






**Peninsula Corridor
Electrification Update Meeting**


Caltrain Electrification Public Outreach Office
September 13, 2017




Agenda

- Caltrain System Overview
- Project Overview
- Electric Multiple Unit (EMU) Design
- San Mateo Construction Activities
- Questions








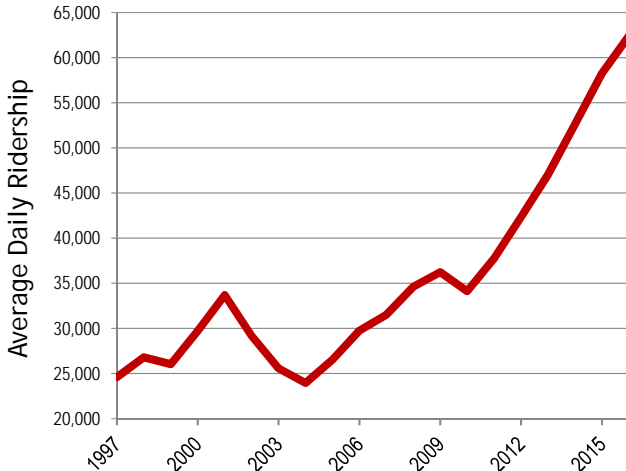
Caltrain System





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

Ridership



Year	Average Daily Ridership
1997	25,000
1998	26,000
1999	27,000
2000	34,000
2001	28,000
2002	25,000
2003	24,000
2004	23,000
2005	25,000
2006	28,000
2007	30,000
2008	32,000
2009	36,000
2010	34,000
2011	38,000
2012	42,000
2013	48,000
2014	55,000
2015	62,000



At Capacity Today



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



Aging Fleet

Table 1.2: Caltrain Fleet Inventory

SERIES	QUANTITY	NUMBER OF SEATS	YEAR OF MANUFACTURE	MAKE	RETIRE DATE
Locomotives					
F40 PH-2	5	na	1985	GM - EMD	2015
F40PH-2-CAT	15	na	1985-1987	GM - EMD	2015-2017
F40 PH-2C	3	na	1998	Boise Locomotive	2028
MP36PH-3C	6	na	2003	Motive Power	2033
Passenger Cars					
Gallery Trailer	26	142	1985-1987	Nippon Sharyo	2015-2017
Gallery Trailer	16	148	1985-1987	Nippon Sharyo	2015-2017
Gallery Trailer	14	120	1999-2000	Nippon Sharyo	2030
Gallery Cab (Bike)	10	108	1985-1987	Nippon Sharyo	2015-2017
Gallery Cab (Bike)	6	78	1999-2000	Nippon Sharyo	2030
Gallery Cab (Bike)	21	97	1985	Nippon Sharyo	2015
Bi-Level Trailer*	16	149	1997	Bombardier	2027
Bi-Level Trailer	9	144	2002	Bombardier	2032
Bi-level Trailer (Bike)	2	114	2002	Bombardier	2032
Bi-level Trailer (Bike)	5	114	2001-2002	Bombardier	2031-2032
Bi-level Trailer (Bike)	2	114	2008	Bombardier	2038
Bi-level Trailer (Bike)	1	127	2002	Bombardier	2032
Bi-Level Trailer	6	140	2008	Bombardier	2038

*Trailers recently acquired from Metrolink with refurbishment ongoing.



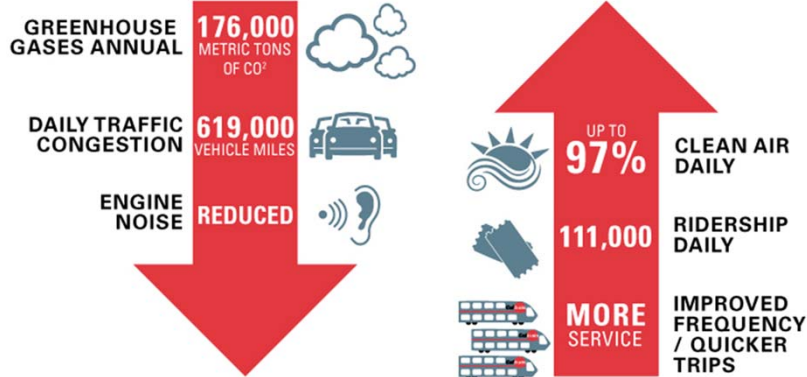


Project Description

Area	Project	Service
51 miles San Francisco to San Jose (Tamien Station)	Electrification: <ul style="list-style-type: none"> Overhead Contact System (OCS) Traction Power Facilities Electric Trains (EMUs) <ul style="list-style-type: none"> 75 percent of fleet 	Up to 79 mph Service Increase <ul style="list-style-type: none"> 6 trains / hour / direction More station stops / reduced travel time Restore Atherton & Broadway service Mixed-fleet service (interim period) Continue tenant service <ul style="list-style-type: none"> ACE, Capital Corridor, Amtrak, Freight



