

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

July 8, 2008 Board Meeting

9-1

Subject

Status report for the Inland Feeder Program for activities through May 2008

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 620,000 acre-feet of SWP water have been delivered to DVL to date through this connection.

Arrowhead Tunnels

Arrowhead East Tunnel (AET) – On May 2, 2008 the contractor completed mining on the 22,458-foot AET as the tunnel boring machine (TBM) holed through into the previously completed 8,008-foot section of the tunnel. Approximately 100 guests were in attendance for the hole-through event. During May and early June, the contractor dismantled and removed the TBM, trailing gear, and utilities from the tunnel. After the tunnel invert has been cleaned in July, installation of the final steel pipe liner will commence. During pipe installation, the contractor will continue grouting operations, as necessary, to further eliminate water intrusion into the tunnel.

Arrowhead West Tunnel (AWT) – In May and early June, the TBM continued mining the final curve portion of this tunnel drive. As expected, the mining conditions in the final curve are difficult, as the TBM must pass through several fault/shear zones before it reaches the portal. The first of these shear zones was encountered in mid-May as the TBM mined into very soft ground. These conditions caused the machine to "dive" about four inches below its intended path. Over the subsequent two-week period, crews installed a series of concrete steering pads in front of the TBM which served as ramps to correct the machine's vertical alignment. The TBM advanced 305 feet in May and another 80 feet through June 10. The total length of tunnel mined is 18,569 feet (93 percent of the tunnel's length). Staff anticipates that mining will be completed by late summer 2008. In May, the contractor continued constructing the Devil Canyon portal site as the receiving location for the TBM once the mining is completed.

Program Management

Staff and the U.S. Forest Service continued to coordinate activities related to monitoring and minimizing tunnel water inflows into the Arrowhead East Tunnel in March. Staff continued negotiations with representatives from the San Manuel Band of Mission Indians regarding potential compensation for their activities related to the AET.

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 May 2008 are \$1.004 billion (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 April 2008 is shown in [Attachment 1](#). The incentive payment for May was in the process of being finalized and was unavailable for the July letter. May incentive payment will be included in the August letter.

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	6/13/2008 Date
 Jeffrey Kightlinger General Manager	6/19/2008 Date

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

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

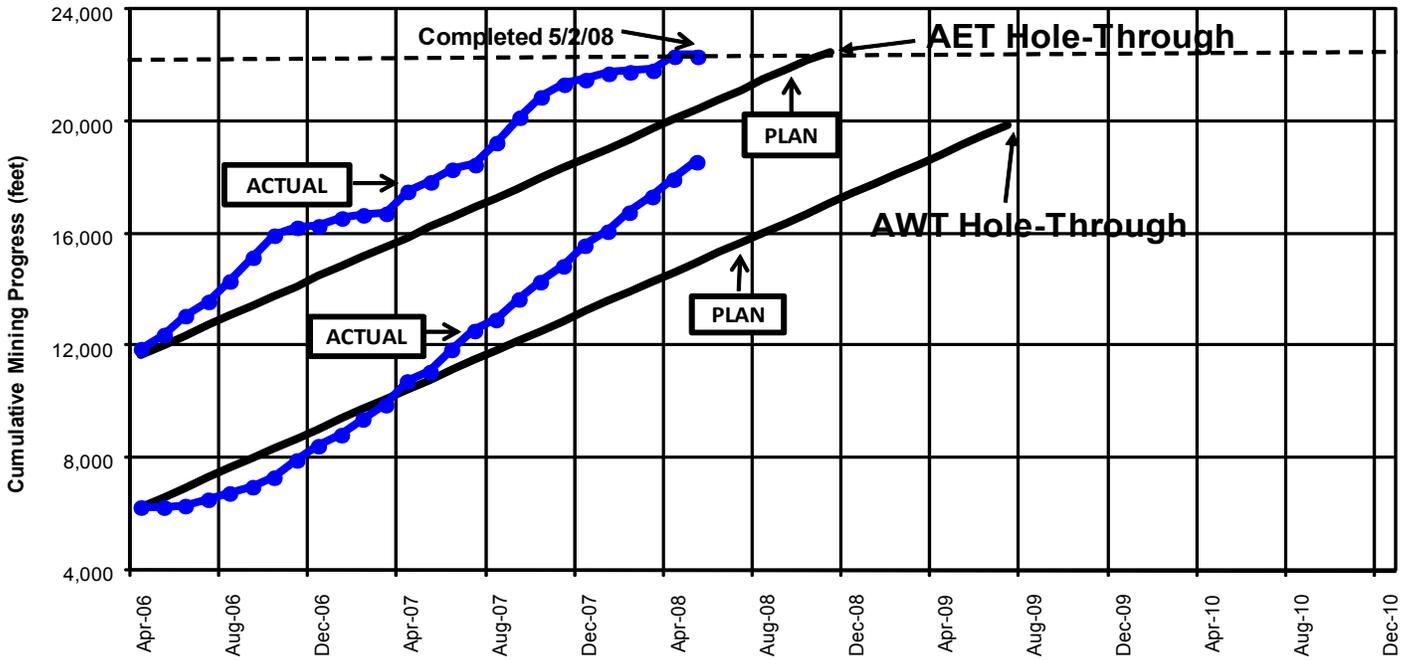
Inland Feeder Program Projected Cost/Expenditures (\$ in Millions)				
	Projected Cost To Complete (Updated May 2008)	Expenditures This Month (May 2008)	Expenditures To Date (May 2008)	% Complete Based on Expenditures (May 2008)
<u>Active Construction</u>				
Arrowhead Tunnels Const. Contract	\$ 397.0	\$ 5.9	\$ 284.0	72%
Construction Inspection and Support	\$ 58.0	\$ 0.9	\$ 46.1	79%
Subtotal, Active Construction	\$ 455.0	\$ 6.8	\$ 330.1	73%
<u>Other Components</u>				
Completed Projects	\$ 578.2	\$ 0.0	\$ 573.8	99%
Others (R/W, Env., Prog. Mgmt.)	\$ 105.4	\$ 0.1	\$ 100.9	95%
Subtotal, Other Components	\$ 683.6	\$ 0.1	\$ 674.7	99%
Expended To Date		\$ 6.9	\$ 1,004.8	85%
Subtotal, All Projects	\$ 1,138.6	← Projected Cost to Complete		
Remaining Budget	\$ 47.8			
Board-Authorized Budget	\$ 1,186.4	← Total Project Budget		
Length of Tunnels Mined Through 6/10/08				
Arrowhead East	22,458 ft	of 22,458 ft	(100%)	
Arrowhead West	18,569 ft	of 19,884 ft	(93%)	
Total	41,027 ft	of 42,342 ft	(97%)	

NOTE: Contractor invoices paid through May 2008 = \$281M
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 – Mar 2008 (Previously Reported)	21,415	\$ 2,227,000	\$ 2,728,793	\$ 4,955,793
April 2008 (3)	1,130	\$ 119,400	\$ 128,100	\$ 247,500
TOTALS	22,545	\$ 2,346,400	\$ 2,856,893	\$ 5,203,293 (2)

(1): For Arrowhead West Tunnel, incentive program evaluation commenced in June 2006.
 (2): Percent of maximum possible combined incentive: 74% (65% Arrowhead East Tunnel, 83% Arrowhead West Tunnel)
 (3): Incentive Plan based on work performed during contractor monthly pay period from 3/26/08 to 4/25/08 (differs from progress in calendar month).

Arrowhead Tunnels Actual vs. Planned Mining Progress



Arrowhead Tunnels Actual vs. Planned Cash Flow

