




**CalMod**

## Peninsula Corridor Electrification Update Meeting


San Jose State Library  
November 28, 2017




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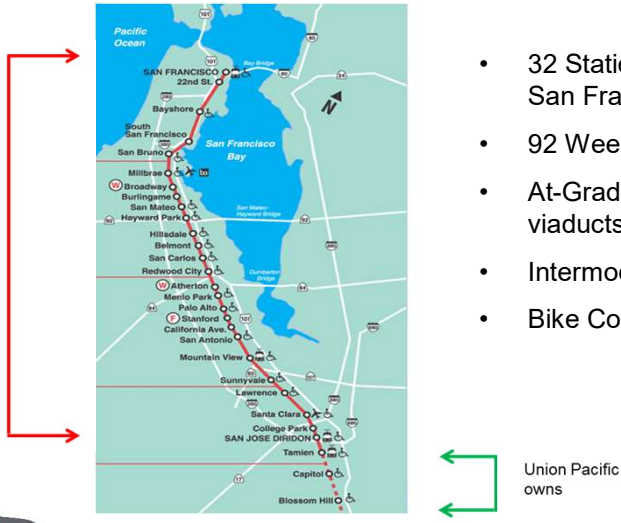
## Agenda

- Caltrain System Overview
- Project Overview
- Electric Multiple Unit (EMU) Design
- San Jose and Santa Clara Construction Activities
- Questions








## Caltrain System



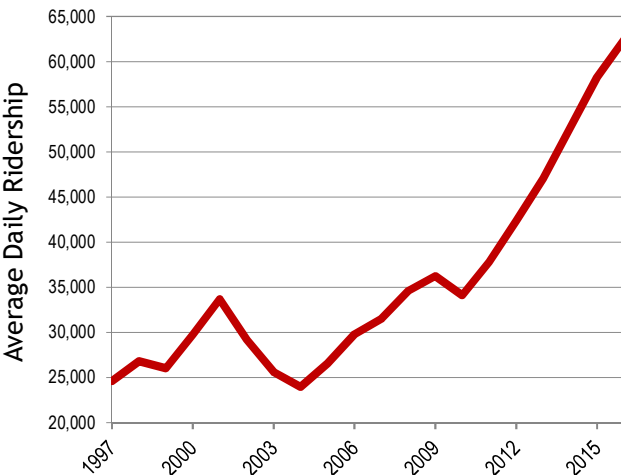
- 32 Stations Gilroy to San Francisco
- 92 Weekday Trains
- At-Grade Crossings, viaducts, and bridges
- Intermodal Connections
- Bike Commuters

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



Union Pacific owns

## Ridership



Year	Average Daily Ridership
1997	25,000
1998	26,000
1999	26,000
2000	27,000
2001	33,000
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	43,000
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.





## Regional Transportation Needs

- US 101 and Interstate 280 Congested
- Corridor supports growing economy
- 75% Caltrain riders commute to work
- 60% are choice riders



## Project Description

Area	Project	Service
51 miles San Francisco to San Jose (Tamien Station)	Electrification: <ul style="list-style-type: none"> <li>• Overhead Contact System (OCS)</li> <li>• Traction Power Facilities</li> </ul> Electric Trains (EMUs) <ul style="list-style-type: none"> <li>• 75 percent of fleet</li> </ul>	Up to 79 mph Service Increase <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>





## Service Benefits

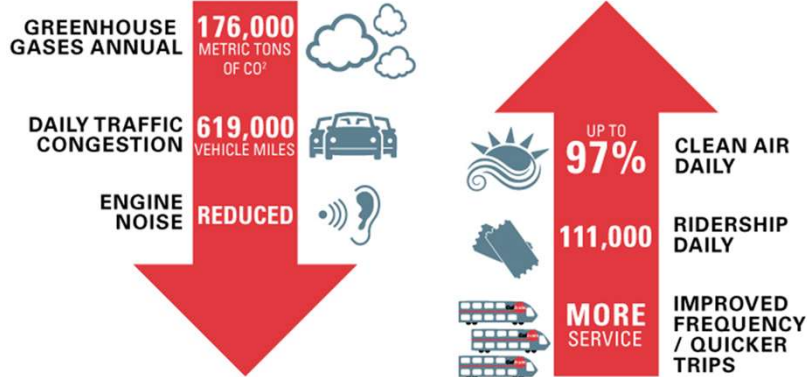
Metric	Today	PCEP
Example Baby Bullet Train		
Retain 5-6 stops	60 minutes	45 minutes
Retain SF to SJ 60 minutes	6 stops	13 stops
Example Redwood City Station		
Train stops / peak hour	3	5



