Caltrain System

- 32 Stations Gilroy to San Francisco
- 92 Weekday Trains
- At-Grade Crossings, viaducts, and bridges
- Intermodal Connections
- Bike Commuters

JBP owns right-of-way from SF to San Jose

Union Pacific owns
At Capacity Today

Bi-directional commute with riders standing on trains going southbound and northbound
## Aging Fleet

### Table 1.2: Caltrain Fleet Inventory

<table>
<thead>
<tr>
<th>SERIES</th>
<th>QUANTITY</th>
<th>NUMBER OF SEATS</th>
<th>YEAR OF MANUFACTURE</th>
<th>MAKE</th>
<th>RETIRE DATE</th>
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<tbody>
<tr>
<td><strong>Locomotives</strong></td>
<td></td>
<td></td>
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<tr>
<td>F40 PH-2</td>
<td>5</td>
<td>na</td>
<td>1985</td>
<td>GM - EMD</td>
<td>2015</td>
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<tr>
<td>F40 PH-2C</td>
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<td>na</td>
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<tr>
<td>MP36PH-3C</td>
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<td>na</td>
<td>2003</td>
<td>Motive Power</td>
<td>2033</td>
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<tr>
<td><strong>Passenger Cars</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gallery Trailer</td>
<td>14</td>
<td>120</td>
<td>1999-2000</td>
<td>Nippon Sharyo</td>
<td>2030</td>
</tr>
<tr>
<td>Gallery Cab (Bike)</td>
<td>10</td>
<td>108</td>
<td>1985-1987</td>
<td>Nippon Sharyo</td>
<td>2015-2017</td>
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<tr>
<td>Gallery Cab (Bike)</td>
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<td>78</td>
<td>1999-2000</td>
<td>Nippon Sharyo</td>
<td>2030</td>
</tr>
<tr>
<td>Gallery Cab (Bike)</td>
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<td>97</td>
<td>1985</td>
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<tr>
<td>Bi-Level Trailer*</td>
<td>16</td>
<td>149</td>
<td>1997</td>
<td>Bombardier</td>
<td>2027</td>
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<tr>
<td>Bi-Level Trailer</td>
<td>9</td>
<td>144</td>
<td>2002</td>
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<tr>
<td>Bi-level Trailer (Bike)</td>
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<td>2002</td>
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<td>2032</td>
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<tr>
<td>Bi-level Trailer (Bike)</td>
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<td>2031-2032</td>
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<tr>
<td>Bi-level Trailer (Bike)</td>
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<td>Bi-level Trailer (Bike)</td>
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<td>Bombardier</td>
<td>2032</td>
</tr>
<tr>
<td>Bi-Level Trailer</td>
<td>6</td>
<td>140</td>
<td>2008</td>
<td>Bombardier</td>
<td>2038</td>
</tr>
</tbody>
</table>

*Trailers recently acquired from Metrolink with refurbishment ongoing.*
Regional Transportation Needs

• US 101 and Interstate 280 Congested
• Corridor supports growing economy
  - 14% CA GDP; 52% CA patents; 20% CA tax revenue
• Caltrain Commuter Coalition (formed 2014)
  - 75% Caltrain rider’s commute to work; 60% choice riders
Caltrain Modernization Program

- Peninsula Corridor Electrification Project
## 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 (Tamien Station)</td>
<td>- Overhead Contact System (OCS)</td>
<td>Service Increase</td>
</tr>
<tr>
<td></td>
<td>- Traction Power Facilities</td>
<td>- 6 trains / hour / direction</td>
</tr>
<tr>
<td></td>
<td>Electric Trains (EMUs)</td>
<td>- More station stops / reduced travel time</td>
</tr>
<tr>
<td></td>
<td>- 75 percent of fleet</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>Continue tenant service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ACE, Capital Corridor, Amtrak, Freight</td>
</tr>
</tbody>
</table>
Key Regional Benefits (2040)

- Greenhouse gases annual: 176,000 metric tons of CO₂
- Daily traffic congestion: 619,000 vehicle miles
- Engine noise: Reduced

- Up to 97% clean air daily
- 111,000 more service daily
- Improved frequency / quicker trips

Note: 2013 BAC Report, generates $2.5B economic activity and 9,600 jobs
MILESTONES

- Caltrain strategic plan makes electrification a priority
- Environmental Clearance
- Award Contract
- Groundbreaking


Electrification Infrastructure Construction and Final System Testing

Rollout First Passenger Service with Electric Trains

Additional Caltrain Capacity Improvements

Note: Schedule Subject to Change
Electric Train Design
Electric Train Outreach: Phased

- 2016 Capacity Board Decision (bike to seat ratio, onboard bathrooms, upper doors)
- 2017 Design Progressing, Additional Public Input (bike storage, seat colors, signage content, etc.)
- 2018 Virtual Reality 360 Tour
EMU Exterior Design Winning Design

WINNING DESIGN: OPTION 1
Outreach Tool: Dedicated Website

**WHY HIGH-PERFORMANCE ELECTRIC TRAINS**
Caltrain plans to purchase new high-performance electric trains to replace the current diesel locomotive trains as part of the Peninsula Corridor Electrification Project. The electric trains would stop and start faster than the diesel trains which means Caltrain could increase capacity with a more user-friendly, efficient schedule that would provide consistent, attractive service at more frequent stops without sacrificing speed.

