Caltrain PTC Program Status & Wabtec Contract Award

Board of Directors
March 1, 2018
Discussion

- Program timeline
- PTC program and industry status
- Contracting objectives and strategy
- Path forward and Wabtec
- Funding
- Next Steps
<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
</tr>
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<tbody>
<tr>
<td>Pre-2008</td>
<td>Caltrain began development Communications Based Overlay Signal System (CBOSS) Positive Train Control (PTC)</td>
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<td>2008</td>
<td>Rail Safety Improvement Act, Federal Mandate PTC</td>
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<tr>
<td>2011</td>
<td>Contract with PTG</td>
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<tr>
<td></td>
<td>• $239M Budget ($159M for PTG contract)</td>
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<td></td>
<td>• Original in-service date October 2015</td>
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<tr>
<td>2016</td>
<td>Peer review, multiple partnering efforts</td>
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<tr>
<td>2017 (Feb.)</td>
<td>Termination PTG contract after persistent delays, associated program cost increase and lack of performance</td>
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Timeline (Continued)

- PTG Termination Last Resort
  - Advised regulators (FRA & FTA)
  - Coordination with funding partners
  - Secured program assets (fiber, spares, Backup Control Center Facility etc)

- Summer 2017 Pursue Options with Alstom
  - Contractual issues associated with relationship between PTG
  - Prohibitively unreasonable price

- Fall 2017 / Winter 2018 Revisit Scope
  - Solicit proposals from original RFP proposers
  - Evaluate industry since original award in 2011
Program Status

• Installation of all subsystems complete
  – On-Board Equipment
  – Wayside Interface Unit & FRA Official Validation Testing
  – Back office
  – Fiber optic backbone
  – Base stations (14)
  – Control center
  – High Rail Testing for FRA Official Critical Assets Complete

• Spectrum leased
• Train brake testing and federation in-process
• Draft RSD application submitted to FRA
**Industry Status**

- PTC implementation problematic
- FRA rigid requirements for extension to 2018 deadline
  - February 5 meeting with FRA indicates no flexibility
- Interoperability significant challenge even when using same technology
- Capital funding scarce
- Operations and SOGR funding not available from grants
  - Significant impacts to operating budgets
- Availability resources (people and technology) challenge
- Few vendors in the industry
Lessons Learned

• Caltrain PTC team hired and in place
  – Will work in concert with Wabtec to deliver the program
  – Will ensure knowledge transfer

• Go live planning
  – Interdisciplinary team working to ensure smooth transition to operations and maintenance

• Peer discussions/benchmarking
  – Knowledge share among properties with the same challenges
  – Future benchmarking for estimating ongoing SOGR and Operating costs
Contracting Objectives & Strategy

- Meet December 2018 Federal PTC mandate
- Retain knowledge / experience project team
- Procure in compliance with applicable FTA guidelines
- Minimize procurement time
- Maximize cost efficiencies
- Minimize risk
Path Forward

• Most Viable Alternative: Wabtec
  – Second highest ranked proposer in original RFP
  – Additional recent proposal solicitation /outreach confirmed ability to deliver
  – Technology (I-ETMS) already approved by FRA
  – Used by Union Pacific (UP) on San Jose to Gilroy corridor (JPB was going to install same equipment on locomotives in UP territory)
  – Facilitates interoperability with UP and tenants
  – Reduced maintenance costs
  – Developed passenger rail functionality
Wabtec Transition

- Original CBOSS PTC designed to be interoperable with Wabtec platform
- Not a complete change-out

<table>
<thead>
<tr>
<th>Component</th>
<th>Reuse Details</th>
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</thead>
<tbody>
<tr>
<td>Onboard</td>
<td>~60% re-used/repurposed/retrofit. Some components used for spare, pilot units</td>
</tr>
<tr>
<td>Data Communication System (DCS)</td>
<td>100% reused</td>
</tr>
<tr>
<td>Office</td>
<td>75% Used with 2 servers kept for spares</td>
</tr>
<tr>
<td>Wayside</td>
<td>90% equipment can be re-used, the remainder used for spares</td>
</tr>
<tr>
<td>Backup Central Control Facility (BCCF)</td>
<td>100% reused</td>
</tr>
<tr>
<td>Database</td>
<td>100% reused</td>
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<tr>
<td>Transponders</td>
<td>Not used by I-ETMS. Keeping transponders to aid in train location in the future</td>
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Wabtec Contract

• Scope
  – On-board installation
  – Assessment and integration of all systems
  – Hi-Rail and Lab equipment
  – FRA documentation

• Incentives: $2 million
• Risk sharing: $1.9 million
• Contingency: $4.5 million
• Total contract budget: $49.5m
• Eligibility for extension by 12/18
• Compliant PTC system within allowed time
Funding Status

• ~$59M remaining in funds
  – Cover contract budget through system acceptance
  – Program support costs through 2018

• Total program budget and funding plan to be developed
  – Brought back to the Board once field assessments have begun (June/July)

• Staff currently identifying grant and funding opportunities
Next Steps

• Contract
  – Award Contract and issue NTP
  – Begin field assessment and submit alternate Revenue Service Demonstration (RSD) strategy and extension request to FRA (April)
  – Onboard equipment installation complete (Dec)
  – Enter RSD (Dec)
  – Complete staff training
  – Submit Safety Certification Program

• Program
  – Monthly board reporting and updates
  – Ensure rigorous oversight feedback loop w/ partners
  – Continue PCEP PTC interface coordination
  – Develop final program budget and funding plan
  – Continue go live team efforts
Questions

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