

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

October 17, 2000 Board Meeting

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10-2

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**Subject**

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Inland Feeder Project Status Report for August 2000

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**Description**

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**Arrowhead Tunnels (Design and Bid) – Reaches 1 and 2**

The project team is currently redesigning the Arrowhead West Tunnel and the remaining portion of the Arrowhead East Tunnel. It is estimated that the tunnel contract will be advertised for bid in November 2000 after review by the Board.

Testing of the tunnel liner segments has been completed at the University of Illinois. Results verified that the structural strength of the segments can withstand the hydrostatic pressures present in the San Bernardino Mountains. Gasket testing at the La Verne facility continued and is expected to be completed by early October 2000.

Metropolitan continued meeting with the U.S. Forest Service (USFS) and the San Manuel Band of Mission Indians to resolve issues related to the construction of the City Creek heading and the bidding, and eventual construction, of the Arrowhead Tunnels.

Metropolitan has yet to receive written approval from the USFS to tunnel the remainder of the Arrowhead Tunnels based on the proposal submitted to them earlier this year. Conceptually, however, the USFS has indicated it approves of the direction being proposed.

**Arrowhead West Tunnel – Reach 1**

Negotiations continue over settlement of the remaining construction claim issues.

**Arrowhead East Tunnel – City Creek Heading – Reach 2**

Installation of the final lining has begun at the City Creek heading.

**Pipeline Alternatives to Arrowhead Tunnels**

Staff continues its evaluation of pipeline alignment alternatives as a potential replacement for the Arrowhead Tunnels. An interim connection to the San Bernardino Valley Municipal Water District's Foothill Feeder is also being investigated. Staff intends to present an overview of this review to the board in October 2000.

**Highland Pipeline – Reach 3**

The Highland Pipeline design is 90 percent completed. Once the design has been completed, the construction bidding will be placed "on hold" until work on the Arrowhead Tunnels has been scheduled, and a suitable alternative identified.

**Mentone Pipeline – Reach 4**

Both excavation in the 800-foot encasement area of the Santa Ana River Wash and the hauling of spoils material to the Seven Oaks Dam Borrow Pit, under the amended Biological Opinion, were completed. The concrete encasement slabs were completed within the Santa Ana River Wash and pipe installation has begun. This project is scheduled for completion in Fall 2001.

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

In August 2000, the tunnel boring machine (TBM) progressed 3,527 feet, bringing the total tunneled through August 31 to 27,488 feet (see [Attachment 1](#) for a summary of tunneling progress). The TBM has successfully tunneled through the alluvial deposits of Live Oak Canyon. This has allowed dewatering operations in this area to be discontinued. Mining operations were shut down for approximately one week for normal TBM maintenance during the week beginning August 14. Tunneling restarted on August 21 and continues at a high production rate resulting in a projected completion nine months ahead of schedule.

**Schedule and Budget**

The Inland Feeder Project is currently scheduled for completion in 2005; however, this date may be extended due to the revised construction work plan for the Arrowhead Tunnels. A new completion date will be established after the tunnel design package has been approved by the Board. The project budget remains at \$1.188 billion, and the projected total cost based on 30 percent completion of the Arrowhead Tunnels is \$981.5 million. Total expenditures through August 2000 are \$464.2 million (see [Attachment 2](#) for a financial summary and [Attachment 3](#) for a budget and schedule summary).

**RECENT DEVELOPMENTS**

**Highland Pipeline – Reach 3**

The Biological Opinion (BO) for the Santa Ana River Crossing was recently amended as a result of the need to haul over-excavated materials to a nearby spoil disposal site. The amended BO triggered additional mitigation requirements of approximately \$150,000 for temporary impacts to San Bernardino Kangaroo Rat Habitat. As a result of the additional mitigation and the desire not to mitigate future impacts in the same geographical location, the removal of 3,600 feet of excess spoil from the Highland Pipeline was added to the Mentone contract to the advantage of the amended BO.

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

Tunneling on the Riverside Badlands Tunnel has advanced a total of 28,353 feet through September 18, 2000.

