



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

May 12, 2009 Board Meeting

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9-1

**Subject**

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Status report for the Inland Feeder Program for activities through March 2009

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

**Arrowhead Tunnels**

**Arrowhead East Tunnel (AET)** – In March, the contractor continued installing the final pipe liner within the tunnel. This reinforced concrete cylinder pipe (RCCP) was transported into the tunnel from the Strawberry Creek portal. Averaging almost 15 pipe segments (19- and 23-foot lengths) placed per day, the contractor installed 6,556 feet of pipe in March and another 3,770 feet in the first few weeks of April. The total length of pipe installed through April 14 is 19,580 feet (87 percent of the tunnel's length). Pipe lining progress is shown in [Attachment 2](#). Cellular grouting (grout injected between the RCCP and the outer bolted-gasketed mining segments) from the City Creek portal continues to follow the progression of lining. Approximately 13,888 feet of the tunnel have been grouted through April 14 (82 percent of the tunnel's length).

**Arrowhead West Tunnel (AWT)** – The contractor continued installing RCCP from the Waterman Canyon portal, averaging about 12 segments (23-foot lengths of pipe) per day. The contractor installed 5,469 feet of pipe in March and another 3,265 feet in the first few weeks of April. The total length of pipe installed through April 14 is 18,609 feet (94 percent of the tunnel's length). In early March, cellular grouting commenced from the Devil Canyon portal; approximately 6,100 feet of the tunnel have been grouted through April 14 (31 percent of the tunnel's length). Preliminary construction work began on the access structure at the Waterman Canyon portal.

**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.

**Budget and Schedule**

Due to the delays in obtaining the AET pipe hauling permit, the AET and AWT are on virtually identical schedules, with final completion of the construction contract expected in early 2010. This date is approximately six months ahead of the September 2010 target set forth in the revised contract. Staff presently anticipates that

the tunnel will be ready for water deliveries by early November 2009. Follow-on activities including site grading and landscaping will be completed in early 2010.

In December 2008, the Legal Department filed an eminent domain action to acquire an additional four years on the construction easement over 7.5 acres of land at the AWT Waterman Canyon portal. The land is owned by the Campus Crusade for Christ, and the easement area is needed for muck storage from the tunnel excavation and equipment staging area. The prior easement expired at the end of December 2008. Metropolitan’s Legal Department is pursuing this action while continuing to work with outside counsel on the re-trial of the prior eminent domain action to acquire the land on which the portal site is located, and for easements for the pipeline across Campus Crusade’s property. Because the final amount of compensation owed to Campus Crusade is dependent on court decisions, the total cost for these actions are unknown and is not reflected in the updated total projected cost for the Inland Feeder as discussed below. As court decisions are rendered and costs are finalized, staff will inform the Board. No additional funds are required to be appropriated, as sufficient funds are available within the program’s Remaining Budget.

The first auction of surplus equipment from the mining of the Arrowhead Tunnels is scheduled to be held at Ritchie Bros. Auctioneers in late May 2009. Proceeds from the sale will be returned to the Inland Feeder Program appropriation.

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 for the Arrowhead Tunnels as presented to the Board in August 2006, the updated total projected cost for the Inland Feeder is estimated to be \$1.147 billion. Total expenditures through March 2009 are \$1.073 billion (see [Attachment 1](#) for the Projected Cost/Expenditures). The board-approved budget for the entire program remains at \$1.186 billion. [Attachment 2](#) shows the actual lining 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 February 2009 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

  
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Roy L. Wolfe  
Manager, Corporate Resources

4/20/2009  
Date

  
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Jeffrey Kightlinger  
General Manager