Key Regional Benefits (2040)



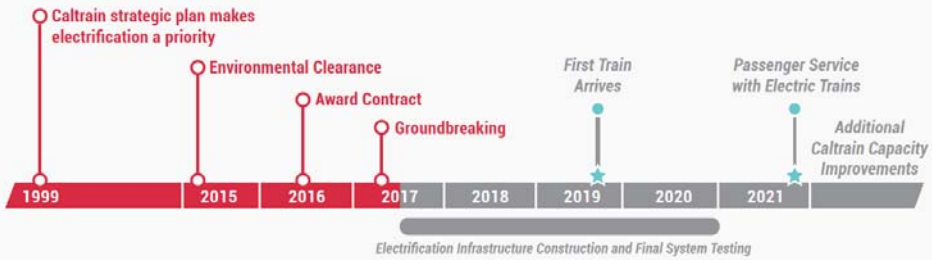
Note: 2013 BAC Report, generates \$2.5B economic activity and 9,600 jobs





Schedule

MILESTONES



Note: Schedule Subject to Change



Electric Train Design & Public Input

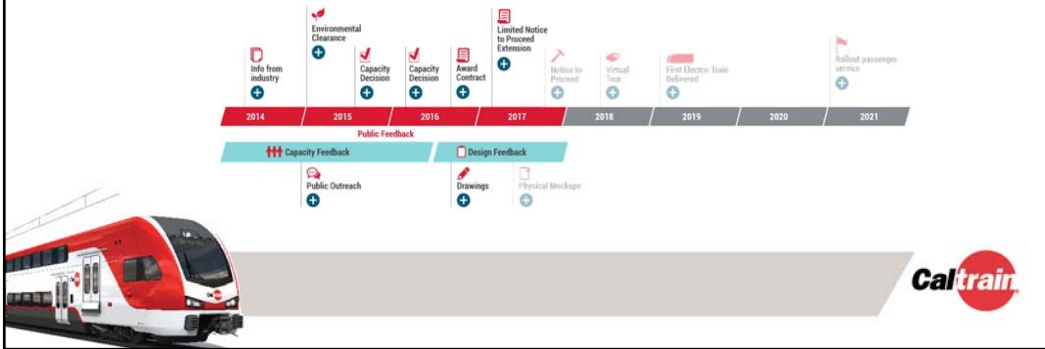
Peninsula Corridor Electrification Project





