CALTRAIN CEMOF MODIFICATIONS/ELECTRIFICATION UPDATE

San Jose Community Meeting
July 24, 2019
AGENDA

• Caltrain System Overview
• Electrification Project Overview
• CEMOF Modifications Project Overview
• Questions
CALTRAIN SYSTEM

- 32 Stations Gilroy to San Francisco
- 92 Weekday Trains
- At-Grade Crossings, Viaducts, and Bridges
- Intermodal Connections
- Bike Commuters
PROJECT DESCRIPTION

Project Area

- 51 miles
- San Francisco to San Jose (Tamien Station)

Project Elements

Electrification

- Overhead Contact System (OCS)
- Traction Power Facilities

Electric Trains*

- 19 7-car train sets
- 133 electric cars

*Includes 2018 State TIRCP Funding
PROJECT DESCRIPTION

Service Elements

Speed
• Up to 79 mph

Service Increase
• 6 trains / hour / direction
• More station stops / reduced travel time
• Restore Atherton & Broadway service

Mixed-fleet Service (interim period)
Continue Tenant Service
• ACE, Capitol Corridor, Amtrak, Freight
PROJECT BENEFITS

- Improved Train Performance, Increased Service and Greater Capacity
- Improved Regional Air Quality and Reduced Greenhouse Gas Emissions
- Positive Economic Benefits for the Region
- Reduced Engine Noise Emanating from Trains
- Increased Revenue and Reduced Fuel Cost
SCHEDULE

* Note: Schedule subject to change
CONSTRUCTION PHASING

- 51 Miles Corridor
- 4 Work Segments
- 3,000 Poles
- 10 Traction Power Facilities
# FIELD WORK PROGRESSION

<table>
<thead>
<tr>
<th>Work Completed</th>
<th>Work In Progress</th>
<th>Future Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Utility Survey</td>
<td>• Tree Pruning/Removal</td>
<td>• CEMOF Facilities Modifications</td>
</tr>
<tr>
<td>• Geotechnical Investigations</td>
<td>• Potholing</td>
<td>• Signal House Construction</td>
</tr>
<tr>
<td>• Disposal of Soil from</td>
<td>• Foundation Installation</td>
<td>• Pole Installation</td>
</tr>
<tr>
<td>Geotechnical Investigations</td>
<td>• Traction Power Substation Construction</td>
<td>• Wire Installation</td>
</tr>
<tr>
<td>• Soil Resistivity Testing</td>
<td>• Paralleling Station Construction</td>
<td></td>
</tr>
<tr>
<td>• Site Surveys</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Signal Cable Inspections</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## CONSTRUCTION SCHEDULE

### San Jose

<table>
<thead>
<tr>
<th>Date</th>
<th>Work Activity</th>
<th>Expected Duration*</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Progress</td>
<td>Potholing</td>
<td>2-3 months</td>
</tr>
<tr>
<td>In Progress</td>
<td>Foundation Construction</td>
<td>4-5 months</td>
</tr>
<tr>
<td>In Progress</td>
<td>Traction Power Substation Construction</td>
<td>6-9 months</td>
</tr>
<tr>
<td>In Progress</td>
<td>Paralleling Station Construction</td>
<td>3-4 months</td>
</tr>
<tr>
<td>August 2019</td>
<td>CEMOF Facility Modifications</td>
<td>9-12 months</td>
</tr>
<tr>
<td>Fall 2019</td>
<td>Pole/Wire Installation</td>
<td>3-4 months</td>
</tr>
</tbody>
</table>

*Expected duration indicates first and last day of activity. Number of actual work days will be fewer.*
FOUNDATION CONSTRUCTION

• Excavation
• Rebar and Anchor Installation
• Electrical Grounding
• Concrete Fill
FOUNDATION INSTALLATION
POLE INFORMATION

• 3,000 Installed throughout Corridor
  • Approx. 460 poles in San Jose
• Pole Height: 30-50’
• Pole Spacing: ~180’ apart
POLE TYPES SAN JOSE

Single Track Cantilever

Two Track Cantilever

Center

Example of Poles Planned for Use in San Jose
POLE TYPES SAN JOSE

Portal

Headspan
POLE INSTALLATION
STRINGING WIRE
TRACTION POWER FACILITIES

• 10 Traction Power Facilities Installed throughout Corridor
  - 1 Traction Power Substation Installed in San Jose
  - 1 Paralleling Station in San Jose
  - Gantry structures up to 50’

• Provides electrical power to trains through the Overhead Contact System

• Unmanned station

• Day and weekend construction work

• Limited night work during construction
TRACTION POWER SUBSTATION LOCATION
PARALLELING STATION LOCATION

Tamien Station

Paralleling Station

CalMod.org
EXAMPLE PARALLELING STATIONS

Examples from Amtrak Northeast Corridor
Currently existing maintenance track (no new track)
TEST TRACK INFORMATION

• Approximately 1.5 miles of existing maintenance track (no new track)
• Located between Santa Clara Station and Caltrain CEMOF facility
• Foundations, poles and wires to be installed prior to electric train testing
• New Electric trains will be tested on track
• Testing to begin in Spring 2020
• Testing anticipated to be during daytime
CEMOF BACKGROUND

• Central Equipment & Maintenance Facility (CEMOF)
• Completed in 2007
• Serves as the “nerve center” of Caltrain
CEMOF MODIFICATIONS

• Inspection Pit Extension
  – Enable workers to work underneath new electric trains
  – Extend 330 ft

• Other on-site improvements
  – Rolling Maintenance Platform (in building)
  – Camera installation
  – Temporary Parts storage building

• Expected Construction ~ 6 months
INSPECTION PIT

- Lengthen 330 ft
OTHER MODIFICATIONS

Electric train parts storage structure

Maintenance platform (within structure)
TEMPORARY BUILDING EXAMPLE
CEMOF CONSTRUCTION INFORMATION

• Work hours typically weekdays from 7 a.m. to 5 p.m.
• Excavated dirt to be stored on-site
• Concrete trucks in area
  – Accessing facility from Stockton St. and Lenzen Ave.
• Sheet pile installation to act as a retention system to support excavation
GENERAL CONSTRUCTION INFORMATION

• Work will occur during day and night
• Some 24 hour weekend work
• Crews will utilize acoustical barrier blankets and position lights away from homes
• Dedicated hotline for construction complaints
PUBLIC OUTREACH

CALTRANS MODERNIZATION
POSTCARD
DOORHANGER
PUBLIC MEETING
PUBLIC OUTREACH

• Subscribe to Weekly Updates
  – Visit www.calmod.org/get-involved
• Social Media
• Construction Outreach Office
WHAT’S NEXT

• Caltrain Business Plan
  – Caltrain2040.org
• High-Speed Rail Blended System
  – hsr.ca.gov
• Caltrain Downtown Extension
  – sftca.org/transbay-transit-center
• Diridon Concept Plan
  – DiridonSJ.org
CALMOD CONTACT INFORMATION

WEEKLY UPDATES  CalMod.org/get-involved

EMAIL  CalMod@caltrain.com

PHONE  650-399-9659
       800-660-4287 (Toll Free)

OFFICE  2121 S. El Camino, Suite A-100
        San Mateo, CA 94403

WEBSITE  CalMod.org
FACEBOOK  www.facebook.com/caltrain
TWITTER  @caltrain