Caltrain's new electric trains are a key component of the Caltrain Modernization (CalMod) program that will enhance the speed, capacity, safety, and comfort of Caltrain's commuter rail service.

**Project status:** This Project is contingent on Federal funding. For more information about the project status, click here.

**EXPLORE POTENTIAL NEW CALTRAIN ELECTRIC TRAINS**
If federal funding is secured, Caltrain plans to purchase new high-performance electric trains. This tool will highlight some of the routes high-performance electric trains. Keep coming back to the website for updated project status.

**SIGN UP FOR UPDATES**
If you are interested in receiving CalMod updates, make sure to sign up for updates and provide your feedback.

**NEW PASSENGER CARS**
A typical passenger car layout would have two main levels with between 85 and 100 seats per car. There would be some flip seats, in addition to the regular fixed seats. Most seats would face one direction and if there are any seats facing each other, there would be a table in the middle. There would be one bathroom per train.

**DELIVERY PLAN**
Initially, Caltrain plans to replace approximately 15 percent of the diesel fleet with new electric trains called Electric Multiple Units (EMUs) which would operate between San Francisco and San Jose. Full replacement of the fleet with EMUs would occur at a later time when funding is identified and the remaining diesel trains are retired. For more information about the delivery plan, click here.

**BENEFITS**
- **Convenience:** Observation and reduced travel time
- **Commuter:** Amenity like destination signs and electrical plugs, exam room, and reduced engine noise
- **Sustainability:** Reducing carbon emissions and improving air quality
Next Steps

• Capture feedback on design elements
• Continue rollout of key design features for public input and education
  – Seat Colors Options: July / Aug. 2017
  – Interior Lift: Summer 2017
  – Exterior / Interior Sign Content: Dec. 2017
• Public feedback paired with technical analysis
Construction
Work Segment 2, Area 5
- South San Francisco
- San Bruno
# Field Work Status

<table>
<thead>
<tr>
<th>Work Completed to Date</th>
<th>Utility Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Geotechnical Investigations</td>
</tr>
<tr>
<td></td>
<td>Soil Resistivity Testing</td>
</tr>
<tr>
<td></td>
<td>Site Surveys</td>
</tr>
<tr>
<td>Work In Progress and Upcoming</td>
<td>OCS Foundation Potholing</td>
</tr>
<tr>
<td></td>
<td>Signal Cable Potholing</td>
</tr>
<tr>
<td></td>
<td>Disposal of Soil from Geotechnical Investigations</td>
</tr>
<tr>
<td></td>
<td>Signal Cable Inspections</td>
</tr>
<tr>
<td></td>
<td>Tree Pruning and Removal</td>
</tr>
<tr>
<td></td>
<td>OCS Foundation Construction</td>
</tr>
<tr>
<td>Future Work</td>
<td>Overhead Utility Relocation</td>
</tr>
<tr>
<td></td>
<td>OCS Pole Installation</td>
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<tr>
<td></td>
<td>OCS Wire Installation</td>
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</table>
Potholing
## Future Construction Activities

**South San Francisco and San Bruno**

<table>
<thead>
<tr>
<th>Date</th>
<th>Work Activity</th>
<th>Expected Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>August - September 2017</td>
<td>Tree Pruning/Removal</td>
<td>2 months</td>
</tr>
<tr>
<td>Fall/Winter 2017</td>
<td>Foundation Construction</td>
<td>3 months</td>
</tr>
<tr>
<td>Winter 2017/2018</td>
<td>Traction Power Substation (SSF only)</td>
<td>1 year</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>OCS Pole and Wire Installation</td>
<td>3 months</td>
</tr>
</tbody>
</table>
Tree Pruning and Replacement

- Vegetation cleared for Electrical Safety Zone

Cross Section View

Electrical Safety Zone

Vegetation Clearance Zone:
No vegetation overhang beyond trim lines or within 10 feet of electrical components.

Note: tree pruning will be done in compliance with ANSI Z133 standards and best practices, therefore limb cuts will be made beyond the vegetation trim line, as determined by the project Certified Arborist.

