

**Metro**

Los Angeles County
Metropolitan Transportation Authority

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April 20, 2020

Ms. Laura Cornejo
Director of Transportation
City of Pasadena
100 North Garfield Avenue
Pasadena, CA 91101

Re: Initial Assessment of Gold Line Grade Separation at California Boulevard Project

Dear Ms. Cornejo:

The Los Angeles County Metropolitan Transportation Authority (Metro) Board of Directors at its November 2018 and September 2019 meetings approved and programmed funding for more than 100 eligible State Route 710 North Mobility Improvement Projects (MIPs). Implementation of the MIPs will reduce congestion and improve mobility on local streets overburdened by traffic resulting from the absence of the SR-710 freeway between Interstates 10 and 210.

A total of \$230,500,000 in Measure R funds was allocated to the City of Pasadena (City) to complete the environmental, design, right-of-way (ROW), and construction phases of the Gold Line Grade Separation at California Boulevard MIP. Last year, Metro and the City established joint meetings to discuss the geometrics, ROW, utilities and operational impacts/constraints associated with the project. At the request of the City, Metro took the lead in identifying the risks and opportunities, the viability of the project, and the path forward.

The purpose of this correspondence is to summarize and document Metro's initial assessment of the three conceptual design alternatives that were studied to grade separate the Gold Line at California Boulevard. The documents used in the identification and assessment of the various alternatives for this project are enclosed.

The various alternatives studied and discussed with the City are summarized below.

1. Alternative No. 1 Rail Over Roadway Alternative - the rail profile joins south of the Fillmore Station, requiring the station to be reconstructed and raised by 9 feet. This alternative would adversely impact transit operations and would be very costly to build; therefore, it is not recommended.
2. Alternative No. 2 Rail Under Roadway Alternative - the rail profile joins north of the Fillmore Station resulting in long transition but no reconstruction of the station; and lowering of the track increases the potential for significant utility conflicts. This alternative would adversely impact the schedule because many utilities will have to be relocated and would be very costly to build; therefore, it is not recommended.

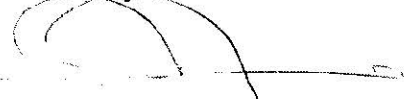
3. Alternative No. 3 Rail Over and Depressed Roadway (Hybrid) Alternative - the rail profile joins north of Fillmore Station (no station reconstruction needed) but the roadway would have to be depressed by approximately 3.5 feet to reduce the length of transition. This alternative had the smallest footprint, possessed the least overall impacts, and would be the least expensive to build; therefore, it is recommended over the other alternatives.

The rough order of magnitude cost estimate for Alternative No. 3 is over \$577,000,000. Given the SR-710 funds allocated by Metro to each MIP are on a one-time basis, there are insufficient funds to pay for further studies, design, and implementation of Alternative No. 3.

Please note that the comments given for each alternative are high level – obviously there's much more to each. We also explored the implementation of a shoofly vs. bus bridge during construction to maintain continuity of service. Construction of a shoofly will have significant property impacts and cost and will result in a longer project schedule. A bus bridge of this long duration would be impractical because of the disposition of vehicles vs. yard capacity. These items will be further studied if this project is advanced in the future.

Please feel free to contact Michelle Smith, Metro's SR-710 Program Manager, at (213) 922-3057 or SmithMi@metro.net if we can be of further assistance.

Sincerely,



Abdollah Ansari
Senior Executive Officer
Program Management – Highway Program

Enclosures

- Attachment A - Project Limits
- Attachment B - Conceptual Design Alternative Assessment (Working Notes)
- Attachment C - Profiles
- Attachment D - Typical Cross Sections
- Attachment E - Utilities Impact Matrix
- Attachment F - Utility As-Builts (Pasadena Blue Line)
- Attachment G - Track Work As-Builts (Pasadena Blue Line)
- Attachment H - Rough Order of Magnitude Estimate (Hybrid Alternative No. 3)

c: Bryan Pennington, Deputy Chief Program Management Officer
Steve Gota, EO, Highway Program
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Review of Metro's Initial Assessment of Gold Line Grade Separation at California Boulevard Project

Background

Metro prepared and sent to the City of Pasadena a report titled "Initial Assessment of Gold Line Grade Separation at California Boulevard Project," see Attachment A. The Metro assessment includes a discussion of three design alternatives considered and a rough order of magnitude (ROM) for the deemed best design alternative at a cost of \$577 million in 2020 dollars. The letter identifies that there are two options to maintain Gold Line service during construction: the first being a shoofly and the second being a bus bridge. The letter identifies the shoofly as resulting in higher costs due to the cost of the shoofly and property acquisitions. The letter vaguely dismisses the use of a bus bridge based on disposition of vehicles vs yard capacity. It should be noted that even though Metro vaguely dismisses the bus bridge they included almost \$19 million in their ROM for an eight-month bus bridge. The letter concludes there are insufficient funds to pay for further studies, design and implementation of the deemed best alternative given the ROM of \$577 million exceeds the available funds of \$230 million.

