REPORT

OF THE

AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

PEER REVIEW PANEL

FOR

Los Angeles County Metropolitan Transportation Authority

Los Angeles, California

June 2003

A Service of the
APTA Safety Management Program

REPORT

OF THE

AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

PEER REVIEW PANEL

ON THE

DESIGN, STANDARDS, CRITERIA, AND COSTS OF DESIGN BUILD CONSTRUCTION

RELATIVE TO THE MID-CITY/EXPOSITION LIGHT RAIL TRANSIT PROJECT

OF

Los Angeles County Metropolitan Transportation Authority

Los Angeles, California

June 2003

PANEL MEMBERS
Al Fazio
Don Irwin
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W. P. Grizard

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TABLE OF CONTENTS

I. INTRODUCTION 1

II. FINDINGS AND RECOMMENDATIONS 4

III. CONCLUSIONS 7

APPENDIX .....

A - Review Request
B - Review Itinerary
C - Document Review

I. INTRODUCTION

On April 25, 2003 the Los Angeles County Metropolitan Transportation Authority (LACMTA) made a formal request to the American Public Transportation Association (APTA) for a peer review of its Mid-City/Exposition design build project, as LACMTA was in the process of extending its operation into the City of Santa Monica.

A schedule for conducting the review was developed through consultation between LACMTA and APTA staff. Through mutual agreement, it was determined the peer review would be conducted June 2-5, 2003. It was further agreed that the Panel would be comprised of individuals who are very familiar with building cost-effective rail transit using a design build methodology. The Panel consisted of the following members from transit systems.

Al Fazio
President & Chief Executive Officer
21st Century Rail Corporation
Hudson Bergen LRT
Jersey City, NJ

Don Irwin
Director of Project Implementation – Capital Projects Division
Tri-County Metropolitan Transportation District
Portland, OR

Dave Conover
Project Manager - Engineering Services Division
Sacramento Regional Transit District
Sacramento, CA

The Panel convened on June 2, 2003 in Los Angeles, CA. APTA Staff Advisor W. P. Grizard, Manager - Safety Audit Programs, provided Panel coordination and logistical support. Liaison for LACMTA was provided through Mr. Steven Brye, Project Manager – Pedestrian/Urban, Transportation Linkages, and facilitated by Mr. Stephen J. Polechronis, Senior Vice President, DMJM-Harris.

Methodology

The APTA peer review process has been established as a valuable resource to the transit industry for assessing the status of operations. As LACMTA's rail system was being extended into Culver City and eventually into Santa Monica, the agency determined it would be prudent to enlist a peer review to assess the methodology of providing a design-build approach to the project, to ensure that requisite standards, criteria, and costs were consistent with this approach.

The Panel conducted field observations, examined organization documents, and engaged in a series of briefings with staff from various departments within LACMTA, DMJM-Harris, and project team subcontractors and consultants to gain an understanding of the project in its current phase. Additional interviews were held with the FTA Project Management Oversight team to identify the federal role in this project. Field observations were also performed on the Pasadena Gold Line project to benchmark current project methods and standards.

Scope of Report

The Panel toured the Mid–City/Exposition Light Rail extension to view the intended alignment, the existing neighborhoods and traffic patterns, and intended LACMTA maintenance and station facility sites. Meetings and interviews were conducted with consultants, supervisory personnel, and staff. LACMTA staff provided presentations.

The Panel outlined the scope of work into the following two areas:

1. Review Design Standards:
   - Make recommendations on
     - Design Standards & Specifications
     - Engineering
     - Construction Costs
   - Relative to
     - Building cost effective Light Rail Transit
     - Urban Traffic Conditions
     - Community Mitigation

2. Assess Entire Budget:
   - Make recommendations on
     - Value Engineering
     - Cost Containment
   - Relative to
     - Experiences of Comparable LRT Systems
     - Budget of Comparable LRT Systems
     - Reducing Cost of MCE LRT Project

At the conclusion of the review, the Panel provided the senior project management of LACMTA with a summary of findings and recommendations at an exit conference. Those findings and recommendations are noted within this report.

II. FINDINGS AND RECOMMENDATIONS

A. GENERAL COMMENTS

The Peer Review Panel was very impressed with the professionalism of the agency personnel involved with the development of the Mid-City/Exposition Corridor. The management team and their consultants are highly motivated to present LACMTA a high quality, safe, and operationally successful addition to their system. The Panel found a number of talented, motivated and fully committed personnel on this phase of the project with a good grasp of the issues and challenges ahead. The design build team has depth, experience, transit insight, and community awareness – all the necessary ingredients needed in identifying and addressing the important issues appropriately in this stage of the project.

