




**CalMod**

## Peninsula Corridor Electrification Update Meeting


Twin Pines Senior and Community Center  
October 11, 2017




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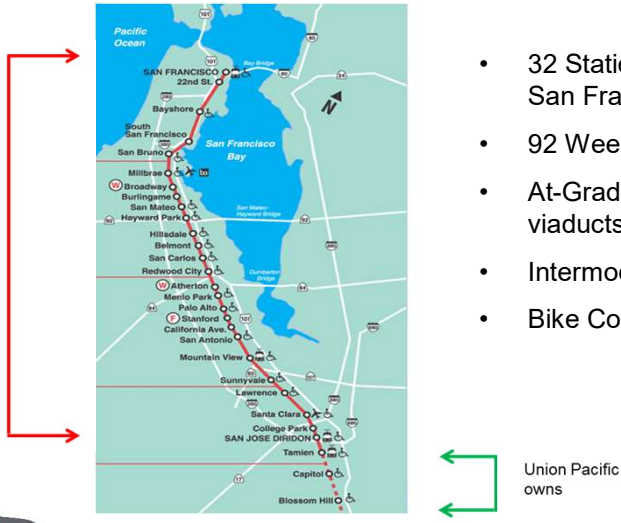
## Agenda

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








## Caltrain System



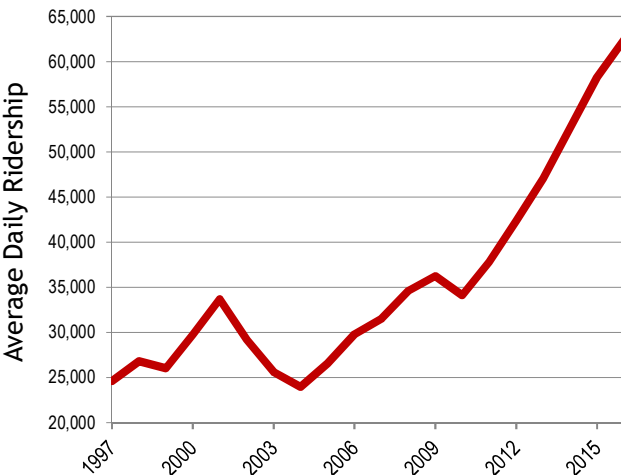
JBP owns right-of-way from SF to San Jose

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



Union Pacific owns

## Ridership



Year	Average Daily Ridership
1997	25,000
1998	26,000
1999	26,000
2000	27,000
2001	34,000
2002	28,000
2003	25,000
2004	24,000
2005	26,000
2006	29,000
2007	31,000
2008	35,000
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
<b>Locomotives</b>					
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
<b>Passenger Cars</b>					
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.