The City of Pasadena requested a review of the Metro Initial Assessment of Gold Line Grade Separation at California Boulevard Project. The results of that review are provided below.

Findings

The design alternative (Alternative No. 3) deemed the best by Metro does appear to be the best alternative for the existing physical constraints. The ROM of \$577 million is based on the implementation of a shoofly, which results in the acquisition of a substantial amount of property and results in significant costs due to the demolition and reconstruction of a portion of Raymond Avenue as well as the construction and demolition of a temporary Filmore station. This approach to building the grade separation at California is extremely costly. By simply eliminating the shoofly and using an eight-month bus bridge instead, the Metro ROM goes from \$577 million to \$168 million. Some right-of-way should be acquired to facilitate the construction of the project so it is suggested to add an additional \$15 million for this right-of-way acquisition bringing the modified Metro ROM to \$183 million. This ROM of \$183 million simply uses Metro's costs and only eliminates the costs of the shoofly and right-of-way costs associated with the shoofly and then adds in \$15 million for some right-of-way for laydown and access. Please see Attachment B for a cost breakdown and comparisons of these two approaches.

In an attempt to verify an eight-month bus bridge is sufficient and to verify the modified Metro ROM (no shoofly) of \$183 million is reasonable, a contractor independently analyzed and prepared a ROM for the construction portion of the grade separation at California. The contractor's ROM was approximately \$20 million less than the modified Metro ROM (no shoofly). This provides a level of confidence that the modified Metro ROM (no shoofly) is a reliable number.

At its May 2020 meeting, Metro authorized staff to proceed with the preliminary engineering and final design of an almost identical grade separation on its soon to be completed Crenshaw line (refer to Attachment C). The Crenshaw grade separation is at the Florence/Centinela crossing, and with the few exceptions is identical to the California grade separation. The following lists important comparisons notes between the two grade separations:

- Crenshaw and California bridge structure are approximately the same length

- Crenshaw's retained approach is 50% longer than the one at California Boulevard
- Crenshaw's track is approximately 150% longer than that at California Boulevard
- California Boulevard roadway will be lowered approximately 3ft while no roadway lowering is required on the Crenshaw grade separation
- Crenshaw's shoofly option does not require right-of-way acquisition or demolition of existing buildings

Metro developed several alternatives for the Crenshaw grade separation and is currently evaluating three. One alternative (1A) is using a shoofly, the second alternative (1B) is using bus bridging and the third alternative (1C) involves delaying the completion of the Crenshaw line to perform the grade separation prior to the line opening. Metro's Crenshaw grade separation study includes a ROM for alternative 1B at approximately \$200 million inclusive of bus bridging, all project soft cost, contingencies, and other direct and indirect costs. Metro's alternative 1B for Crenshaw is almost identical to the modified Metro ROM for the California Boulevard grade separation. This provides further confidence that the modified Metro ROM for California Boulevard grade separation of \$183 million is a reliable number.

Recommendations

Based on the additional cost of the shoofly, it is recommended that a bus bridging approach be used at California Boulevard in the same manner as is being proposed in Alternative 1B of the Crenshaw grade separation. Using a bus bridging approach changes Metro's ROM to complete the California Boulevard grade separation from \$577 million to \$183 million using Metro's own cost estimate. Given that this ROM of \$183 million has been verified to be accurate by an independent contractor's estimate and by Metro's Crenshaw ROM, it is further recommended that the California grade separation move forward to preliminary engineering and final design as Metro's Board has approved to be done on the Crenshaw grade separation.

Item Description	Rough Order of Magnitude Costs	
	Metro Estimate	Construction Authority Modified Metro Estimate
Guideway and Track Elements	\$47,571,475	\$47,571,475
Shoofly	\$117,000,000	\$0
Roadwork	\$8,000,000	\$8,000,000
Temporary Station/Crossovers	\$3,225,000	\$3,225,000
Sitework and Special Considerations	\$8,500,000	\$8,500,000
Construction Subtotal	\$184,296,475	\$67,296,475
Construction Contingency (20%)	\$36,859,295	\$13,459,295
Overhead (20%)	\$36,859,295	\$13,459,295
Profit (10%)	\$18,429,648	\$6,729,648
Construction Total	\$276,444,713	\$100,944,713
Soft Costs - Planning, Design, CM, etc. (38%)*	\$105,048,991	\$38,358,991
Unallocated Contingency (15%)	\$27,644,471	\$10,094,471
Bus Bridge (8-months)	\$18,375,000	\$18,375,000
ROW Acquisition	\$150,000,000	\$15,000,000
PROJECT TOTAL COSTS IN 2020 DOLLARS	\$577,513,175	\$182,773,175

* Soft Costs include:

- EIR/EIS Planning,
- Preliminary Engineering,
- Final Design Services,
- Project Management for Design and Construction,
- Construction Administration and Management,
- Professional Liability and other Non-Construction Insurance,
- Legal, Permits, Review Fees by other Agencies, etc.,
- Surveys, Testing, Investigation and Inspection,
- Flagging,
- Startup