**Policy**

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Board Request

**Fiscal Impact**

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Refer to the attachments.

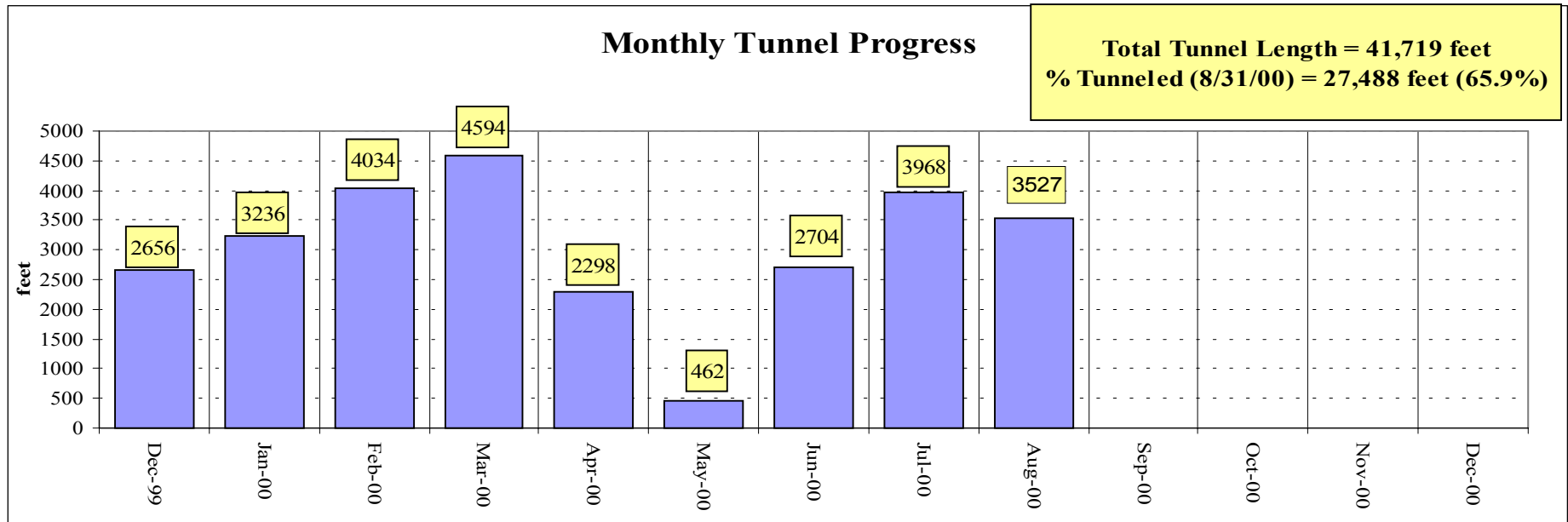
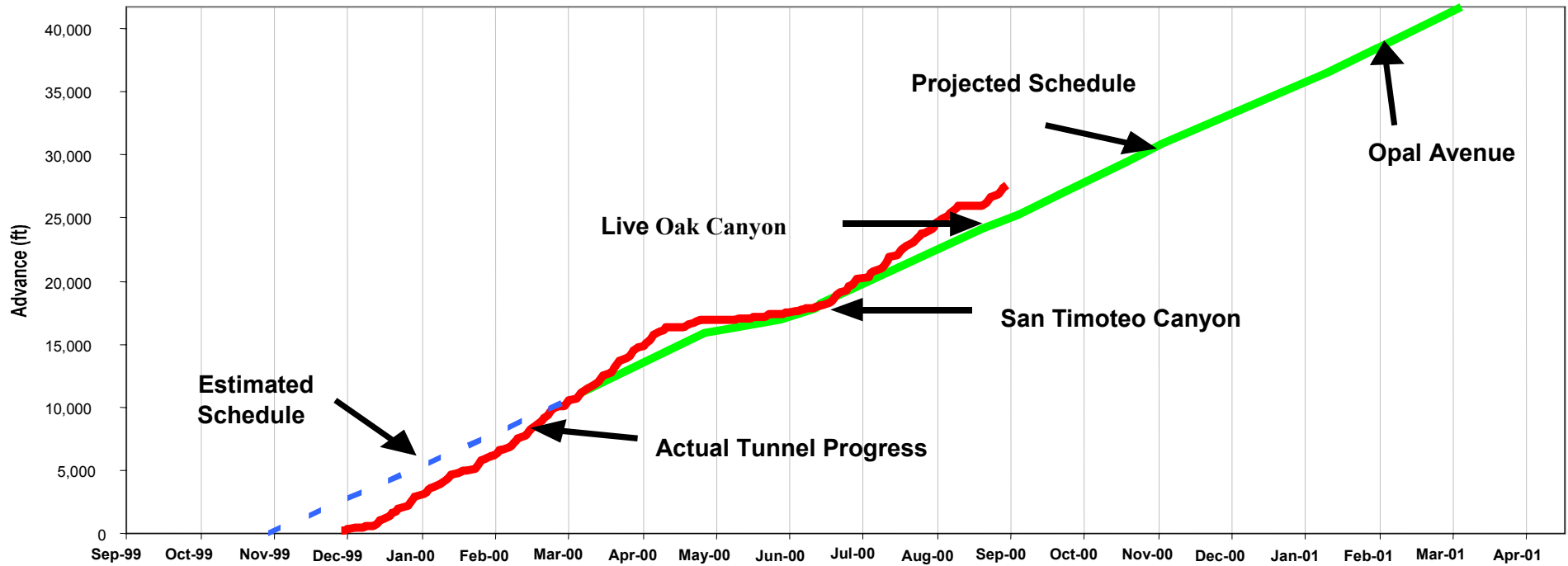
	9/18/2000
Roy L. Wolfe Manager, Corporate Resources	Date

