



Metro

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May 25, 2016

TO: BOARD OF DIRECTORS

THROUGH: PHILIP A. WASHINGTON *PAW*
CHIEF EXECUTIVE OFFICER

From: RICHARD CLARKE *RFC*
EXECUTIVE DIRECTOR, PROGRAM MANAGEMENT

**SUBJECT: METRO GOLDLINE I-210 FREEWAY BARRIER REPLACEMENT
PRELIMINARY ESTIMATES AND PHASED CONSTRUCTION**

ISSUE

This Board Box is intended to provide responses to questions raised by the Board of Directors during the Construction Committee Meeting of Thursday, May 19th, 2016. Specifically, staff was requested to provide a construction cost estimate for the project and to consider phasing the construction of the Metro Gold Line Interstate I-210 median barrier replacement project, as well as address potential funding sources.

The Metro Gold Line Interstate I-210 median barrier replacement project proposes to replace the existing deficient barriers for the section of the I-210 freeway protecting the Metro Gold Line Right of Way, bound between Marengo Avenue to the west thru to the Iconic Bridge structure at the east. The overall alignment is approximately six miles long and includes twelve bridges, signaling cabinets, bungalows and cases, duct banks as well as three Metro Gold Line Stations (Lake, Allen and Sierra Madre Village). Some of the barriers are installed on retaining walls, requiring a more expensive construction, while others are installed on grade making them easier and economic to install.

DISCUSSION

It is recognized that developing this project as one single Contract as opposed to dividing the project construction into several phases, will be more economic, less expensive and less disruptive to the operation of the Gold Line and to the traffic on the I-210 Freeway. However should the Board decide to phase the project, Metro staff has reviewed the different sections of the alignment project and developed a phased construction concept to allow for incremental funding of the barrier replacement. The overall project has been divided into five (5) smaller phases whereby the barriers may

be replaced sequentially as opposed to all at once. Staff has determined that the barriers can be replaced in five (5) phases. The phase sequencing has been prioritized with the goal of maximizing public safety. The estimates provided in this Board box are preliminary in nature as they rely on the conceptual design developed in house by Metro Engineers. They will require validation at the end of the Final Design Phase. The LOP for the Final Design phase is submitted for approval by the Board at the May 2016 Board, under Item No 36.

Phase 1: Stations and Bungalows. LOP Preliminary Estimate: \$24.6 Million

The first (1st) phase will replace both the east bound and west bound barriers at each of the Lake, Allen and Sierra Madre Village Stations as well as at identified 'critical equipment' locations. These barrier sections were selected first due to their importance for life safety and operational functions. The barriers immediately adjacent to the stations provide protection to the large number of patrons and trains which linger longer at these locations. Critical equipment has been included in this phase of the project due to the vital operational functions that this equipment serves as well as the long replacement times required for the components should they be damaged. The list of Critical Equipment includes Train Control or Signaling Cases and Bungalows.

Phase 2: Bridges. LOP Preliminary Estimate: \$15.2 Million

Next ((2nd) phase), staff recommends that the barriers at the 12 bridge crossings along the alignment be replaced. At these locations, there is a gap between the highway bridge and the railway bridge. Risks associated with an incident on a bridge structure is potentially higher and may cause damages to the bridge structure resulting in a potential halt to the operations of the Goldline and the I-210 Freeway on the bridge until it is repaired.

Phase 3: Curved alignment. LOP Preliminary Estimate: \$8.8 Million

The third (3rd) phase would involve replacement of approximately 7000 feet of barriers between San Gabriel Blvd. and Sierra Madre Villa Avenue. Crash statistics provided by Caltrans appear to indicate a slight clustering of the number of collisions near the beginning and ends of the horizontal curves (roadway bends) along this section of the alignment. Therefore, due to the slightly higher probability of impact at these locations this section has been identified for phase three.

Phase 4: Standard Barriers. LOP Preliminary Estimate: \$36.3 Million

Where the Gold Line Trains are not running at the same elevation as the adjacent roadway, the median barriers are mounted to the top of an existing retaining wall. The barrier on these retaining walls cannot be easily replaced without costly reinforcement of the retaining wall. In order to replace the barrier without reinforcing the existing retaining wall, we use "moment slab" barrier whereby a concrete slab is installed in the roadway and the new enhanced barrier is mounted on that slab.

This segment of work (phase 4) will replace over 29,000 feet (5½ miles) of standard barrier which do not require a moment slab and which can be essentially removed and replaced.

Phase 5: Barriers on Retaining Walls. LOP Preliminary Estimate: \$60.1 Million

For the fifth (5th) and final phase of the project, all of the remaining moment slab barriers will be replaced. The moment slab barriers will require more planning and coordination with Caltrans as the nearest highway lane will need to be temporarily closed during construction of the moment slab.

FINANCIAL IMPACT

Pending the findings of the Risk Assessment Study and the development of more detailed cost estimates in Final Design, the total funding commitment to construct the Metro Gold Line Interstate I-210 median barrier replacement project is currently estimated at \$145 million. Metro staff will be working with Caltrans to determine what, if any of these costs, may be shared with the State of California through funding programs such as the State Highway Operation and Protection Program (SHOPP).

Metro staff recognizes the priority of delivering the barrier replacement project in support of safety on the Gold Line. Considering that part of the alignment where the barriers need to be replaced is on the Foothill segment of the Goldline, Metro will also pursue the possibility of using any remaining fund available at the Foothill Construction Authority, to cover part of the cost of the project.

Based upon existing and planned funding commitments in the Long Range Transportation Plan (LRTP) as well as fund source eligibility, Metro staff anticipates the need to fund partially Metro costs of the barrier replacement project with Proposition C 25% funds.

CONCLUSION

Should the Board approve the Final Design LOP recommended by staff to the Board approval in Board Item No. 36, Metro staff plans to return to the Board at the conclusion of that Design Phase and Risk Assessment Study. More refined Construction Cost Estimates and Life of Project Budgets Costs will also have been developed at the end of that Final Design phase. Based on the findings of the Risk Assessment Study, the Project Report conclusions, the construction cost estimates and the availability of the funding; Metro staff will propose a strategy to the Board for approval which will either recommend that the entire project be completed as one complete contract, or that the project construction be divided into several phases as described in this Board report.

ATTACHMENTS

Attachment A – Barrier Replacement Cost Estimate- Phased Construction

Attachment A:

Phased Barrier Replacement

Preliminary Cost Estimate



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Metro Gold Line I-210 Freeway Barrier Replacement Project
Phased Construction:

PROJECT PHASE:	LOCATION:	LENGTH: ft.	SEGMENT COST: (\$/ft.)	LOP ESTIMATE:
1	Stations and Critical Equipment	7300	3375	24.6 Million
2	Bridges	4504	3375	15.2 Million
3	Tight Radius Curve Sections (San Gabriel Blvd. to Sierra Madre Villa Ave.)	7000	1250	8.8 Million
4	Remaining Sections (except on retaining walls)	29058	1250	36.3 Million
5	Remaining Sections (on retaining walls)	17818	3375	60.1 Million
TOTAL:		65680		145 Million