



**Metro**

Metropolitan Transportation Authority

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**CONSTRUCTION COMMITTEE  
JUNE 21, 2007**

**PROJECT: PASADENA GOLD LINE**

**SUBJECT: CHINATOWN AERIAL STRUCTURE REPAIR OF SHEAR KEYS # 4, 5, 6.**

**ACTION: APPROVE RECOMMENDATIONS FOR REPAIRS**

**RECOMMENDATIONS**

- A. The Board finds that awarding a Design-Build contract will achieve for Metro, among other things, certain private sector efficiencies in the repair of Pasadena Gold Line Chinatown Aerial Structure cracked shear keys.

Requires 2/3 vote

- B. Authorize the Chief Executive Officer to award a non-competitive single source Design-Build contract to Brutoco Engineering & Construction, Inc. (BEC), in an amount not-to-exceed \$640,000, for Chinatown Aerial Structure final design and repair of cracked shear keys.

Requires 2/3 vote

- C. Approve Contract Modification Authority (CMA) in the amount of \$200,000 for possible modifications/change orders for future unforeseen field conditions.

- D. Approve an increase in the FY08 budget of \$540,000 from \$300,000 to \$840,000.

**RATIONALE**

The Chinatown aerial structure includes support structures, such as shear keys, that assist in the prevention of differential displacement movement during seismic events. Faces and sides of the shear key are to be separated from each other by specified distances.

Field observations have revealed that the concrete shear keys at hinges # 4, 5 and 6, on the track 1 guideway have developed cracks. Temporary netting has been placed under the cracked shear keys to prevent falling concrete. To determine the cause of the cracking and design appropriate repairs, it is necessary to remove broken concrete, and verify the size and location of reinforcing steel bars.

Staff has assessed the situation related to the Pasadena Gold Line (PGL) Aerial Structure and determined that a design-build contract is the most expedient method of delivery for repairing the structure. The major efficiencies and advantages are as follows:

- A single point of responsibility for design and construction.
- Metro's risk for the repairs is minimized, as the Design-Builder will be responsible for the design and construction to Metro's satisfaction.
- Schedule efficiency and shorter project duration because the Design-Builder's ability to perform design and construction activities simultaneously (i.e. scheduled duration for this project is approximately ten weeks).
- Savings in Metro's administrative cost by combining solicitation processes of design and construction, reduction in construction management and engineering support efforts during construction and reduction in contract closeout time.

The contractor Brutoco Engineering & Construction, Inc. (BEC) has successfully performed several contracts for Metro in the last few years (e.g. Metro Red Line Universal City Station Freeway Overcrossing over US 101 freeway and Site Restoration, Metro Red Line Bridge Widening at Lankershim Boulevard and Metro Orange Line Los Angeles River Bridge ). All of these contracts were successfully completed to Metro's satisfaction on time and within budget.

In addition, BEC will subcontract HNTB Corporation (HNTB) as the designer for these repairs. HNTB was the original designer and Engineer of Record for the Chinatown Aerial Structure for the Pasadena Gold Line Construction Authority construction contract. With these two contractors Metro staff is confident that a successful solution and repair will be accomplished without interruption to operating service.

A Contract Modification Authority for \$200,000 is being requested for unforeseen field conditions. Subsequent to the initiation of repairs and further inspection of the shear key areas (i.e. 4, 5 and 6) further inspections of shear keys 1, 2, and 3 will begin to locate any additional conditions detected that may require additional work to repair on an exigent basis.

### **FINANCIAL IMPACT**

The proposed FY08 budget includes \$300,000 for this service. The expenditures will be temporarily funded with Proposition C 25% Highway funds pending reimbursement by the Pasadena Gold Line Construction Authority.

The proposed FY08 budget will be amended to include an additional \$540,000 of expenditures and revenues to Project Number 809005 (Pasadena Gold Line Closeout), cost center 8510, Construction Contracts Procurement, Account Number 50316 Professional and Technical Services. The expenditures will be temporarily funded with Proposition C 25% Highway funds pending reimbursement by the Pasadena Gold Line Construction Authority.

## **ALTERNATIVES CONSIDERED**

The Board may reject staff's recommendation; however, further deterioration of the existing areas may continue at these and possibly other locations. Repairing the shear keys at this time should reduce further damage and restore full structural integrity of the guideway in the event of a major earthquake.

The Board may choose to accomplish these repairs by using Design-Bid-Build (DBB) method of delivery, but the following factors may increase the cost to Metro:

- Engineering and procurement efforts will be necessary to prepare the scope for the design contractor, design bid solicitation and project management.
- Upon completion of design, the efforts for construction bid solicitation, construction management and closeout activities will be necessary.
- The DBB method will take a significantly longer time and more expensive.

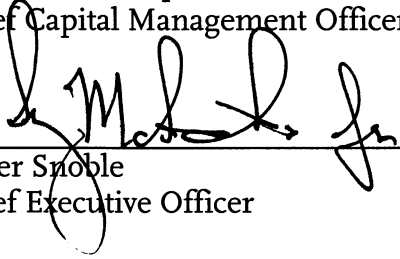
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for



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Richard D. Thorpe  
Chief Capital Management Officer



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Roger Snoble  
Chief Executive Officer