B. GENERAL RECOMMENDATIONS

1. Value to Project of Lessons Learned
   Incorporate Lessons Learned process from Pasadena Gold Line and other projects that have come on-line (San Fernando Valley Bus Rapid Transit, Eastside Light Rail Extension)

   - The Peer Review Panel recognizes and commends the early effort in this regard made by the project team, and the thoughtful implementation of the FTA Lesson Learned program in development of the project.
   - Incorporate, within the design, the lessons learned from PGL regarding operational constraints resulting from inadequate system elements such as SCADA, Headway design, PA systems, etc.
   - Use Lessons Learned to develop project controls over use of design criteria and services costs.

2. Agency Organizational Structure and Processes
   - Establish LACMTA Design Build lead person as early as possible
     - Establishes responsibility for overall Design Build delivery method
     - Facilitates integration of planning operations engineering, and construction
     - Capture Authority responsibility in Project Management Plan document
   - Develop and implement Design Build management procedures, and structure
     - Identify objectives for success
     - Resolve criteria and standards integration; i.e., how far to take design in PE
     - Focus on end product early to reduce costs of overall program
     - Establish a Project Action Team

- Consider independent reviews/sounding boards for:
  - Independent RFP review
  - Dispute Resolution Board
  - Industry Advisory Panel

3. Make Key Decisions NOW!
   - Downtown Alignment
   - Vehicle Procurement (Hi/Low, option timeframe)
   - Grade Separation Projects
   - Route to USC/Exposition

4. Cost Containment Process
   - Establish a special control process that is led by a LACMTA "empowered" official that is mindful of Safety, Regulatory, Functional and Performance criteria.
     - Although there is considerable effort already noted by the Panel in this area, no formal process that codifies and directs this effort was found
   - Typical areas where opportunities exist are:
     - Use of pre-cast kits for station platform structures
     - Use of grade 1 relay rail & wood ties, at Contractor's option
     - Modify duct bank standard or utilize precast tray
     - Use of AFO track circuits
     - Relax interoperability requirements
     - Permit Center/Side/Split Platform designs
     - Shallow design for embedded track
     - Improvement of crossover specification to enable future high speed
     - Provide for express service by laying out 2 minute theoretical headway
     - Joint use of poles
     - Standardization of station platform core structure and canopy

5. Comprehensive Operating Plan before RFP
   - Vision of System Operation
   - Express Service
   - Short Turn Service
   - Headway and Operating Speeds/Average speed
   - Future extension and capacity upgrades
   - Yard – Inspection, running repair or shop
   - Single track or passing track operations

6. Management of Entire Program to a Budget
   - Validate Baseline Budget
   - Establish Change Controls to fit Design Build parameters
   - Establish Configuration Management
   - Evaluate LRV option package
   - Define realistic cost to complete
   - Examine the Draft Schedule for opportunities to reduce project cost

- Establish a Project Contingency that includes Scope contingency to deal with scope creep over the life of the project.
- Carefully watch the Design Build implementation: the 15% contingency is tight for a Design Build project.

7. Safety

- The Peer Review Panel commends MTA efforts on hazard management, including:
  - Historical data review
  - Risky behavior observation
  - Prototype application
  - Focus on safety
  - Eliminate, mitigate, warn approach
  - Safety hazard/risk analysis of each intersection

- Comments:
  - For cost control, consider application of curb median to prevent a vehicle from bypassing a gate, before the application of Quad Gates;
  - Channelizing – to be effective should not be easily defeated by risky behaviors; consider if easily defeated, e.g. – auto or ped gates, in conjunction with other treatments;
  - The Bike lane incorporated into ROW is a unique feature and deserves special attention to minimize hazards along the route;
  - Focus on Rodeo/Exposition intersection to eliminate and mitigate the hazards.

8. Risk Allocation Policy and Process

- A Fair and Reasonable management methodology is required for a Design Build project and should take into account:
  - Geotech
  - Utilities
  - Hazardous Materials
  - Permits
  - Jurisdictional Impacts
  - Parkway concept
  - CPUC Coordination
  - OCIP

9. The Commissioning Process

Requires close integration and long term planning to ensure schedule is not adversely affected and successful revenue service is achieved.

- Testing
- Start-up
- Safety Certification

III. CONCLUSIONS

It was apparent to the Peer Review Panel that LACMTA is strongly committed to a safe, cost effective, and successful design build project; and the request for this review was indicative of the organization's diligence for continued improvement. It was also apparent to the Panel that considerable attention had been given to the design build method to keep the project on time and within a cost constrained budget.

