CalMod Local Policy Maker Group (LPMG)

Thursday, September 25, 2014
6:00 PM – 7:30 PM
SamTrans Offices - Bacciocco Auditorium 2^{nd} Floor
1250 San Carlos Ave., San Carlos

Agenda

1. JPB Staff Report

2. Information/Discussion
   a. EMU Procurement – (Attachment A)
   b. CBOSS PTC Program Update – (Attachment B)

3. Public Comments

4. LMPG Member Comments/Requests

                 In-person: November 20, 2014 at 6:00pm
Memorandum

Date: September 25, 2014

To: CalMod Local Policy Maker Group (LPMG)

From: Marian Lee, CalMod Executive Officer

Re: Electric Multiple Unit (EMU) Procurement Process

At the August JPB meeting, CalMod staff provided an update on the Electric Multiple Unit (EMU) procurement process and shared information learned from the Request for Information (RFI) meetings, which were completed in June. The LPMG will receive a similar presentation, which is attached.

The RFI is a critical step in the procurement process and provides up-to-date information about the EMU industry. With this information, staff can begin to more clearly understand the availability of “off-the-shelf” EMUs that can be best utilized for electrified Caltrain service.

There are two phases of public outreach related to the design of the EMUs. The first phase, which kicked-off at the August Board meeting, involves soliciting input on key structural and capacity elements such as bathrooms, seats and standees, and bike capacity. Public feedback during the Phase I outreach will be coupled with technical analysis to inform staff recommendations to the Board for the EMU Request for Proposal, scheduled to be released in early 2015.

The project website: www.caltrain.com/emu provides additional information about the Phase I outreach efforts, including the online survey: www.caltrain.com/emusurvey

Phase two of the public outreach will occur after the car builder has been selected. Phase two will focus on interior design, configuration and aesthetics.
Electric Multiple Unit Procurement Update

Public Meetings
September 2014

Caltrain Today
**Key Facts**

- Diesel commuter rail system
- SF to SJ area
- 77 mile corridor, 32 stations
- 92 trains / weekday
- Ridership: ~50,000+ weekday

**Caltrain Ridership**

Note: Bike Ridership 11% increase (FY14)
### 2014 Top Ridership Trains

#### Northbound

<table>
<thead>
<tr>
<th>Train Number</th>
<th>Depart SJ</th>
<th>Max Load</th>
<th>Percent of Seated Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>319</td>
<td>7:03 AM</td>
<td>756</td>
<td>123%</td>
</tr>
<tr>
<td>323</td>
<td>7:45 AM</td>
<td>746</td>
<td>115%</td>
</tr>
<tr>
<td>329</td>
<td>8:03 AM</td>
<td>738</td>
<td>114%</td>
</tr>
<tr>
<td>375</td>
<td>5:23 PM</td>
<td>689</td>
<td>106%</td>
</tr>
<tr>
<td>217</td>
<td>6:57 AM</td>
<td>676</td>
<td>104%</td>
</tr>
<tr>
<td>225</td>
<td>7:50 AM</td>
<td>674</td>
<td>104%</td>
</tr>
<tr>
<td>233</td>
<td>8:40 AM</td>
<td>641</td>
<td>99%</td>
</tr>
<tr>
<td>313</td>
<td>6:45 AM</td>
<td>632</td>
<td>97%</td>
</tr>
</tbody>
</table>

#### Southbound

<table>
<thead>
<tr>
<th>Train Number</th>
<th>Depart SF</th>
<th>Max Load</th>
<th>Percent of Seated Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>376</td>
<td>5:33 PM</td>
<td>813</td>
<td>125%</td>
</tr>
<tr>
<td>370</td>
<td>5:14 PM</td>
<td>706</td>
<td>109%</td>
</tr>
<tr>
<td>366</td>
<td>4:33 PM</td>
<td>690</td>
<td>106%</td>
</tr>
<tr>
<td>268</td>
<td>4:56 PM</td>
<td>670</td>
<td>103%</td>
</tr>
<tr>
<td>278</td>
<td>5:56 PM</td>
<td>648</td>
<td>100%</td>
</tr>
<tr>
<td>324</td>
<td>8:14 AM</td>
<td>622</td>
<td>96%</td>
</tr>
<tr>
<td>322</td>
<td>7:57 AM</td>
<td>622</td>
<td>96%</td>
</tr>
</tbody>
</table>

*Note: February 2014 counts (lower ridership season)*

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### Caltrain Modernization
Caltrain Modernization Program

- Early Investment Program
  - Peninsula Corridor Electrification Project (2019)