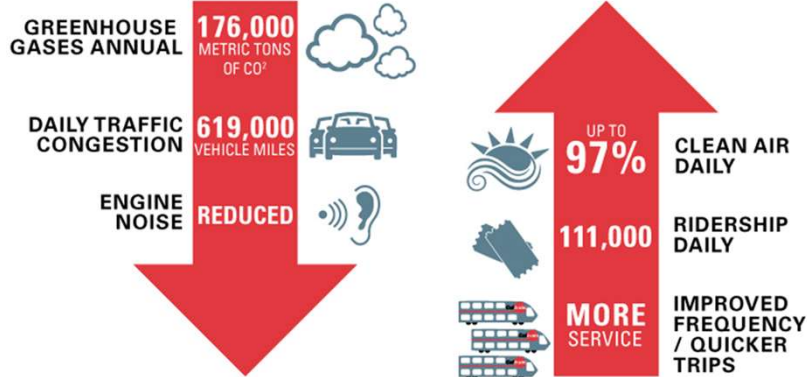


## Project Description

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



## Key Regional Benefits (2040)



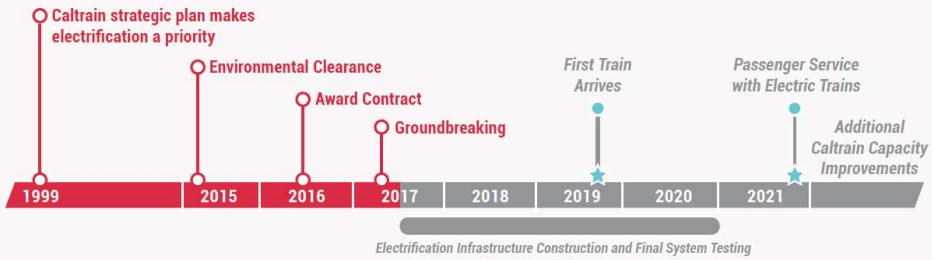
Note: 2013 BAC Report, generates \$2.5B economic activity and 9,600 jobs





# Schedule

## MILESTONES



Note: Schedule Subject to Change



## Electric Train Design & Public Input

Peninsula Corridor Electrification Project



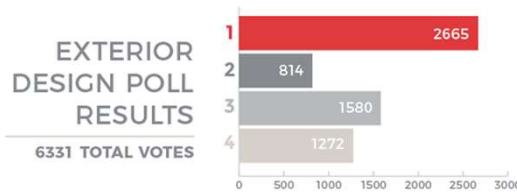


## Electric Train Outreach: Phased

- 2016 Capacity Board Decision (bike to seat ratio, onboard bathrooms, upper doors)
- ➔ • 2017 Design Progressing: Additional Public Input
- 2018 Virtual Reality 360 Tour



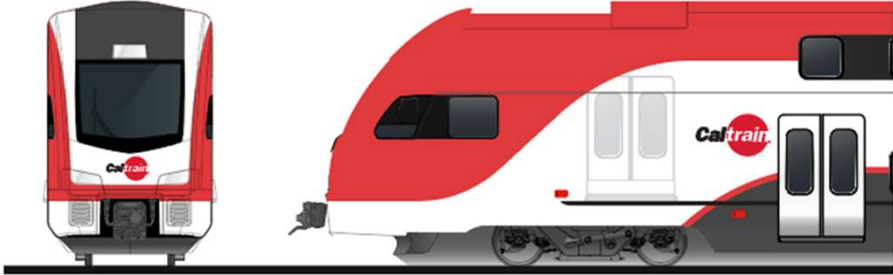


## Electric Train Exterior Design Public Poll



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# Electric Train Exterior Design


WINNING DESIGN: **OPTION 1**

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# Electric Train Seat Design




WINNING DESIGN: **OPTION B**



SEAT POLL RESULTS

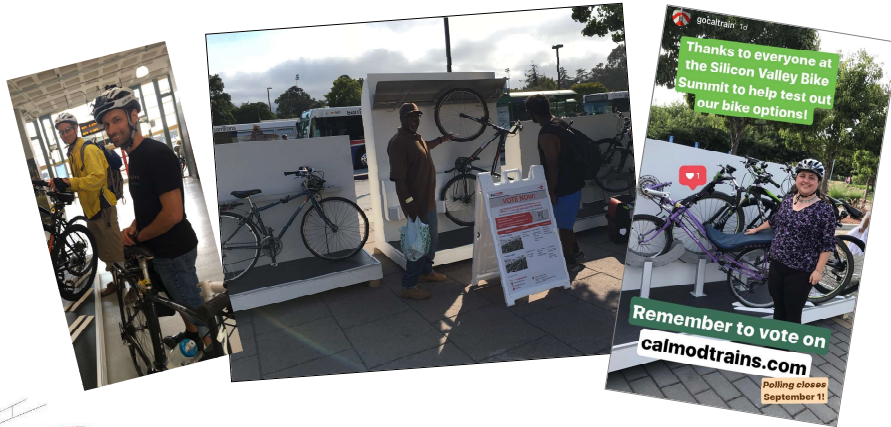
2549 TOTAL VOTES

Option	Number of Votes	Percentage
A	1007	39.7%
B	1528	60.3%



# Electric Train Onboard Bike Storage Outreach



Station Outreach with Samples: August 8 to September 1



# Electric Train Onboard Bike Storage Outreach

## FEEDBACK COLLECTION PROCESS



- + BICYCLE ADVISORY COMMITTEE (BAC)
- + BIKE COALITION INPUT
- + ONLINE BIKE POLL
- + STATION OUTREACH
- + RIDER COMMENTS







