96%)	
Arrowhead West	15,250 ft	of 19,884 ft	(77%)	
Total	36,755 ft	of 42,342 ft	(87%)	

NOTE: Contractor invoices paid through November 2007 = \$250.0M
Overall completion = 36.3 of 44.2 miles (82%)

Inland Feeder Program – Arrowhead Tunnels Incentive Plan Payments				
	East/West Tunnels Cumulative Feet Mined	East Tunnel	West Tunnel	Total
June 2006 - Oct 2007 (Previously Reported)	17,150	\$ 1,707,600	\$ 2,052,883	\$ 3,760,493
November 2007 (3)	1,130	\$ 139,800	\$ 141,900	\$ 281,700
TOTALS	18,280	\$ 1,847,400	\$ 2,194,783	\$ 4,042,193 (2)

(1): For Arrowhead West Tunnel, incentive program evaluation commenced in June 2006.
 (2): Percent of maximum possible combined incentive: 73% (65% Arrowhead East Tunnel, 81% Arrowhead West Tunnel)
 (3): Incentive Plan based on work performed during contractor monthly pay period from 10/26/07 to 11/25/07 (differs from progress in calendar month).

Arrowhead Tunnels Actual vs. Planned Mining Progress



Arrowhead Tunnels Actual vs. Planned Cash Flow