	9/27/2000
Ronald R. Jester General Manager	Date

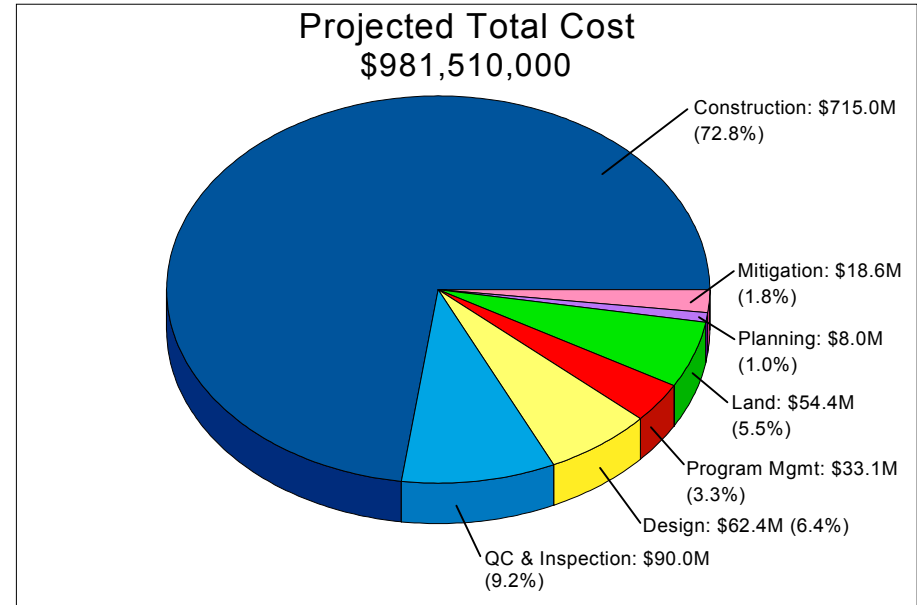
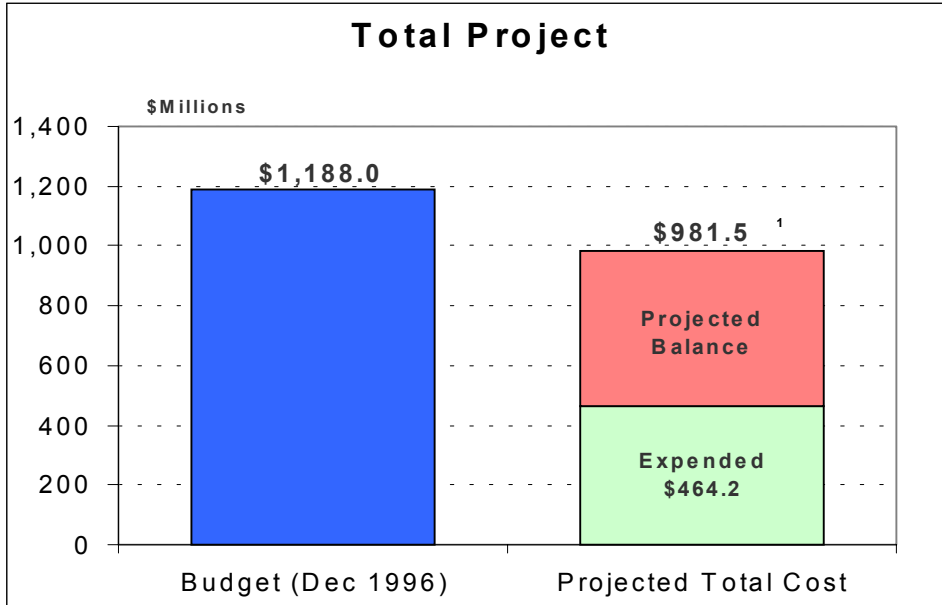
[Attachment 1 – Riverside Badlands Tunnel tunneling progress](#)

