

- **Board of Directors**  
**Engineering and Operations Committee**

June 13, 2000 Board Meeting

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10-2

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**Subject**

Inland Feeder Project Status Report for April 2000

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**Description**

**Arrowhead Tunnels – Reaches 1 & 2**

After the April 11, 2000 Board meeting, Metropolitan notified the contractor, Shank/Balfour Beatty, that the tunneling portion of their contracts for the Arrowhead West Tunnel (AWT) and Arrowhead East Tunnel (AET) have been deleted from their current contracts due to impracticability. The contractor will complete the construction of the pipelines at Waterman Canyon, Devil Canyon and Strawberry Creek. Ameron, acting as a sub-contractor to Shank/Balfour Beatty, has completed the manufacturing of the impermeable liner for the AET. The contractor will install approximately 8,000 linear feet from the City Creek heading and Metropolitan will move the remainder of the pipe to a new location for storage until such time that the pipe can be used for installation in the tunnel. Landscaping and final construction of the City Creek Portal will be completed under this existing contract.

The Project Team is currently re-baselining both the schedule and budget for the re-design and re-bidding of the AWT and the AET. It is estimated that the tunnel specifications would be re-bid in October 2000 upon Board approval. The design will go through a value engineering process to ensure that all aspects of the project have been considered and all solutions have been investigated.

The Bechtel Corporation is preparing the redesign of the Arrowhead Tunnels under existing Agreement No. 4532. Bechtel was the successful candidate for Request for Proposal 080 in September 1993, which called for a three phase work scope including geotechnical site investigations, hydrogeological exploration, and preliminary and final designs under phase I and II, and support services during construction under phase III. Bechtel has performed well in the completion of these activities.

The Board has approved \$29.2 million for Agreement No. 4532 to date, of which \$22.8 million had been expended through April 2000. It is estimated that the Bechtel redesign effort, including the testing of new bolted gasketed segments that will control groundwater intrusion into the tunnel, will require approximately \$850,000. These costs will be paid through the existing agreement. Current estimates indicate that no additional funding will be required for Bechtel to complete the current or revised scope of work.

The bolted and gasketed segments are currently being tested by the University of Illinois to verify that the structural strength and tolerances can withstand the high hydrostatic pressures present in the San Bernardino Mountains. The completion of testing is scheduled for August 2000.

The U.S. Forest Service (USFS) indicated to Metropolitan its desire to review and approve every step of the construction process. In response to that request, meetings were held between Metropolitan, the USFS and the San Manuel Band of Mission Indians to discuss the specifics of lining City Creek and the plans to proceed with construction activities.

**Highland Pipeline – Reach 3**

The Highland Pipeline design remains at about 90 percent complete. Once the design is complete, the construction bidding will be placed on hold until work on the Arrowhead Tunnels is scheduled.

**Mentone Pipeline – Reach 4**

Notice To Proceed was given to the contractor, J.F. Shea Co., Inc., on April 20, 2000. The contractor has begun exploratory pothole work and removal of existing abandoned concrete railroad abutments in the Santa Ana River Wash area. This project will be completed in spring 2002.

**Riverside Badlands Tunnel – Reaches 5 & 6**

In April 2000, the tunnel boring machine progressed 2,298 feet, bringing the total completed through April 28 to 16,827 feet (see [Attachment 1](#) for a summary of mining progress). Dewatering operations continue in San Timoteo Canyon to lower the groundwater during mining in this area, which began April 21, 2000. The alluvial deposits in this area are expected to slow mining rates. Mining successfully passed the San Timoteo Canyon Shaft on April 13. Preparations were made for mining beneath the Union Pacific Railroad to reduce the potential for settlement. Dewatering operations were begun in Live Oak Canyon.

**Schedule and Projected Costs**

The Inland Feeder Project is currently scheduled for completion in 2004/2005; however, this date will be extended due to the revised construction work plan for the Arrowhead Tunnels. A new completion date will be established after USFS approval of the bolted and gasketed system. The project remains on budget at \$1.188 billion. Total expenditures through April are \$435.7 million (see [Attachment 2](#) for a financial summary and [Attachment 3](#) for a schedule summary).