Overhead Contact System
New Electrification Infrastructure

Note: This figure depicts worst case scenario vegetation clearance with side poles

Limb cuts
Vegetation Trim Line

NOT TO SCALE
Tree Pruning and Replacement

JPB Property
• 1:1 replacement for any non-riparian tree in JPB right-of-way (ROW)

SSF Public or Private Property
• 2:1 City/County replacement ratio for trees being removed on public or private property (in South San Francisco a replacement ratio of 2:1 is used for protected trees and 1:1 for non-Protected trees)
• 1:1 replacement for any tree pruned over 25%*

Environmental Permit Requirements
• 6:1 replacement for any riparian oaks removed
• 3:1 replacement for any other native riparian species removed
• 1:1 replacement for any non-native riparian species removed

*Trees pruned over 25% will remain in place and will not be removed. A replacement tree will also be planted. Also applies to environmental permits.
South San Francisco: Tree Pruning and Replacement Plan

<table>
<thead>
<tr>
<th></th>
<th>Caltrain Right of Way</th>
<th>Private Property</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Trees Impacted</td>
<td>Replacement Ratio</td>
</tr>
<tr>
<td>Tree Removed</td>
<td>1</td>
<td>1:1</td>
</tr>
<tr>
<td>Tree Pruned &gt;25%</td>
<td>1</td>
<td>1:1</td>
</tr>
<tr>
<td>Tree Pruned &lt;25%</td>
<td>7</td>
<td>n/a</td>
</tr>
</tbody>
</table>

- Design of electric substation PG&E interconnection at South San Francisco station may have future impacts to trees
San Bruno: Tree Pruning and Replacement Plan

- No trees impacted in City of San Bruno
Foundation Work

- Excavation
- Rebar and Anchor Installation
- Electrical Grounding
- Concrete Fill
- Foundation work within the South San Francisco Station area will be completed by SSF Station Improvement Project
- Foundations for San Bruno Station area were installed as part of the San Bruno Grade Separation
Pole Foundation Work

Will take place on and off track

Above: DrillTech on track foundation train

Right: Drilltech off-track OCS Drill Rig
OCS Wire Installation

Will take place on-track
Construction Impacts

- Daytime work and night work from 8 p.m. - 6 a.m.
- Some 24 hour weekend work
- Crews will utilize acoustical barrier blankets and position lights away from homes
- Dedicated hotline for construction complaints
Public Outreach

- Subscribe to Weekly Updates
  - Visit caltrain.com/pcepconstruction
- Additional Community Meetings
  - Pole and Wire Installation
  - Traction Power Substation (South San Francisco only)
- Construction Outreach Office
Public Outreach

• Physical Notices

Estimado Vecino de Caltrain,

Durante los próximos tres meses, Caltrain está trabajando en el corredor del ferrocarril en su área para mejorar el servicio de Caltrain como parte de su Peninsula Corridor Electrification Project. Las actividades a realizar durante este tiempo incluyen localización de instalaciones subterráneas, prueba de los componentes y equipos, y certificación de obras para preparar el corredor para la instalación y operación del sistema de transporte eléctrico. Después de la construcción de las alas, el equipo comenzará a trabajar en las áreas para el sistema de contacto.

Las actividades incluyen las siguientes actividades durante las horas de trabajo:

- Labores de construcción a lo largo del corredor. Actividades de noche se centrarán en las tareas de noche, y las actividades de día se centrarán en las tareas de día.
- Instalación de equipos de alta tensión, la colocación de postes y la instalación de equipos de alta tensión.
- El proyecto de electrificación permitirá que Caltrain opere más seguras, más limpias, más rápidas, más seguras, más eficientes, y con servicio a más usuarios del corredor. Mejorará la calidad de vida y mejorará la operación de Caltrain y satisfará la creciente demanda de servicio más rápido y asequible.

Por favor visiten nuestra página web en www.caltrain.com/PCEP para obtener noticias de construcción. Gracias por su paciencia y comprensión.

[Detalles del Proyecto Caltrain]

[Detalles de la construcción]

[Detalles de contacto]

[Texto en inglés]

Dear Caltrain Neighbor:

Over the next three months, Caltrain will be performing work on the railroad corridor in your area to improve Caltrain service as part of the Peninsula Corridor Electrification Project. The anticipated activities during this time include locating underground utilities, testing soil conditions, inspecting signal/communication equipment, and tree trimming/removal to prepare the corridor for installation and operation of modernized transit service. After tree trimming/removal occurs, crews will begin work on the foundations for the overhead contact system.

Work will take place during the day and at night. Night activities will occur between 8:00 p.m. and 6:00 a.m. We apologize for any inconvenience this may cause. To mitigate noise and other impacts during nighttime activities, the field team will utilize acoustical barrier blankets, and will position lights away from residential, roadway, and business areas.

The electrification project will allow Caltrain to operate quieter, cleaner, more frequent and/or faster train service to more riders. Increased capacity and improved service will help Caltrain meet the increasing ridership demand and alleviate regional traffic congestion. The new electric trains are scheduled to be operational in 2021.

We apologize for any inconvenience you might experience while we work to deliver these critical benefits to our communities.

Please visit our website at www.caltrain.com/PCEP for weekly construction notice updates. Thank you for your patience and understanding.
## Construction Contact Information

<table>
<thead>
<tr>
<th>Email: <a href="mailto:calmod@caltrain.com">calmod@caltrain.com</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone: 650.399.9659</td>
</tr>
<tr>
<td>Toll Free: 800.660.4287</td>
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</table>

2121 S. El Camino Real, Suite A-100  
San Mateo, CA 94403  
9 a.m. - 6 p.m. Monday-Friday

[www.caltrain.com/pcepconstruction](http://www.caltrain.com/pcepconstruction)