[Attachment 2 – Financial Summary](#)

[Attachment 3 – Budget and Schedule Summary](#)

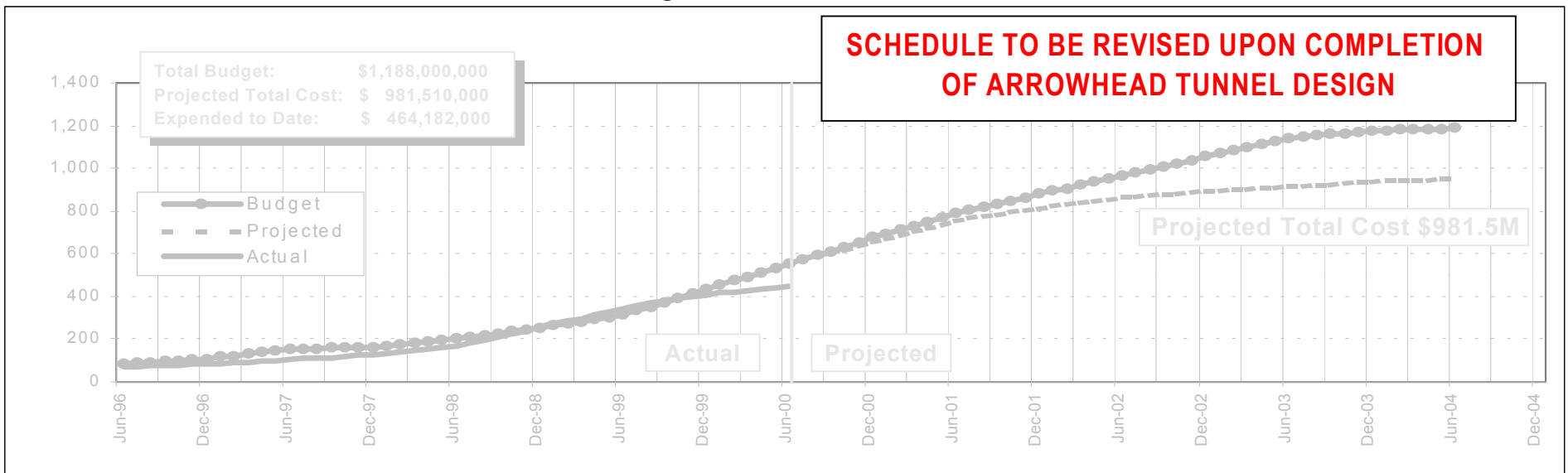


# Financial Summary



1. Based on knowledge of current field conditions.

# Project Cash Flow



### Budget Comparison and Schedule Summary

	INITIAL AUTHORIZATION (DEC-96)	PRELIMINARY REBASELINE (JUN-2000) <sup>(1)</sup>	VARIANCE (JUL-00)	ACTUALS THRU (JUL-00) <sup>(2)</sup>	PROGRESS		COMPLETION DATE		COMMENTS
					PLANNED	ACTUAL % COMPLETE (JUL-00) <sup>(4)</sup>	CONTRACT (5)	FORECAST (JUL-00)	
<b>Construction Reaches</b>									
Arrowhead West Tunnel	\$ 200,450,000	\$ 211,728,000	\$ (11,278,000)	\$ 54,195,000	----	25%	Dec-02	T.B.D.	On hold.
Arrowhead East Tunnel	\$ 184,550,000	\$ 281,607,000	\$ (97,057,000)	\$ 111,952,000	----	38%	Jan-03	T.B.D.	On hold.
Highland Pipeline <sup>(3)</sup>	\$ 95,230,000	\$ 57,199,000	\$ 38,031,000	\$ 6,670,000	0%	0%	-----	T.B.D.	In Design.
Mentone Pipeline	\$ 74,140,000	\$ 35,056,000	\$ 39,084,000	\$ 17,803,000	18%	30%	Mar-02	Oct-01	Under construction.
Riverside Badlands Tunnel	\$ 204,300,000	\$ 142,534,000	\$ 61,766,000	\$ 75,889,000	42%	59%	Aug-03	Apr-02	Under construction.
Riverside North Pipeline	\$ 106,840,000	\$ 57,984,000	\$ 48,856,000	\$ 55,204,000	100%	100%	Completed	Nov-99	Completed Nov. 99
Riverside South Pipeline	\$ 77,200,000	\$ 42,358,000	\$ 34,842,000	\$ 42,341,000	100%	100%	Completed	Aug-99	Completed Aug. 99