**RECENT DEVELOPMENTS**

**Riverside Badlands Tunnel – Reaches 5 & 6**

Mining on the Riverside Badlands Tunnel has advanced a total of 17,008 feet through May 19, 2000. Ground conditions encountered in San Timoteo Canyon have required the use of chemical grouting to stabilize the ground. For approximately the next 700 feet, tunnel advance rates will be slower during this time. These conditions are expected to last until mid-June.

**Policy**

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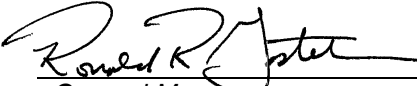
Board Request

**Fiscal Impact**

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None.

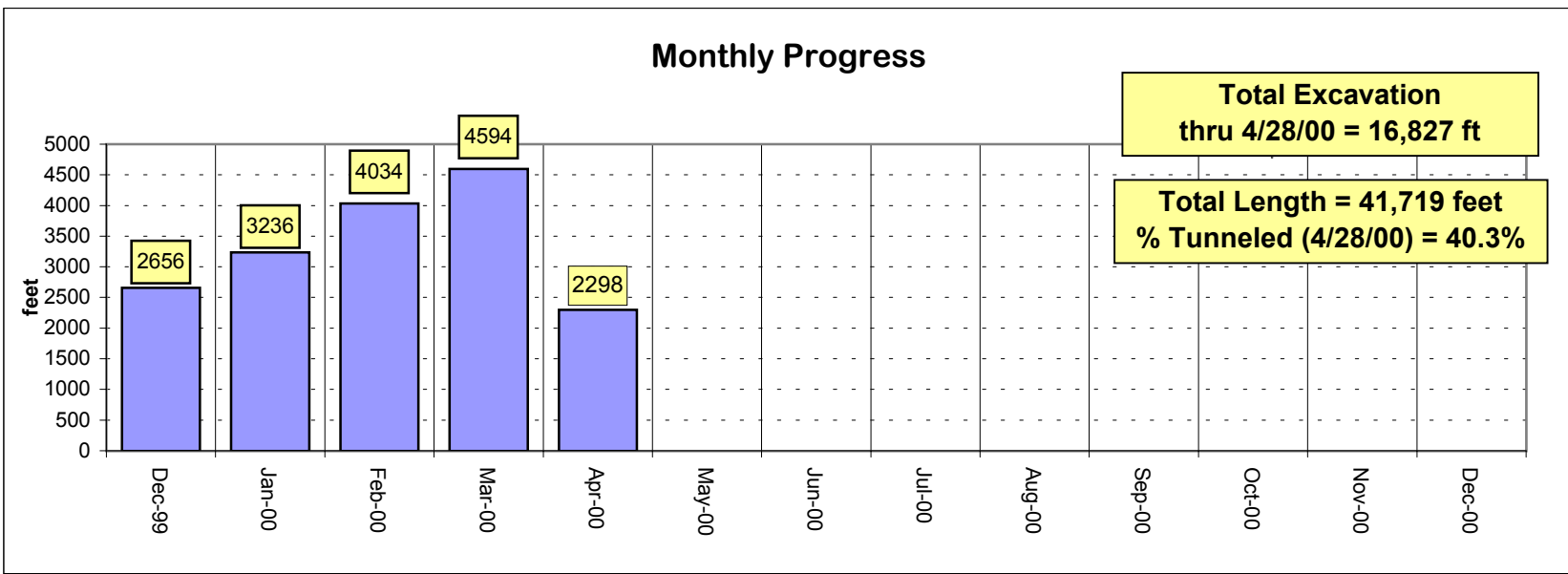
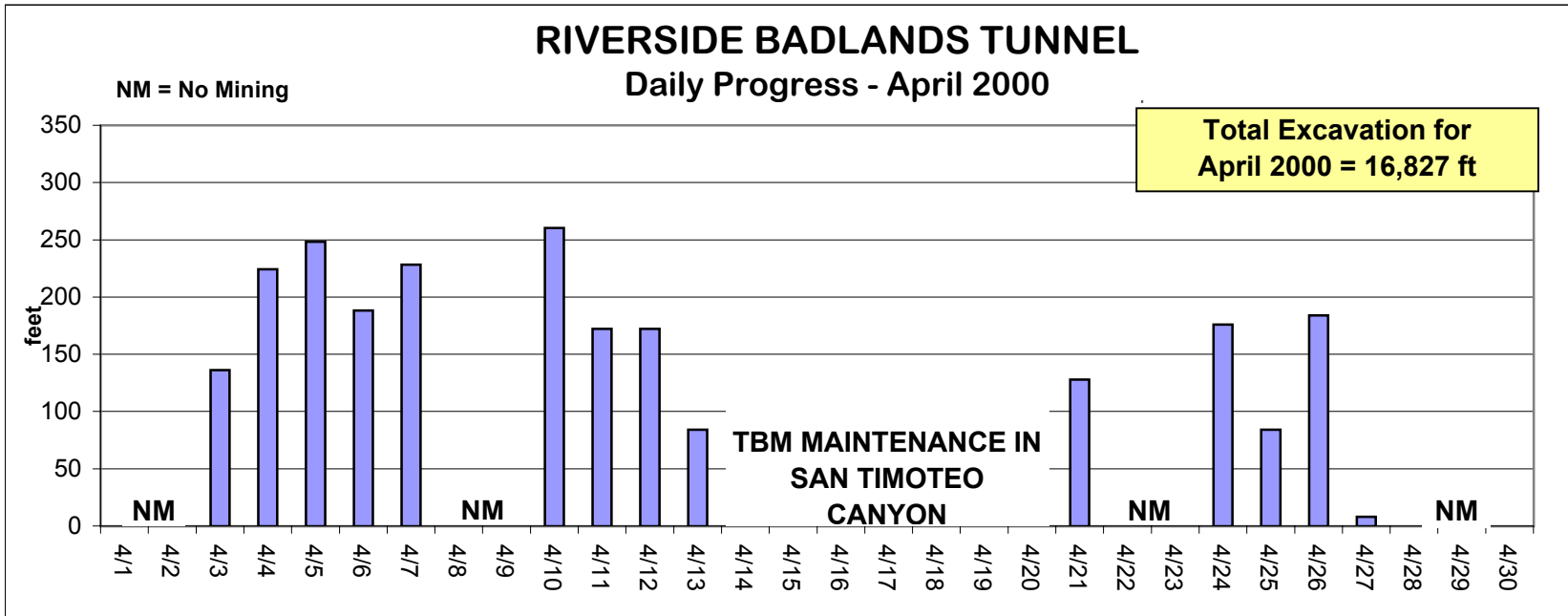
  