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



Outreach Tool: Dedicated Website



www.calmodtrains.com



CalMod

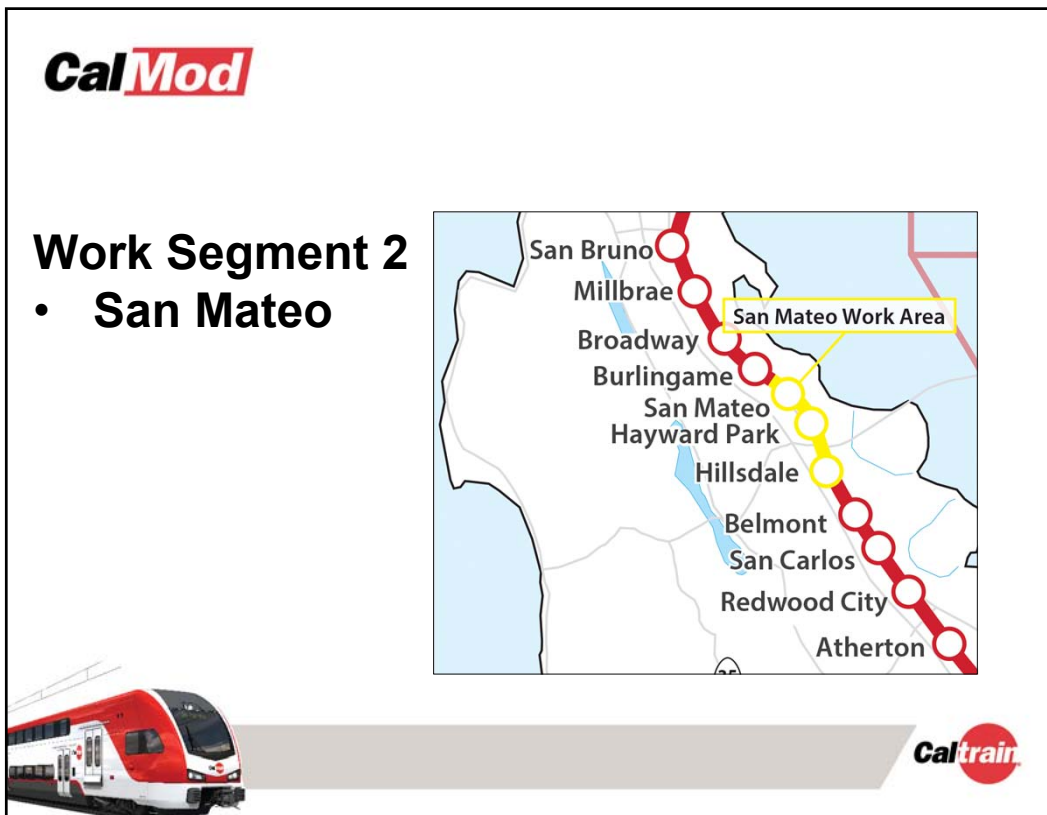
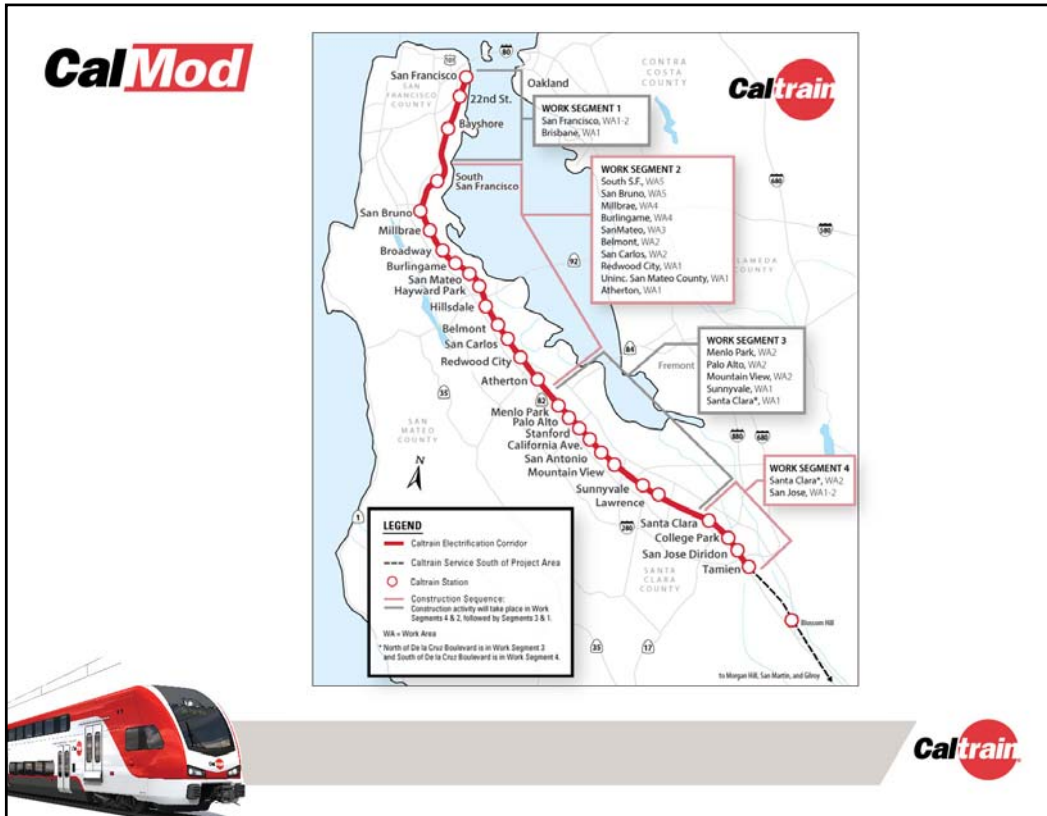
Next Steps

- Capture feedback on design elements
- Continue rollout of key design features for public input and education
 - Exterior / Interior Sign Content: Dec. 2017
- Public feedback paired with technical analysis
- Virtual Reality Tour: 2018

