

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

October 14, 2008 Board Meeting

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**9-1**

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**Subject**

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

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**Description**

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

**Arrowhead Tunnels**

**Arrowhead East Tunnel (AET)** – On May 2, 2008, the contractor completed mining on the AET, approximately six months ahead of schedule. During August, the contractor continued cleaning the tunnel invert in preparation for pipe installation. During installation, the contractor will continue grouting operations, as necessary, to further eliminate water intrusion into the tunnel. The contractor is in the process of securing required permits from the city of San Bernardino to haul pipe from the storage area at Etiwanda Reservoir to the portal sites for both tunnels. City staff have not yet issued the needed permits due to concerns over potential damage to city roads and to buried infrastructure along the haul route. Alternate routes through San Bernardino are being evaluated. The permit issue has been elevated to the San Bernardino City Council for discussion. The contractor has obtained permits to haul pipe through the cities of Rancho Cucamonga, Fontana and Rialto.

**Arrowhead West Tunnel (AWT)** – During August, mining conditions were favorable and the tunnel boring machine (TBM) advanced a total of 460 feet. On August 20, the contractor completed mining on the 19,884-foot AWT as the TBM holed through at the Devil Canyon Portal. This represents an early completion on mining of approximately 12 months, based on the schedule established with the 2006 contract amendment. Approximately 350 guests were in attendance for the hole-through event. Following the completion of mining, the contractor will spend approximately three months removing the TBM, trailing gear, and utilities from the tunnel. Once this removal is complete and the tunnel invert has been cleaned, 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.

**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 August 2008 are \$1.022 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 August 2008 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

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Submitted per request of the Board

## Fiscal Impact

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Refer to [Attachment 1](#).

  
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Roy L. Wolfe  
Manager, Corporate Resources

9/22/2008

Date

  
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Jeffrey Kightlinger  
General Manager