- Caltrain/HSR Blended System

PCEP Project Description*

<table>
<thead>
<tr>
<th>Area</th>
<th>Project</th>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>51+ miles</td>
<td>Electrification:</td>
<td>Up to 79 mph</td>
</tr>
<tr>
<td>San Francisco to San Jose</td>
<td>- Overhead Contact System (OCS)</td>
<td>Service Increase</td>
</tr>
<tr>
<td>(Tamien Station)</td>
<td>- Traction Power Facilities</td>
<td>- 6 trains / hour / direction</td>
</tr>
<tr>
<td></td>
<td>Electric Multiple Units (EMUs)</td>
<td>- More station stops / reduced travel time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Restore Atherton &amp; Broadway service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mixed-fleet service (interim period)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cont. tenant service</td>
</tr>
</tbody>
</table>

*Proposed project not yet approved, pending environmental clearance
Key Regional Benefits

- Air pollution: 84% reduction
- Diesel to electric
- Lower fuel costs: 21% decrease
- Traffic congestion: 235,000 vehicle miles reduced
- $2.5 billion economic benefits
- More service

Electric Multiple Unit (EMU) Procurement
Status

<table>
<thead>
<tr>
<th>April 2014</th>
<th>JPB update on EMU procurement process</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 2014</td>
<td>RFI issued</td>
</tr>
<tr>
<td></td>
<td>• Q &amp; A to support stakeholder dialogue</td>
</tr>
<tr>
<td></td>
<td>• Inform RFP (early 2015)</td>
</tr>
<tr>
<td>June 2014*</td>
<td>Industry responses / meetings with car builders</td>
</tr>
</tbody>
</table>

* First industry scan conducted 2008

Engagement

- 11 car builders contacted
- 4 have “Off-the Shelf” models
- 3 participated in June meetings
- Anticipate 2 – 4 car builders to propose on RFP
Meetings with Car Builders

Maximize Car Capacity

- Growing Demand
  - Ridership today: 50,000+
  - Ridership future: 100,000+

- Today
  - 20+ mile trips
  - 95%-125% peak weekday seat capacity

- Future
  - Share train slots with HSR (6 Caltrain / 4 HSR)
  - Caltrain needs to maximize car capacity / service frequency
Industry Confirmation

<table>
<thead>
<tr>
<th>Maximize Capacity</th>
<th>Bi-level (verse single level)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Off the Shelf&quot; Available</td>
<td>Service proven</td>
</tr>
<tr>
<td></td>
<td>Saves costs / time</td>
</tr>
<tr>
<td>US Regulation Compliance</td>
<td>ADA</td>
</tr>
<tr>
<td></td>
<td>Buy America</td>
</tr>
<tr>
<td></td>
<td>FRA Waiver / Alternative Compliant</td>
</tr>
<tr>
<td></td>
<td>Vehicles Criteria</td>
</tr>
<tr>
<td></td>
<td>Will meet Caltrain Technical and Quality Standards</td>
</tr>
<tr>
<td>Floor Threshold</td>
<td>22&quot; – 24&quot; most common</td>
</tr>
</tbody>
</table>

Floor Threshold

- Current Status
  - No level boarding: impacts dwell time and on-time performance
  - 8" above-top-of-rail (ATOR) platforms
  - Passenger trains 1st step at 18" ATOR
  - Use mini-highs and lifts
  - Supports freight and passenger cars
Moving Forward

- **Dedicated Platforms**
  - Capitol Corridor, ACE at 2 stations and Amtrak at 1 station
  - HSR dedicated platforms at 3 stations

- **Different Caltrain EMUs and HSR trains**
  - Customer needs / performance needs / cost
  - HSR floor threshold ~50” ATOR
  - Caltrain EMU floor threshold ~25” ATOR

- **EMUs Compatible with Existing System**
  - 8” platforms
  - Current diesel fleet (for interim mixed-service)
  - Future 25” level boarding

Challenges for Level Boarding

- **Conflicting CPUC and ADA requirements**
  - CPUC: distance between platform and trains
  - ADA: maximum 3” gap and 5/8” vertical difference between platform and trains
  - Need to get waiver from CPUC

- **Potential impact to historic stations**

- **Construction challenges in operating system**

- **Transitional service**

- **Funding**
Discussion Topics

Outreach – 2 Phases

<table>
<thead>
<tr>
<th>Phase I (Inform RFP)</th>
<th>Phase II (Inform Selected Builder)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shell: Structural Size / Capacity</td>
<td>Interior: Aesthetic / Comfort</td>
</tr>
<tr>
<td>• Seats / Standees</td>
<td>• Seat size / Spacing</td>
</tr>
<tr>
<td>• Bikes on Board</td>
<td>• Internal Material</td>
</tr>
<tr>
<td>• Bathrooms</td>
<td>• External Color / Branding</td>
</tr>
<tr>
<td></td>
<td>• Bikes on Board Configurations</td>
</tr>
<tr>
<td></td>
<td>• Passenger Amenities</td>
</tr>
</tbody>
</table>
## Seats / Standees