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Construction

Caltrain



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Field Work Status

Work Completed to Date	<ul style="list-style-type: none"> • Utility Survey • Geotechnical Investigations • Soil Resistivity Testing • Site Surveys
Work In Progress and Upcoming	<ul style="list-style-type: none"> • Overhead Contact System (OCS) Foundation Potholing • Signal Cable Potholing • Disposal of Soil from Geotechnical Investigations • Signal Cable Inspections • Tree Pruning and Removal • OCS Foundation Construction
Future Work	<ul style="list-style-type: none"> • OCS Pole Installation • OCS Wire Installation

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Potholing

**Caltrain**



Future Construction Activities

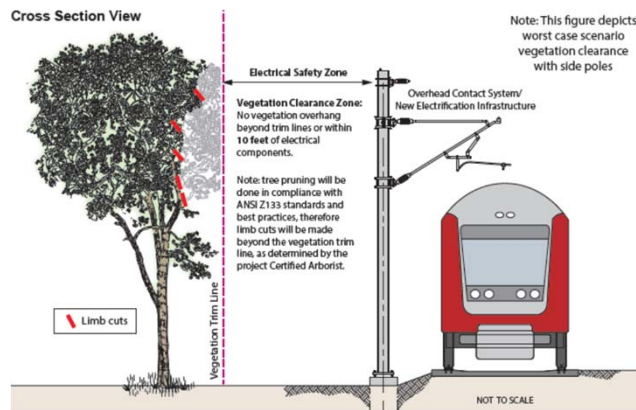
San Mateo

Date	Work Activity	Expected Duration
September 2017	Tree Pruning/Removal	2 months
Winter 2017	Foundation Construction	3-4 months
Mid-2018	Overhead Wiring Pole and Wire Installation	3 months
Summer/Fall 2018	Traction Power Substation	12 months



Tree Pruning and Replacement

- Vegetation cleared for Electrical Safety Zone





Tree Pruning and Replacement

JPB Property

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

Public or Private Property

- 1:1 City/County replacement ratio for trees being removed on public or private property
 - In San Mateo a replacement ration of 1:1 is used for both heritage trees* and non-heritage 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

**Any bay, buckeye, oak, cedar, or redwood tree having a diameter of 10 inches or more, or any other tree with a trunk diameter of 16 inches or more.*

***Trees pruned over 25% will remain in place and will not be removed. A replacement tree will also be planted.*



San Mateo: Tree Pruning and Replacement Plan

Caltrain Right of Way

San Mateo	Total Number of Trees Assessed in San Mateo = 186		
	Trees Impacted	Replacement Ratio	Replacement Trees
JPB ROW Caltrain Right of Way			
Trees Preserved	34	n/a	n/a
Tree Removed	37	1:1	37
Tree Pruned >25%	5*	1:1	5
Tree Pruned <25%	48	n/a	n/a

*Includes 1 riparian tree replaced at 1:1 per Project's permits



Note: Information may change as the design progresses





San Mateo: Tree Pruning and Replacement Plan
Private Property

San Mateo	Total Number of Trees Assessed in San Mateo = 186		
	Trees Impacted	Replacement Ratio	Replacement Trees
Private Property			
Trees Preserved	9	n/a	n/a
Tree Removed	0	1:1	0
Tree Pruned >25%	0	1:1	0
Tree Pruned <25%	22	n/a	n/a



Note: Information may change as the design progresses



San Mateo: Tree Pruning and Replacement Plan
Public Property

San Mateo	Total Number of Trees Assessed in San Mateo = 186		
	Trees Impacted	Replacement Ratio	Replacement Trees
Public Property			
Trees Preserved	7	n/a	n/a
Heritage Tree* Removed	1	1:1	1
Non-Heritage Tree Removed	0	1:1	0
Heritage Tree* Pruned >25%	4	1:1	4
Non-Heritage Tree Pruned > 25%	1	1:1	1
Tree Pruned <25%	18	n/a	n/a

*Any bay, buckeye, oak, cedar, or redwood tree having a diameter of 10 inches or more, or any other tree with a trunk diameter of 16 inches or more.