 \_\_\_\_\_ 5/25/2000  
 Roy L. Wolfe Date  
 Acting Manager, Corporate Resources

  
 \_\_\_\_\_ 5/29/2000  
 General Manager Date

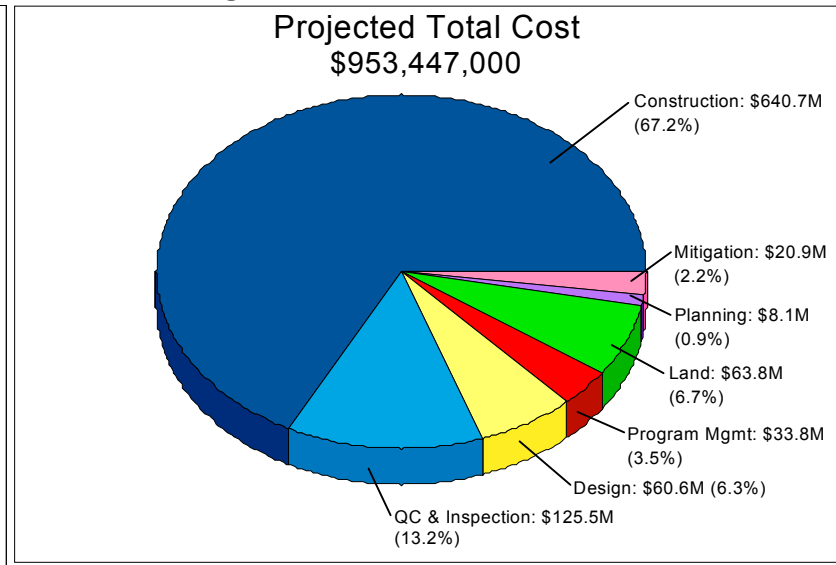
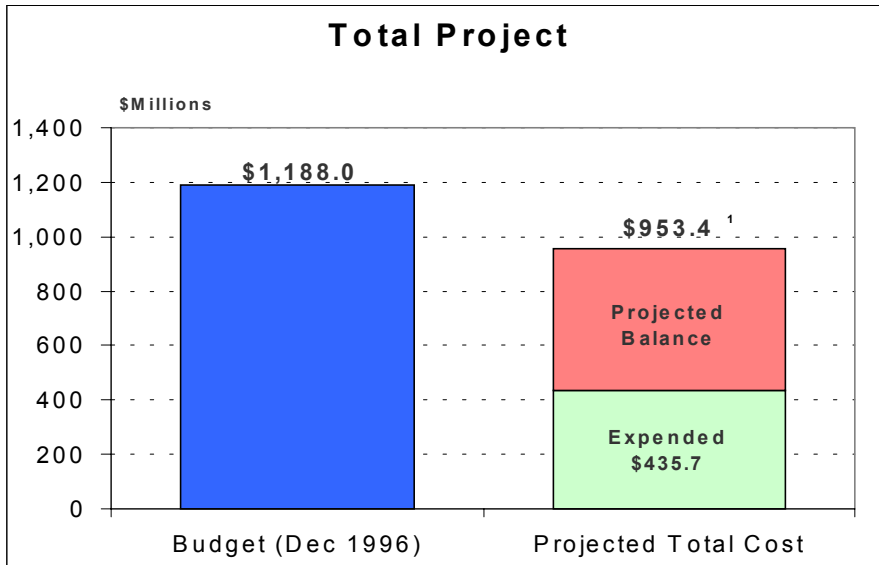
[Attachment 1 – Riverside Badlands Tunnel mining progress](#)

[Attachment 2 – Financial Summary](#)

[Attachment 3 – Schedule Summary](#)