# Electric Train Onboard Bike Storage Design



- Maximizes capacity
- Accommodates variety of bike types
- Recommended by:
  - Bicycle Advisory Committee
  - Bike Coalitions (SF and Silicon Valley)



# EMU Capacity

CURRENT DIESEL FLEET (Mix Of Bombardier and Gallery Cars | 5- and 6-car Train Sets)

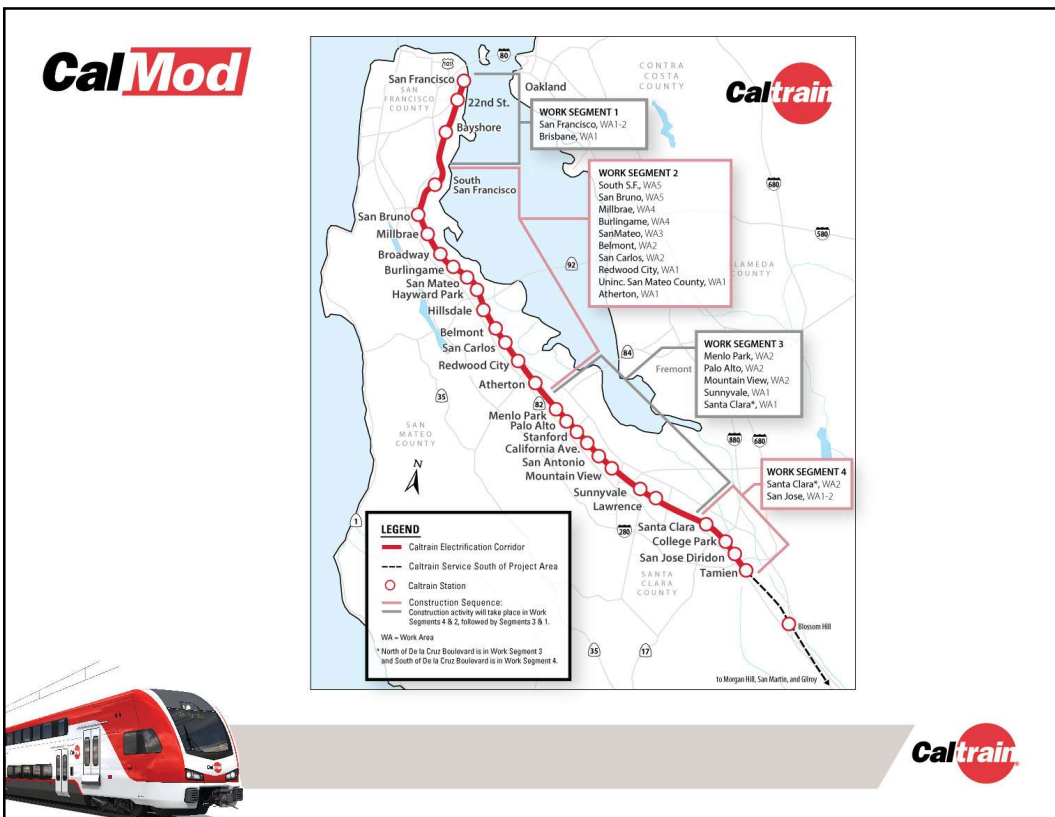


MIXED FLEET (Mix of 7-car Diesel Train Sets and 6-car Electric Train Sets)