Note: Information may change as the design progresses





Foundation Work

- Excavation
- Rebar and Anchor Installation
- Electrical Grounding
- Concrete Fill



Foundation Specifics

- Approx. 270 poles installed in San Mateo
- Foundation size varies from 30" to 42"
- Foundation spacing approx. 180' apart



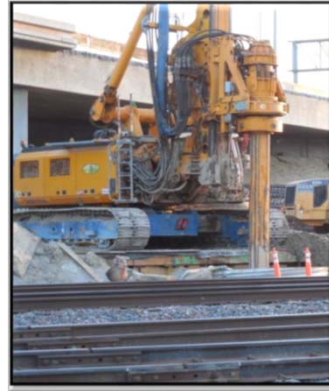
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Pole Foundation Work

Will take place on and off track



DrillTech on track foundation train



DrillTech off-track OCS Drill Rig

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Pole Installation

- 36' Pole Height
- Flat bed material transport
 - Rail and street
- Wide flange & square poles
 - San Mateo station square poles
- On & off-track crane installation

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Pole Installation



On/off-track crane for installation



Wide flange & square poles



Foundation Rebar Cage



Caltrain

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Overhead Contact System (OCS)

Will take place on-track



Caltrain



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
- Construction Outreach Office





Public Outreach


- Physical Notices




P.O. Box 3006
San Carlos, CA 94070-1506

Presented
Partly Funded
By Peninsula
PCEP
Alpham Inc.

Estimado vecino de Caltrain:
Durante las próximas tres meses, Caltrain estará trabajando en el corredor del Ferrocarril en su área para reparar el servicio de Caltrain como parte de la Península Corridor Electrificación Proyecto. Las actividades previstas durante este tiempo incluyen la instalación de instalaciones subterráneas, probando las condiciones de la tierra, reparación de herramientas de señalización, comunicación, y electrificación de líneas para conectar el corredor para la instalación y operación del servicio de transporte modernizado. Después del electrificación de líneas, se espera comenzar a trabajar en las líneas para el sistema nuevo de contacto.
Las labores tendrán a cabo durante el día y la noche. Actividades de noche se ocurren entre las 8:00 p.m. y las 6:00 a.m. Nos disculpamos por cualquier inconveniente que esto pueda causar. Para mitigar el ruido y otros impactos durante las actividades de noche, el equipo utilizará métodos de barrido acústico y colocará paneles acústicos de ciudades y áreas residenciales de impacto.
El proyecto de electrificación permitirá que Caltrain opere más silenciosamente, más rápido, más seguro, y con servicios más rápidos de tren. Mayor capacidad y mejor servicio ayudará a Caltrain a mejorar la experiencia de viaje de sus pasajeros y así la congestión de tráfico regional. Los nuevos trenes eléctricos están programados para comenzar en 2021.
Nos disculpamos por las molestias que pueden surgir mientras trabajamos para entregar estos beneficios críticos a nuestra comunidad.
Por favor visite nuestro sitio web en www.caltrain.com/PCEP para actualizaciones de construcción. Gracias por su paciencia y comprensión.



Dear Caltrain Neighbor:
Over the next three months, Caltrain will be performing work on the railroad corridor in your area of the Peninsula Corridor Electrification Project. The anticipated activities during this time include testing soil conditions, inspecting signal/communication equipment, and tree trimming/removal for installation and operation of modernized transit service. After tree trimming/removal occurs, crews will be working on 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. as inconvenience this may cause. To mitigate noise and other impacts during nighttime activities, the crew will use sound barriers, and will position lights away from residential, roadways, and business areas.
The electrification project will allow Caltrain to operate quieter, cleaner, more frequent and/or faster, creating capacity and improved service that will help Caltrain meet the increasing ridership demand in the region. 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 as we deliver these critical benefits to our communities.
Please visit our website at www.caltrain.com/PCEPconstruction to sign-up for weekly construction updates.





CALTRAIN MODERNIZATION PROGRAM
Test Pile Construction Activities

DAY TIME WORK
08/28/17 - 09/1/17

ANTICIPATED WORK HOURS
7:00 a.m. - 6:00 p.m.

CREWS CONDUCTING WORK IN YOUR AREA TO INSTALL AND TEST FOUNDATION PILES
During the week of August 28, Caltrain electrification crews will be working in your area to construct one test pile foundation for ranging testing. The piles will be installed within the Caltrain right-of-way.
Crews will be conducting the work over a two-day period between Monday, August 28 and Friday, September 1, between the hours of 7 a.m. and 6 p.m. Crews will return at a later date to test the strength of the installed piles.
Main construction activities include:
- Survey and layout of proposed pile test location
- Trucks and equipment working near Caltrain right of way
- Drill holes for placement of test piles
- Pour concrete and install rebar
- Backfill holes to cover work areas
We appreciate your patience during construction.



Construction Contact Information

Email: calmod@caltrain.com

Phone: 650.399.9659

Toll Free: 800.660.4287

2121 S. El Camino Real, Suite A-100

San Mateo, CA 94403

9 a.m. - 6 p.m. Monday-Friday

www.caltrain.com/pcepconstruction