<table>
<thead>
<tr>
<th>Current</th>
<th>EMU</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 620 – 680 seats per train</td>
<td>• Seat size / configuration flexibility</td>
<td>• Seat widths</td>
</tr>
<tr>
<td>• Limited standing room on gallery cars</td>
<td>• Handholds / leaning benches for standees</td>
<td>• Space between seats</td>
</tr>
<tr>
<td>• One gallery car per train ADA accessible</td>
<td>• Full ADA accessibility</td>
<td>• Seat orientation</td>
</tr>
<tr>
<td>• Lifts for bombardier cars</td>
<td></td>
<td>• Balance with other amenities</td>
</tr>
</tbody>
</table>

## Bikes on Board

<table>
<thead>
<tr>
<th>Current</th>
<th>EMU</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 2 of 5 cars hold bikes</td>
<td>• Concepts vary by car builder</td>
<td>• Balance seats and bikes on board</td>
</tr>
<tr>
<td>• 48 bikes per bombardier train</td>
<td>• Car builders can design areas based on current bike capacity</td>
<td>• Wayside facilities</td>
</tr>
<tr>
<td>• 80 bikes per gallery train</td>
<td></td>
<td>• Need to comply with safety and ADA requirements</td>
</tr>
<tr>
<td>• Bike riders and other passengers sit in bike cars</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Displaces 2 seats</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Bathrooms

<table>
<thead>
<tr>
<th>Current</th>
<th>EMU</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 2 per gallery train</td>
<td>• Modular bathroom units available</td>
<td>• Public bathrooms at 2 of 27 stations</td>
</tr>
<tr>
<td>• 5 per bombardier train</td>
<td>• Compliant with ADA requirements</td>
<td>• Average trip 20 to 28 miles</td>
</tr>
<tr>
<td>• Annual maintenance costs</td>
<td></td>
<td>• Average trip 30 to 50 minutes</td>
</tr>
<tr>
<td>• Displaces 8+ seats</td>
<td></td>
<td></td>
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</tbody>
</table>

Other systems:  
- ACE 1 bathroom per car  
- Capitol Corridor 1 – 2 bathrooms per car  
- BART 0 bathrooms per car

### Key Questions

- **What are your riding habits?**  
  - How often get seat, use luggage rack, bring bike onboard, etc.

- **Is it important to increase, decrease or maintain the same capacity elements in the new train?**  
  - Bathrooms onboard (0-5), seats etc.

- **How would you prioritize the train capacity?**  
  - Seats, standees, bike storage, bathrooms, luggage etc.
Online Survey:  
www.caltrain.com/emusurvey

Policy Decision

- Customers / Stakeholder Feedback
  - Meetings, station outreach
  - Survey*
  - Website, social media, project email and phone

- Technical Analysis
  - “Off the shelf” constraints and customer convenience opportunities

- Staff Recommendation
  - Balance feedback and analysis

*Opt-in Survey
EMU Input Milestones

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<tbody>
<tr>
<td>Issue RFI</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Meetings with Builders</td>
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<tr>
<td>Phase I Outreach</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Develop / Issue RFP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select Car Builder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase II Outreach</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

Q & A

website: [www.caltrain.com/emu](http://www.caltrain.com/emu)
survey: [www.caltrain.com/emusurvey](http://www.caltrain.com/emusurvey)
comments or questions: [caltrainemu@caltrain.com](mailto:caltrainemu@caltrain.com)
Memorandum

Date: September 25, 2014

To: CalMod Local Policy Maker Group (LPMG)

From: Marian Lee, CalMod Executive Officer

Re: Advanced Signal System (CBOSS PTC) Project Update

The Advanced Signal System project, also called Communications Based Overlay Signal System (CBOSS) Positive Train Control (PTC), is being installed along the Caltrain corridor. Installation of the communications subsystem started on September 4, 2013 in San Jose and has continued north.

Earlier this month, the CBOSS PTC team reached a key milestone by completing 100 percent of the installation work related to the Data Communications System (conduit and fiber optic cable) and wayside infrastructure between San Jose and the Dumbarton Spur in Redwood City. The next phase for this section of the corridor will involve testing the system to prepare for the FRA visit.

North of the Dumbarton Spur, work has commenced on the DCS and wayside infrastructure installation in the cities of San Carlos, Belmont and San Mateo. In the coming weeks and months work will continue north.

The on-board installation of CBOSS PTC equipment on the trains continues to be on schedule and 6 of the 8 pilot trains have the CBOSS PTC equipment installed.

The CBOSS PTC field crew has over 200,000 hours of work with no incidents.

Caltrain staff will continue to coordinate with city/county staff on construction and testing activities. There were no new complaints from residents since the August e-update.