4/27/2009  
Date

**Attachment 1 – Inland Feeder Program Projected Cost/Expenditures and Incentive Plan Payments**

**Attachment 2 – Arrowhead Tunnels Actual vs. Planned Pipe Lining Progress and Actual vs. Planned Cash Flow**

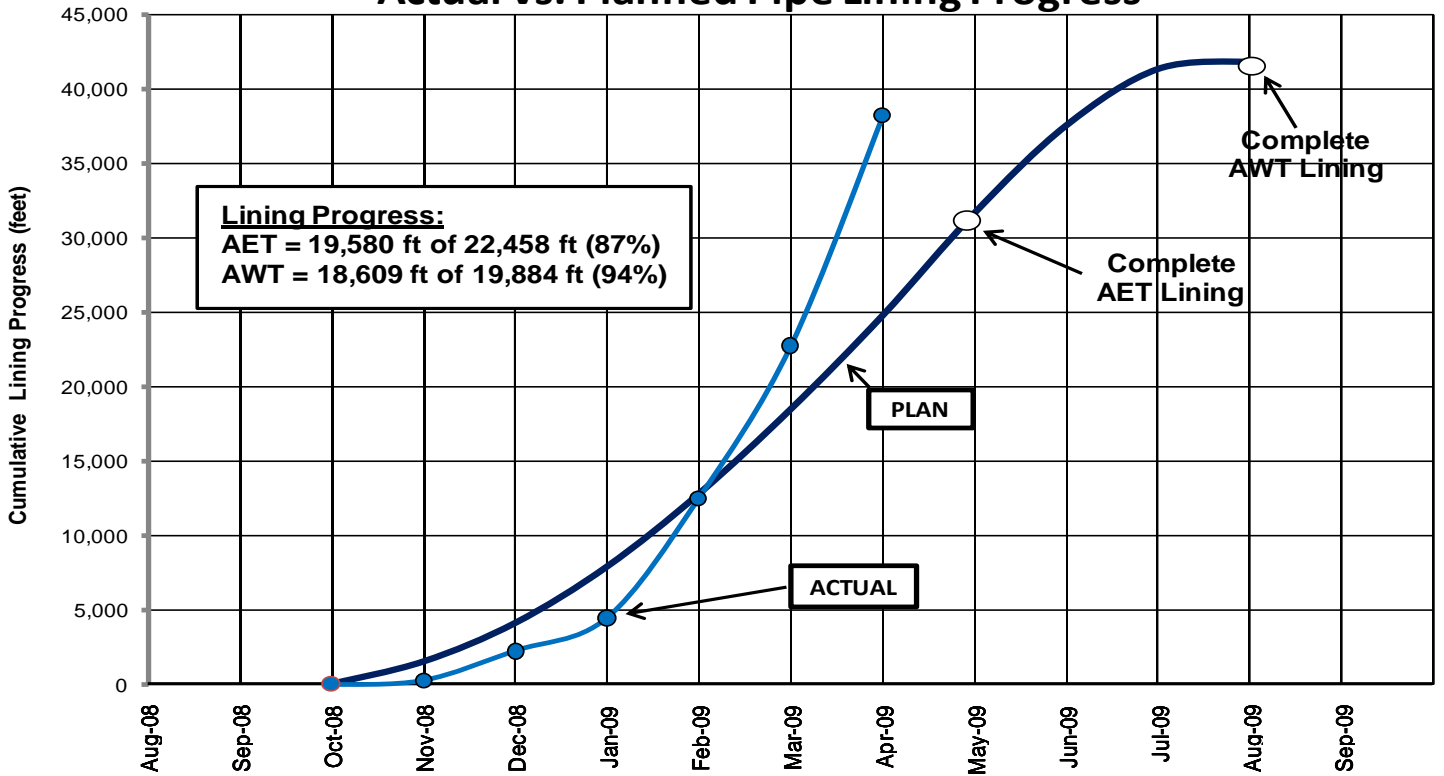
<b>Inland Feeder Program Projected Cost/Expenditures (\$ in Millions)</b>				
	Projected Cost To Complete (Updated Mar. 2009)	Expenditures This Month (Mar. 2009)	Expenditures To Date (Mar. 2009)	% Complete Based on Expenditures (Mar. 2009)
<u>Active Construction</u>				
Arrowhead Tunnels Const. Contract	\$ 397.0	\$ 5.9	\$ 337.7	85%
Construction Inspection and Support	\$ 58.0	\$ 0.4	\$ 52.1	90%
<b>Subtotal, Active Construction</b>	<b>\$ 455.0</b>	<b>\$ 6.3</b>	<b>\$ 389.8</b>	<b>86%</b>
<u>Other Components</u>				
Completed Projects	\$ 578.9	\$ 0.0	\$ 575.0	99%
Others (R/W, Env., Prog. Mgmt.)	\$ 112.3	\$ 0.2	\$ 108.2	96%
<b>Subtotal, Other Components</b>	<b>\$ 691.2</b>	<b>\$ 0.2</b>	<b>\$ 683.2</b>	<b>99%</b>
Expended To Date		\$ 6.5	\$ 1,073.0	90%
Subtotal, All Projects	\$ 1,146.2	← <b>Projected Cost to Complete</b>		
Remaining Budget	\$ 40.3			
Board-Authorized Budget	\$ 1,186.5	← <b>Total Project Budget</b>		
Length of Pipe Installed in Tunnels Through 4/14/09				
Arrowhead East	19,580 ft	of 22,458 ft	(87%)	
Arrowhead West	18,609 ft	of 19,884 ft	(94%)	
Total	38,189 ft	of 42,342 ft	(90%)	

NOTE: Contractor invoices paid through March 2009 = \$334.7M  
 Overall completion = 36.3 of 44.2 miles (82%)

<b>Inland Feeder Program – Arrowhead Tunnels Incentive Plan Payments</b>				
	East/West Tunnels Cumulative Feet Lined with Pipe	East Tunnel	West Tunnel	Total
June 2006 – Jan. 2009 (Previously Reported)	10,097	\$ 3,115,300	\$ 3,913,918	\$ 7,029,218
February 2009 (3)	8,456	\$ 70,125	\$ 68,325	\$ 138,450
<b>TOTALS</b>	<b>18,553</b>	<b>\$ 3,185,425</b>	<b>\$ 3,982,243</b>	<b>\$ 7,167,668 (2)</b>

(1): For Arrowhead West Tunnel, incentive program evaluation commenced in June 2006.  
 (2): Percent of maximum possible combined incentive: 76% (69% Arrowhead East Tunnel, 83% Arrowhead West Tunnel)  
 (3): Incentive Plan based on work performed during contractor monthly pay period from 1/26/09 to 2/25/09 (differs from progress in calendar month).

### Arrowhead Tunnels Actual vs. Planned Pipe Lining Progress



### Arrowhead Tunnels Actual vs. Planned Cash Flow