Through the extensive observations and findings of the Panel, it was determined there existed several immediate issues critical to the project that affect cost, schedule, and character of the project. There are, however, a number of findings and recommendations contained within this report that are offered to enhance and strengthen the future operations of the alignment, as well as some that identify a need to clarify management oversight and processes. LACMTA management should review the recommendations that are provided in this report in order to determine their merits for adoption and application.

Sincere appreciation is extended to LACMTA staff and to DMJM-Harris for the professional and courteous support extended to the Panel throughout the review. The Panel will stand available to clarify any questions regarding the recommendations or any other part of this report.

APPENDIX

APPENDIX A

April 25, 2003

Metropolitan
Transportatio
n Authority

**One Gateway
Plaza Los
Angeles,** CA
90012-2952

Mr. Tony Konneski
Vice President, Member Services
American Public Transportation Association
1666 K Street NW
Washington D.C. 20006

Dear Mr. Konneski,

I am writing to request your assistance in establishing a Peer Review Committee and Process for the Los Angeles County Metropolitan Transportation Authority's (MTA) Exposition Corridor Light Rail Transit Line.

MTA staff Have received direct instruction from the MTA Board Of Directors that:

"We therefore move that once the preliminary engineering contract is finalized, an independent peer review panel be immediately convened to review MTA's design standards and make recommendations to bring the design, engineering and construction costs of this project in line with comparable projects. Participants should include high level project managers from other properties with experience in building cost effective light rail systems and should be familiar with urban traffic and community mitigation issues. The recommendations of the peer review panel should be presented to the MTA Board for review and approval.

We further move that the MTA shall use this peer review panel to reassess the entire budget for the Exposition Light Rail line and make recommendations to reduce the cost of this project through value engineering, cost containment and by using the budgets and experiences of comparable light rail systems.

Lastly, we move that the peer review panel should meet at important milestones during the preliminary engineering of this project and their findings should be presented to the MTA Board for review."

The above MTA Board Motion constitutes exactly what MTA wants reviewed. As the Motion indicates, MTA may wish to fund return meetings of the Peer Review Panel at one or more additional milestones during the preliminary engineering of the Exposition Light Rail Project. This would match the excellent Peer Review effort which APTA Provided for the MTA Eastside Corridor Light Rail Project.

MTA staff wishes to hold the initial Exposition Corridor Light Rail Transit Project Peer Review in the first half of June 2003. In support of this we are primarily suggesting peer review light rail systems that are low cost and from the West Coast. However we will work with Greg Hull of your staff and if a late June 2003 meeting is necessary MTA Staff believes that this could still perhaps be made to work with an MTA Staff Board Report in July as currently scheduled.

Thank you for your attention to this matter. I will continue to work with Greg Hull.

Please all mfyouh ae any qst ons at breni m at bEyesteven(Fd,mta.ne .

Yours Truly

S@teve rye
Project Manager

cc: Greg Hull

Attachment: Preliminary MTA Suggestions for Peer Review Systems

FILE

2002 BOARD ACTIONS AND PROCEEDINGS

SEffEMBER261,2002

9. APPROVED:

A. negotiation and execution of a Cost-Plus-Fixed-Fee (CPFF) contract with DMJM+Harris for the **Mid-City/Exposition Light Rail Transit (LRT) Project Preliminary Engineering Design Services** for an amount not to exceed $16,241,078; and

B. deferring exercise of any contract options for design of below-ground segments pending separate review and approval by the Board.

FASANA, O'CONNOR & YAROSLAVSKY AMENDMENT:

That once the preliminary engineering contract is finalized, an independent peer review panel be inunediately convened to review MTA's design standards and make recommendations to bring the design, engineering and construction costs of this project in line with Comparable projects. Participants should include high level project managers from other properties with experience in building cost effective light rO system's and should be familiar with urban traffic and community mitigation issues. The recommendations of the peer review panel should be presented to the MTA Board for review and approval.

Further that the MTA shall use this peer review panel to reassess the entire budget for the Exposition Light Rail line and make recommendations to reduce the cost of this project through value engineering, cost containment and by using the budgets and experiences of comparable light rail systems.

Lastly, that the peer review panel should meet at important milestones during the preliminary engineering of this project and their findings should be presented to the MTA Board for review.

46

EXECUTIVE MANAGEMENT & AUDIT COMMITTEE
NOVEMBER 21, 2002

MOTION BY DIRECTOR YAROSLAVSKY AND DIRECTOR BURKE

At its September Meeting, the MTA Board approved a motion directing staff to convene a peer review panel to evaluate all design standards and specifications for the

ExposRion light rail project. This panel was to be convened immediately after the preliminary engineering contract was finalized. The purpose of the motion was to make sure that the preliminary engineering incorporated a more cost-efficient design and to ensure that value engineering on the project took place as soon as possible.