9/27/2008

Date

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

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

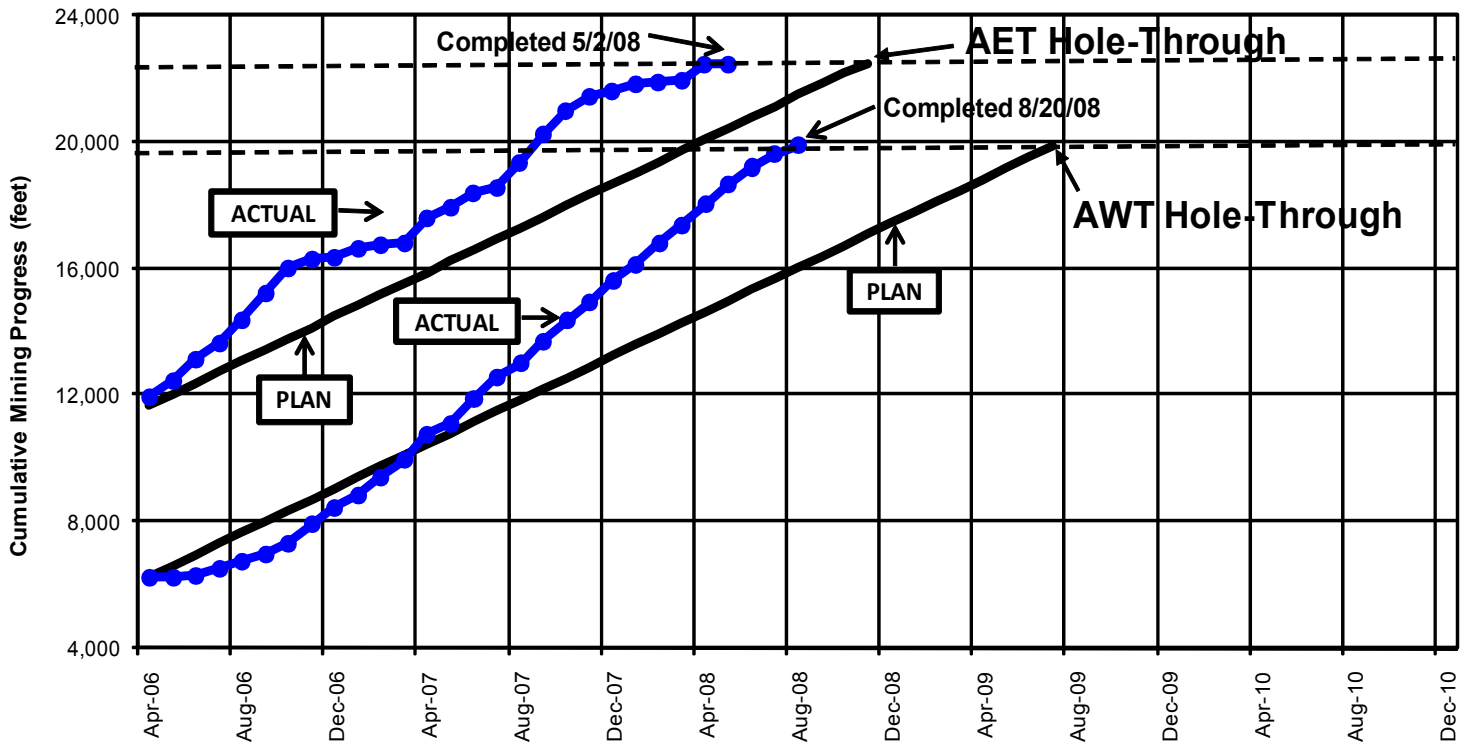
<b>Inland Feeder Program Projected Cost/Expenditures (\$ in Millions)</b>				
	Projected Cost To Complete (Updated Aug. 2008)	Expenditures This Month (Aug. 2008)	Expenditures To Date (Aug. 2008)	% Complete Based on Expenditures (Aug. 2008)
<u>Active Construction</u>				
Arrowhead Tunnels Const. Contract	\$ 397.0	\$ 6.0	\$ 299.1	75%
Construction Inspection and Support	\$ 58.0	\$ 0.4	\$ 47.8	82%
<b>Subtotal, Active Construction</b>	<b>\$ 455.0</b>	<b>\$ 6.4</b>	<b>\$ 346.9</b>	<b>76%</b>
<u>Other Components</u>				
Completed Projects	\$ 578.2	\$ 0.0	\$ 573.8	99%
Others (R/W, Env., Prog. Mgmt.)	\$ 105.4	\$ 0.2	\$ 101.5	96%
<b>Subtotal, Other Components</b>	<b>\$ 683.5</b>	<b>\$ 0.2</b>	<b>\$ 675.4</b>	<b>99%</b>
Expended To Date		\$ 6.6	\$ 1,022.3	86%
Subtotal, All Projects	\$ 1,138.5	← <b>Projected Cost to Complete</b>		
Remaining Budget	\$ 48.0			
Board-Authorized Budget	\$ 1,186.5	← <b>Total Project Budget</b>		
Length of Tunnels Mined Through 8/20/08				
Arrowhead East	22,458 ft	of 22,458 ft	(100%)	
Arrowhead West	19,884 ft	of 19,884 ft	(100%)	
Total	42,342 ft	of 42,342 ft	(100%)	

NOTE: Contractor invoices paid through August 2008 = \$296.1M  
 Overall completion = 36.3 of 44.2 miles (82%)

<b>Inland Feeder Program – Arrowhead Tunnels Incentive Plan Payments</b>				
	East/West Tunnels Cumulative Feet Mined	East Tunnel	West Tunnel	Total
June 2006 –June 2008 (Previously Reported)	23,430	\$ 2,593,600	\$ 3,136,693	\$ 5,730,293
July 2008 (3)	485	\$ 129,300	\$ 140,700	\$ 270,000
<b>TOTALS</b>	<b>23,915</b>	<b>\$ 2,722,900</b>	<b>\$ 3,277,393</b>	<b>\$ 6,000,293 (2)</b>

(1): For Arrowhead West Tunnel, incentive program evaluation commenced in June 2006.  
 (2): Percent of maximum possible combined incentive: 75% (67% Arrowhead East Tunnel, 84% Arrowhead West Tunnel)  
 (3): Incentive Plan based on work performed during contractor monthly pay period from 6/26/08 to 7/25/08 (differs from progress in calendar month).

### Arrowhead Tunnels Actual vs. Planned Mining Progress



### Arrowhead Tunnels Actual vs. Planned Cash Flow