The attached presentation provides an overview the project’s process. This will be the LPMG’s fifth presentation on the Advanced Signal System project, the last presentation was in March 2014.
Advanced Signal System (CBOSS PTC) Update

LPMG Meeting
September 25, 2014

Context
Caltrain Modernization Program

- Projects
  - Advanced Signal System (2015)
  - Corridor Electrification and Electric Multiple Units (2019)

Project Description

- Communications Based Overlay Signal System (CBOSS) Positive Train Control (PTC)
- Fiber Optic Network
- Project Requirements
  - Includes federal mandate (PTC)
  - Improves Caltrain performance
- Project Partners
  - FRA, UP, CHSRA, JPB
- Needed for Blended System
CBOSS PTC Requirements

- **PTC**
  - Prevent train to train collisions
  - Prevent over speed derailments
  - Prevent incursions into established work zones
  - Prevent movement through a misaligned switch
  - Interoperability

- **CBOSS**
  - Enhanced crossing safety / performance
  - Improved headways and operational flexibility
  - Enforcement of scheduled station stops
  - Schedule management
  - Employee In Charge

### Project Total Cost and Milestones

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost (in millions)</th>
<th>Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Planning and Procurement</td>
<td>$5</td>
<td>2010 - 2011</td>
</tr>
<tr>
<td>Phase 1 - Critical Design</td>
<td>$25</td>
<td>2012 – 2013</td>
</tr>
<tr>
<td>Phase 2 - Final Design, Data Communications Subsystem &amp; Fiber Backbone Installation</td>
<td>$51</td>
<td>2013 – 2014</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$231</strong></td>
<td></td>
</tr>
</tbody>
</table>
Installation Work Update

Progression: South to North

PHASE I (S. MP26)
Segment 3
SJ
Santa Clara (S of Lafayette St)

Segment 2
Santa Clara (N of Lafayette St)
Sunnyvale
Mountain View
Palo Alto
Menlo Park
Atherton
Redwood City (S Dumbarton Spur)

PHASE II (N. MP26)
Segment 2
Redwood City (N Dumbarton Spur)
SAC
San Carlos
Belmont
San Mateo
San Bruno
SSF (S of Oyster Point)

Segment 1
SSF (N of Oyster Point)
Brisbane
SF

Segment 2 (Santa Clara - SSF) 36 Miles

Segment 3 (San Jose - Santa Clara) 8 Miles

Mile Post 26
**Milestones (Entire Corridor)**

- **DCS Installation***
- **Wayside Installation***
  - BCCF Office Installation
  - CCF Office Installation
  - On-Board Installation
  - Segment 3 CBOSS PTC Dynamic, Pre-FRA & FRA Testing*
  - Segments 2 & 1 CBOSS PTC Dynamic Testing*
  - 6 Month RAM Demonstration Testing

<table>
<thead>
<tr>
<th>Year</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
</table>

* Public may notice activity

**Revenue Service (Oct. 2015)**

**Installation Work Update**

- **DCS Installation**
  - Potholing, boring, conduit, fiber, base stations
  - Segment 3 / 2 (S. MP26): 100% complete
  - Currently working in San Carlos, Belmont, San Mateo

- **Wayside Installation**
  - Modules installed at key system points
  - Associated gate activity
  - Segment 3 / 2 (S. MP26): 100% complete
  - Currently working in a variety of locations with wayside equipment
Installation Work Continued

• BCCF and CCF Installation
  – Modify space and install equipment
  – BCCF fit out 100% complete, installing servers

• On-board Equipment Installation
  – 6 of 8 pilot vehicle installations complete
  – #7 in progress

Testing (Pilot) Segment 3

• Dynamic Pre-FRA Testing
  – Scheduled to begin January 2015
  – Ongoing verification / validation track database

• FRA Testing
  – Expected first quarter 2015
Installation Pictures 1

1. Potholing
2. Installing Conduit

Installation Pictures 2

1. Preparing to install fiber
2. End of work ground verification test
Installation Pictures 3

Fiber Slicing

Confirming no dust or dirt on the fiber

Installation Pictures 4

Onboard Equipment

Simulator for training
Challenges

• Construction on an active railroad!
Outreach To Date

• Activities
  – CSCG (5 meetings)
  – LPMG (4 meetings, next 9/25/14)
  – One-on-one (each of the 17 cities/3 counties)
  – Community Groups, as requested (8 meetings)

• Communication tailored to location
  – Direct mailers (28), flyers stations
  – Website, social media, email, phone
  – City/County Staff coordination

Complaints 12+ months

• First six months
  – 5 people (noise, foliage disturbed, mud on street)
  – questions about the project

• Next six months
  – none
  – questions about the project
Next Steps

• Activities
  – Community Groups Meetings (as requested)

• Communication
  – Direct mailer residents
  – Website, social media, email, phone
  – Separate installation and testing notices

• City/County Staff coordination

Questions