- 12.5% increase in bike capacity
- 10.3% increase in seat capacity
- 31% increase in seat + standing capacity

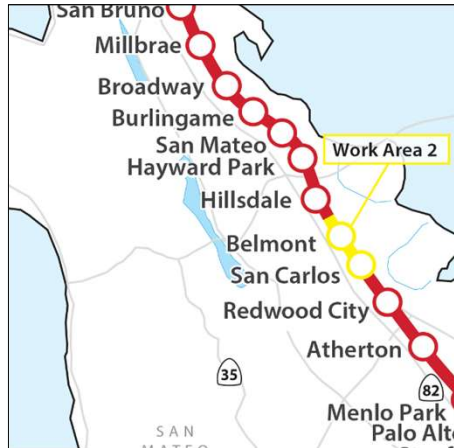






## Work Segment 2, Area 2

- Belmont
- San Carlos



## Field Work Status

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



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# Potholing



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# Future Construction Activities

## Belmont and San Carlos

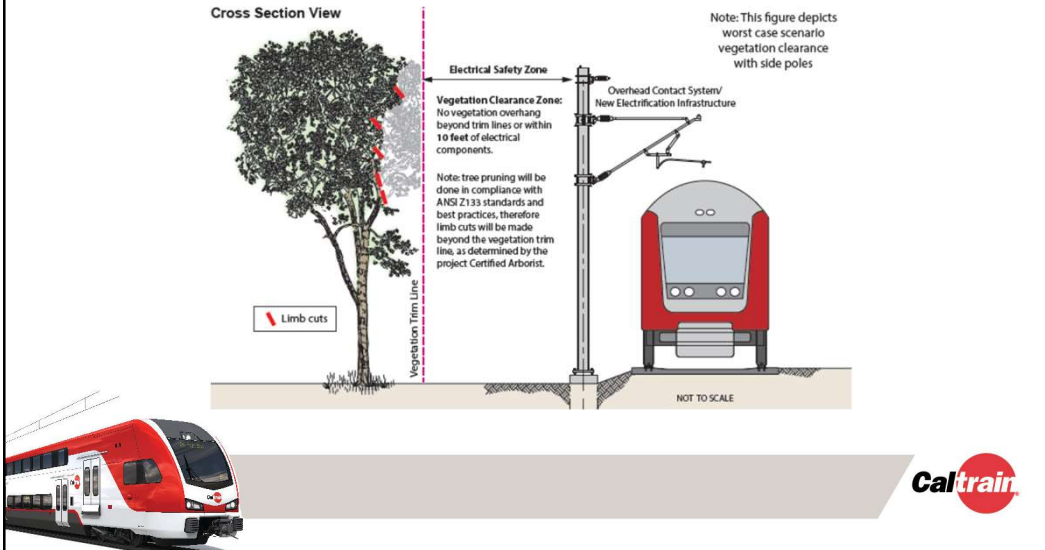
Date	Work Activity	Expected Duration
December 2017	Tree Pruning/Removal	2 months
Summer 2018	Foundation Construction	3-4 months
Fall 2018	Overhead Wiring Pole and Wire Installation	3-4 months





# Tree Pruning and Replacement

- Vegetation cleared for Electrical Safety Zone



## Belmont: Tree Pruning and Replacement Plan

City of Belmont			
	Caltrain Right of Way	Private Property	Public Property
Trees Removed	25	0	0
Protected Tree* Pruned >25%	0	1	0
Tree Pruned >25%	9	0	0
Tree Pruned <25%	14	0	8

\*Any woody, perennial plant characterized by having a single main stem or trunk of 10" or more diameter at breast height (DBH) at 4-1/2' above natural grade or multiple secondary stems totaling 10" or more DBH at 4-1/2' above natural grade.