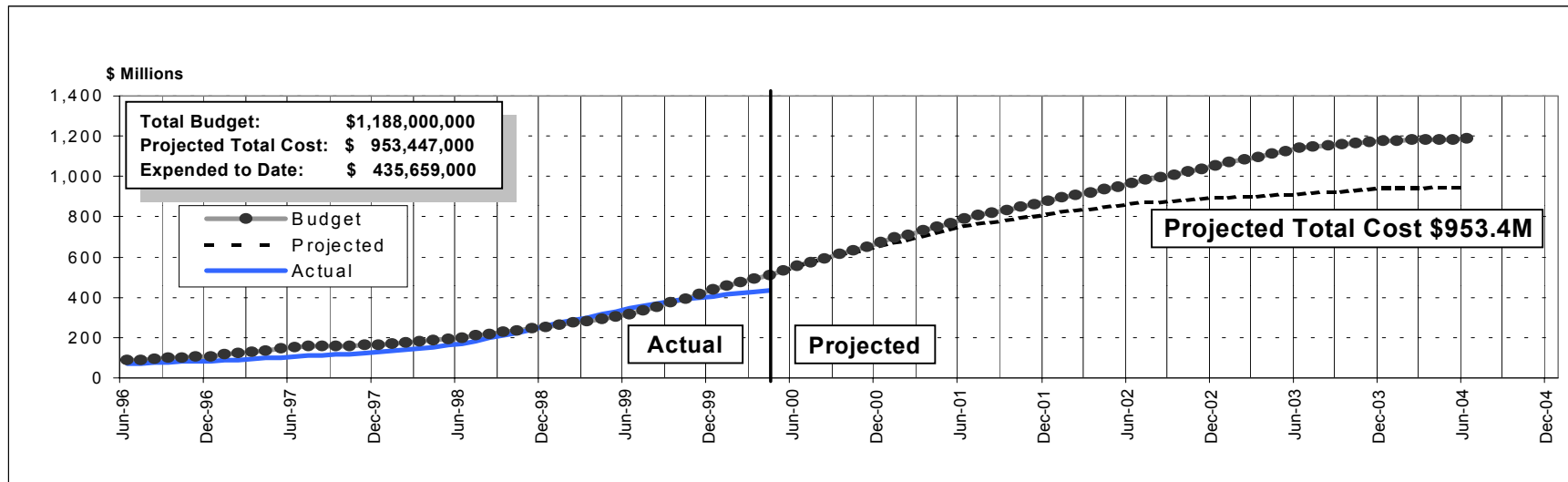


# Financial Summary



1. Based on knowledge of current field conditions.

# Project Cash Flow



## Schedule Summary

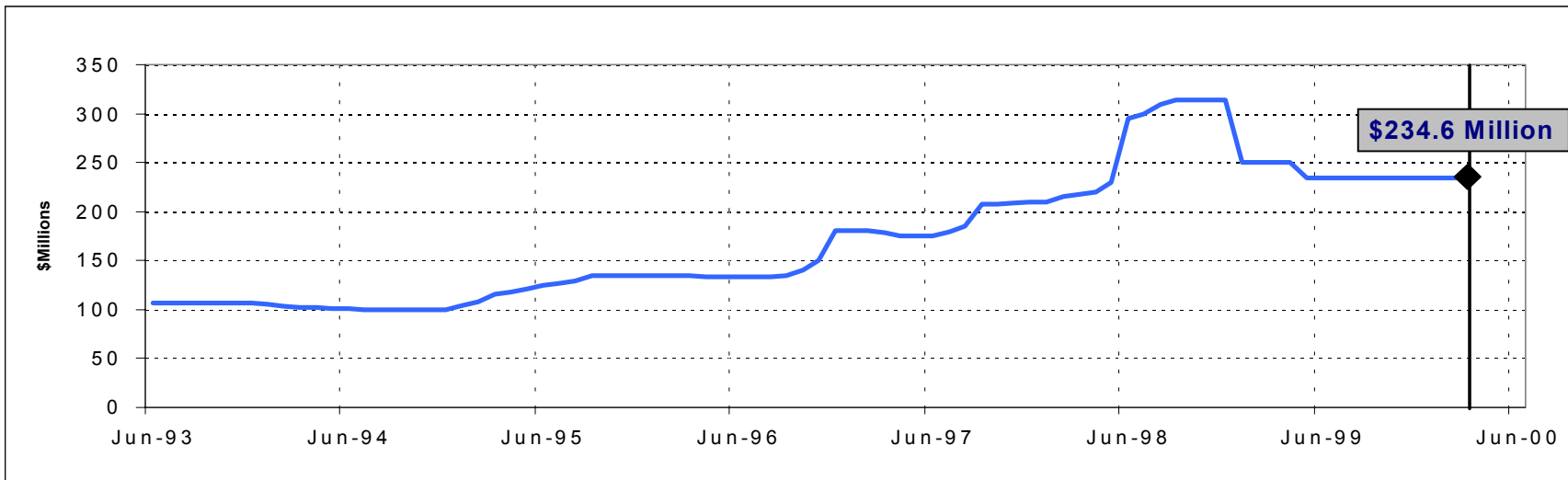
DESCRIPTION	PROGRESS		COMPLETION DATE		COMMENTS
	PLANNED <sup>1</sup>	ACTUAL	CONTRACT <sup>2</sup>	FORECAST	
<i>Design</i>					
Highland Pipeline	100%	90%	----	Aug-00	Once design is complete, construction bidding will be placed on hold until work on the Arrowhead Tunnels is scheduled.
Mentone Pipeline	100%	100%	Complete	Complete	Awarded contract at the February 2000 Board. Notice to Proceed issued April 2000.
<i>Construction</i>					
Arrowhead West Tunnel	45%	25%	Dec-02	T.B.D.	On hold.
Arrowhead East Tunnel	70%	38%	Jan-03	T.B.D.	On hold.
Mentone-RUSD Pipeline <sup>3</sup>	100%	100%	Complete	Complete	Construction completed February 1998.
Riverside Badlands Tunnel	35%	43%	Jul-03	Dec-02	Mining has advanced 16,827 feet.
Riverside Pipeline North	100%	100%	Complete	Complete	Construction completed November 1999.
Riverside Pipeline South	100%	100%	Complete	Complete	Construction completed August 1999.

1. Based on Approved Schedule

2. Original Contract Duration + Approved Extensions

3. Represents 3,400 foot section of Mentone Pipeline constructed to support opening of new high school.

## Remaining Budget <sup>1</sup>



1. Project budget minus projected total cost.