<b>Construction Support</b>									
Right-of-Way and Land	\$ 47,830,000	\$ 54,448,000	\$ (6,618,000)	\$ 38,337,000	-----	70%	-----	-----	-----
Environmental Planning/Mitigation	\$ 10,960,000	\$ 18,598,000	\$ (7,638,000)	\$ 10,219,000	-----	55%	-----	-----	-----
Owner Controlled Insurance Prog.	\$ -	\$ 38,889,000	\$ (38,889,000)	\$ 15,608,000	-----	40%	-----	-----	-----
Study/Initial Planning	\$ 8,024,000	\$ 8,024,000	\$ -	\$ 8,024,000	-----	100%	-----	-----	-----
Program Management	\$ 20,170,000	\$ 33,085,000	\$ (12,915,000)	\$ 16,377,000	-----	49%	-----	-----	-----
<b>Projected Total Cost</b>	<b>\$ 1,029,694,000</b>	<b>\$ 981,510,000</b>	<b>\$ 48,184,000</b>	<b>\$ 452,619,000</b>					
<b>Remaining Budget</b>	<b>\$ 158,306,000</b>	<b>\$ 206,490,000</b>							
<b>Total Approved Budget</b>	<b>\$ 1,188,000,000</b>	<b>\$ 1,188,000,000</b>	<b>\$ 48,184,000</b>						

(1) Based on 30% design for Arrowhead Tunnels

(2) Actuals for construction reaches include design costs

(3) Expenditure for design which is at 90%. Once design has been completed, construction bidding will be placed on hold once work on the Arrowhead Tunnels is scheduled.

(4) Based on work complete for construction reaches and \$ expended for construction support

(5) Based on original contract duration and approved extensions

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