Note: Information may change as the design progresses

**CalMod****San Carlos: Tree Pruning and Replacement Plan**

City of San Carlos			
	Caltrain Right of Way	Private Property	Public Property
Trees Removed	1	0	10
Tree Pruned >25%	17	0	0
Tree Pruned <25%	9	0	43



Note: Information may change as the design progresses 

**CalMod****Foundation Work**

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





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## Foundation Specifics

- Approx. 100 poles installed in Belmont
- Approx. 130 poles in San Carlos
- Foundation size varies from 30” to 42”
- Foundation spacing approx. 180’ apart

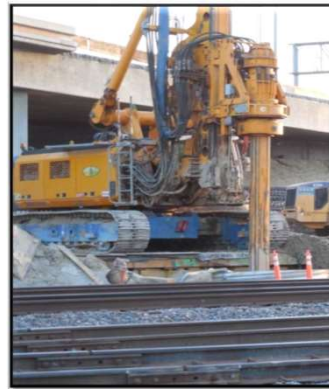
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## Pole Foundation Work

Will take place on and off track



*DrillTech on track foundation train*



*DrillTech off-track OCS Drill Rig*

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## Pole Installation



*On/off-track crane for installation*



*Wide flange & square poles*



*Foundation Rebar Cage*



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## Overhead Contact System (OCS)

Will take place on-track



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## 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

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## Public Outreach

- Subscribe to Weekly Updates
  - Visit [caltrain.com/pcepconstruction](http://caltrain.com/pcepconstruction)
- Additional Community Meetings
  - Pole and Wire Installation
- Construction Outreach Office

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# Public Outreach

- Physical Notices

P.O. Box 3106  
San Carlos, CA 94070-1306

Presented  
by  
Caltrans  
and  
MTC  
Adaptive Inc.

Estimado cliente de Caltrain:  
Durante los próximos tres meses, Caltrain estará trabajando en el corredor del Ferrocarril en la zona para mejorar el servicio de Caltrain como parte de la Península Corridor Electrificación Proyecto. Las actividades previstas durante este tiempo incluyen: instalación de instalaciones subterráneas, mejorando las condiciones de la tierra, inspección de terreno de señalización, y construcción de pilotes para preparar el corredor para la instalación y operación del servicio de transporte electrificado. Después del comienzo de las obras, se espera comenzar a trabajar en los trenes para el sistema antes de concluir.  
Las labores tendrán a cabo durante el día y la noche. Actividades de noche se ocurrirán 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, se utilizarán barreras acústicas móviles de barrera acústica instaladas sobre el espacio de circulación de las vías ferroviarias de la zona.  
El proyecto de electrificación permitirá que Caltrain opere más silenciosas, más rápidas, más seguras y con servicios más frecuentes. Mayor capacidad y mejor servicio ayudará a Caltrain a satisfacer la creciente demanda de viajes diarios y a ser la opción de transporte más segura. Los nuevos trenes eléctricos están programados para comenzar en 2021.  
No dude en contactar a nuestros ingenieros de trabajo para cualquier pregunta crítica o comentario.  
Por favor visite nuestro sitio web en [www.caltrain.com/PCEP](http://www.caltrain.com/PCEP) para obtener información 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, work will be 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, we will use barrier blankets, 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 service and improved service will help Caltrain meet the increasing ridership demand in the area. 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 services.  
Please visit our website at [www.caltrain.com/PCEP](http://www.caltrain.com/PCEP) for weekly construction notice updates. Thank you.

@Caltrain #CalModTrains   
 Caltrain.com/PCEP   
 650-399-9659  
 www.facebook.com/caltrain   
 calmod@caltrain.com   
 Para traducción llame al 1-800-660-4287

**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 integrity 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 integrity 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 apologize for any inconvenience this may cause. The field team will work as quietly as possible. 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](http://www.caltrain.com/PCEPconstruction) to sign-up for weekly construction updates.  
**We appreciate your patience during construction.**



## Construction Contact Information

Email: [calmod@caltrain.com](mailto: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](http://www.caltrain.com/pcepconstruction)