Further, the MTA needs to take a proactive approach to design/build projects and make sure that its internal structure and organization can accommodate this new way of building capital projects. The separate planning, procurement, design and construction processes fit better with design, bid and build projects but don't work as well when implementing design/build projects. It is important that MTA staff evaluate the organizational structures of other transit agencies that have recently implemented successful design/build rail projects to see if those structures can be emulated here.

We therefore move that the MTA work with the preliminary engineering consultant to immediately convene a peer review panel to assess the design specs and standards for the Expo line. MTA staff should report back during the January committee cycle on the progress made by the peer review panel and the panel's recommendations should be presented to the MTA Board and incorporated into the preliminary engineering.

We further move that the MTA staff look at the internal structures of other transit properties that have built successful design/build rail lines and report back to the Board on internal changes that can be made to better implement design/build projects in the future.

We also move that no new RFPs for consultants or professional services contractors for the Expo line be developed or issued without approval by the MTA Board.

Los Angeles County Metropolitan Transportation Authority

Mid-City Exposition Corridor
Light Rail Transit Project

Peer Review Agenda

MondU June 2, 2003
> 6:30 p.m. - Dinner MTA Staff/Peer Review Group at Wilshire Grand Hotel

Tuesdqy June 3, 2003
)@- 8:30 a.m. - Introduction to the Exposition Corridor Light Rail Transit Project by MTA Staff and Consultants at 707 Wilshire Blvd. (Aon Building)

);- 10:30 a.m. to 12:00 noon - Tour of the Alignment **for** Peer Review Group

~ 12:00 to 1:00 p.m. - Lunch catered at 707 Wilshire Blvd.

)@- 1:00 to 5:00 p.m. - Peer Review Members conduct Interviews with key MTA and Consultant Staff

Wednesdgy June 4, 2003
@- 8:30 A.M. to 12:00 noon: Additional interviews or Peer Review meet

)@- 12:00 to 1:00 p.m.: Lunch

)@- 1:00 to 5:00 p.m. - Peer Review Team, meet or added interviews as needed

Thursdgy June 5, 2003
));- 8:30 a.m. to 12:00 noon - Peer Review Team, interviews or meet as needed

> 12:00 noon to 1:00 p.m. - Lunch

));- 1:00 - 4:00 **p.m.** - Peer Review presentation to Senior MTA staff

Document Review List

Peer Review Scope, Board Resolution #9 - September 26, 2002
" Board Executive Management & Audit Committee Motion - Nov 21, 2002 Mid-City/Exposition Light Rail Transit Project Schedule - March 2003
Mid-City/Exposition Light Rail Transit Project Update - November 2002 Mid-City/Exposition Light Rail Transit Project Map
Mid-City/Exposition Light Rail Transit Project Conceptual Plan, Profile, Stations, & Sections, - October 2002 - Korve Engineering
Mid-City/Exposition Light Rail Transit Project Supplemental Conceptual Engineering Drawings - February 7, 2003 - Korve Engineering
Exposition LRT Corridor Project Draft Capital Cost Comparison - June 3, 2003 - MTA Mid-City/Exposition Light Rail Transit Project Construction Cost Estimate Information, 7 parts - DMJM Harris - 6/2/2003
MTA System Wide Design Criteria, R 92-DE 309-01
Exposition LRT Supplemental Grade Crossing Mitigation Analysis - Draft June 2003 - Korve Engineering
MTA Baseline Document R92-DE 306.01 Standard Drawings - Trackwork
Project Implementation Plan, Mid-City/Exposition Light Rail Transit Project, Engineering Design Services - DMJM Harris - April 14, 2003
MTA Comparison Chart LRT Operating Costs, 12 Selected LRT Agencies, National Transit Database, 2000
Mid-City/Exposition Light Rail Transit Project Management Plan - November 2002 Mid-City/Exposition Light Rail Transit Project PE Team Recommendation for Peer Review
Mid-City/Exposition Light Rail Transit Project MTA Staff Analysis, Potential Cost Savings - Draft, June 2, 2003
Mid-City/Exposition Light Rail Transit Project Peer Review Project Status Presentation, Environmental and Preliminary Engineering - June 2003.
Project and Construction Management Guidelines, US DOT FTA - June 1996 Mid-City/Exposition Light Rail Transit Project, Design Organization Chart - April 15, 2003 Mid-City/Westside Transit Corridor Draft EIS/EIR - April 6, 2001 - MTA
Exposition LRT Monthly Report Part I - March 2003, April 2003 FTA Project Management Oversight Program