Communication Based Overlay Signal System Project Status

Board of Directors
Nov. 1, 2012

Background

• Issue Communications Based Overlay Signal System Design/Procure/Install Turn-key RFP - August 2010
• Awarded Prime Contact - October 2011
• Executed a Service Agreement with California High Speed Rail Authority (HSR11-04) for Federal Railroad Administration Funding – December 2011
• Issued Notice to Proceed (NTP) to Parson Transportation Group - January 27, 2012
• Executed Fiber Optic Option - April 26, 2012
CBOSS Project Requirement

Positive Train Control (Rail Safety Act 2008)
- Prevent Train to Train Collisions
- Prevent Overspeed Derailments
- Prevent incursions into established work zones
- Prevent movement through a misaligned switch

Additional Requirements:
- Enhanced Crossing Safety / Performance
- Improved Headways and Operational Flexibility
- Enforcement of Scheduled Station Stops
- Schedule Management
- Employee In Charge

Design/Install System Turn-Key Contractor Scope of Work
- Subsystem and System Design & Integration
- Procurement of Materials and Equipment
- Installation / Testing / Commissioning
- Training, including Cab Simulator
- Backup Central Control Facility
- FRA Certification and Documentation
- Project Management
- Warranty
- Long-term Support
CBOSS Project Solution Overview

- Interoperable Train Control Compliant Solution
- Onboard and Wayside – Incremental Train Control System Supplied by GE Transportation (Off the Shelf Product)
- Back Office Server Supplied by WABTEC
- Backup Central Control Facility with an ARINC Office System
- PTC Data Communication Network with a Fiber Optic Backbone

Fiber Optic Network Benefits

- Immediate Benefits are for Caltrain CBOSS Project
  - Faster Data Transfer Capability between all PTC Subsystems
  - Increase Bandwidth for Greater Data Capacity
- Medium to Long Range Benefits for JPB
  - Improve Communication Reliability by Replacing Leased Lines along the Right of Way
  - Supports Numerous High Bandwidth Data Applications at Stations and JPB Facilities (Passenger Information, Security, Fare Collection)
  - Supports Future Traction Power System for Electrification
- Revenue Generation Opportunities for JPB
  - Fiber/Conduit Lease
Contract Phasing

- Required to Support Project Funding Strategy
- Base Contract (Phase 1) – Notice to Proceed through CBOSS PTC Subsystem and System Critical Design (Includes Bond)
- Option 1 (Phase 2) – Subsystem and System Final Design, Factory Acceptance Test and Installation of Data Communication Subsystem with Fiber Optic Network Backbone
- Option 2 (Phase 3) – Remaining Subsystems and System Procurement, Installation, Testing, Training, Certification, Commissioning, Acceptance and Includes One-year Warranty.

Phase 1 Major Accomplishments

- Completed Project Execution Planning
  - Approval of Project PEP
  - Project Baseline Schedule
  - Project Contract Deliverable Requirement List
  - Caltrain Interoperability Coordination Plan
- Prime Contract PTG Co-located at SF Caltrain Field Office
- Completed Project Preliminary Design & Approval
- Submitted Project PTC Development Plan to FRA
- Commenced Backup Central Control Facility Real Estate Search
Phase 1 Major Accomplishments

- Met with UPRR and Other Tenant Railroads for Establishing the Interoperability Coordination Plan Process and Working Groups
- Monthly Project Reviews with CHSRA-designated Consultant
- Submitted Deliverable Packages (Tasks 1, 2, and 3) to CHSRA/FRA that are in agreement with HSR11-04
- Met with FRA/CHSRA to Discuss Project Status and Addressed FRA Comments in September 2012
- Commenced System and Subsystem Critical Design

Project Phase 1 Milestones

<table>
<thead>
<tr>
<th>Description</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue Notice to Proceed</td>
<td>Jan 2012A</td>
</tr>
<tr>
<td>Submit PTCDP to FRA</td>
<td>Mar 2012A</td>
</tr>
<tr>
<td>Complete Project Execution Planning</td>
<td>Aug 2012A</td>
</tr>
<tr>
<td>Complete Preliminary Design and Approval</td>
<td>Oct 2012A</td>
</tr>
<tr>
<td>FRA approval of Type Approval Variance Report</td>
<td>Nov 2012</td>
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<tr>
<td>Complete and Approval of Critical Design</td>
<td>Mar 2013</td>
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## Project Phase 2 Milestones

<table>
<thead>
<tr>
<th>Description</th>
<th>Completion Date</th>
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<tbody>
<tr>
<td>JPB Board Approval for Option 1 (Phase 2)</td>
<td>Jan 2013</td>
</tr>
<tr>
<td>JPB Issue NTP for Option 1 (Phase 2)</td>
<td>Jan 2013</td>
</tr>
<tr>
<td>Complete Final Design and Approval</td>
<td>Sept 2013</td>
</tr>
<tr>
<td>Complete Fiber Backbone Installation</td>
<td>June 2014</td>
</tr>
<tr>
<td>Complete Data Communication Subsystem Installation</td>
<td>Oct 2014</td>
</tr>
<tr>
<td>Complete Factory Integrated System Demo</td>
<td>Sept 2014</td>
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</table>

## Project Phase 3 Milestones

<table>
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<th>Description</th>
<th>Completion Date</th>
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<tr>
<td>JPB Board Approval for Option 2 (Phase 3)</td>
<td>July 2013</td>
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<tr>
<td>JPB Issue NTP for Option 2 (Phase 3)</td>
<td>Aug 2013</td>
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<tr>
<td>Commence Wayside, Cab, Office Subsystems Installation</td>
<td>Nov 2013</td>
</tr>
<tr>
<td>Commence Pilot Segment Testing</td>
<td>Oct 2014</td>
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<tr>
<td>Commence Field Integrated Testing</td>
<td>Jan 2015</td>
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<tr>
<td>FRA Safety Certification</td>
<td>Sept 2015</td>
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<tr>
<td>System in Service</td>
<td>Oct 2015</td>
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<tr>
<td>Final System Acceptance</td>
<td>May 2016</td>
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### Project Total Installed Cost

<table>
<thead>
<tr>
<th>Description</th>
<th>Turn-Key Contractor Cost</th>
<th>Total Project Cost</th>
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<tbody>
<tr>
<td>Project Planning and Procurement</td>
<td>0</td>
<td>$4.6MM</td>
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<tr>
<td>Phase 1 - Contract NTP – Critical Design</td>
<td>$16.3MM</td>
<td>$25.3MM</td>
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<tr>
<td>Phase 2 - Final Design and DCS Installation Including Fiber Backbone</td>
<td>$35.3MM</td>
<td>$51.0MM</td>
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<td>Phase 3 - Field Installation, Testing and Commissioning through Acceptance &amp; Warranty</td>
<td>$86.5MM</td>
<td>$150.1MM</td>
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<td><strong>Total</strong></td>
<td><strong>$138MM</strong></td>
<td><strong>$231 MM</strong></td>
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### Next Steps

- JPB Award Option 1 (Phase 2) Contract for $35.3 MM - January 2013
- Issue NTP for Option 1 (Phase 2) - Subsystem and System Final Design, Factory Acceptance Test and Installation of Data Communication Subsystem with Fiber Optic Network Backbone – January 2013
- Completion of Phase 1 (Base Contract) - March 2013
- Completion of JPB-CHSRA Agreement of HSR11-04 - April 2013
Questions?

CaltrainPTC@samtrans.com

CBOSS PTC Architecture