Note: Prototypical Train and Schedule



## Key Regional Benefits (2040)



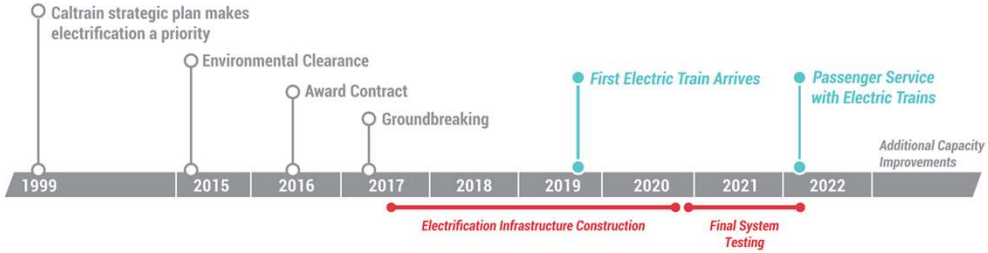
Note: 2013 BAC Report, generates \$2.5B economic activity and 9,600 jobs





# Schedule

## MILESTONES



\*Please keep in mind that testing and construction will overlap as each Segment will be tested individually, prior to final system testing.

Note: Schedule Subject to Change



## Electric Train Design & Public Input

Peninsula Corridor Electrification Project



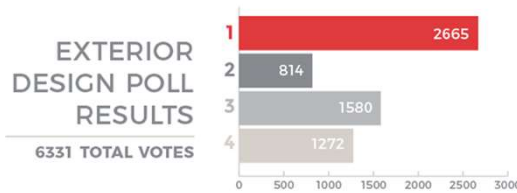


## Electric Train Outreach: Phased

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



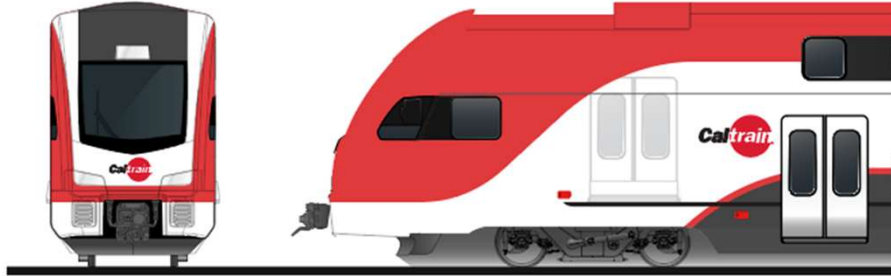
## Electric Train Exterior Design Public Poll



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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

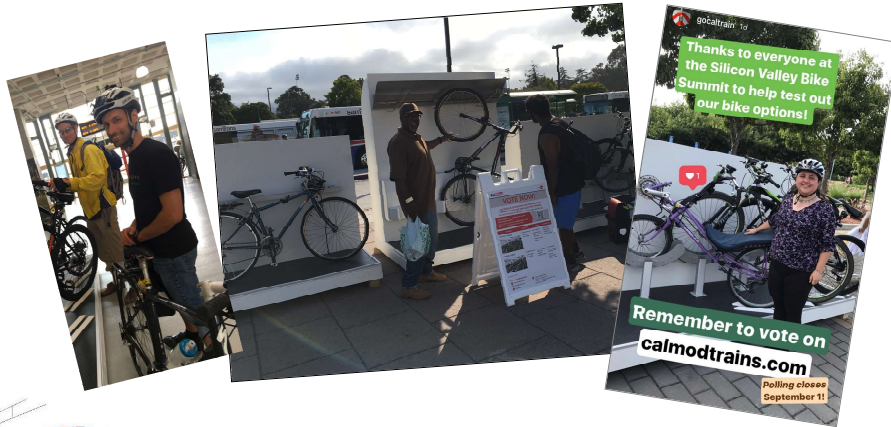
2549 TOTAL VOTES







# Electric Train Onboard Bike Storage Outreach

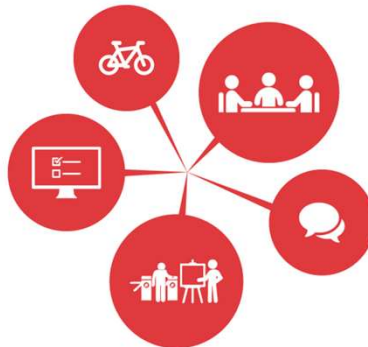


Station Outreach with Samples: August 8 to September 1



# Electric Train Onboard Bike Storage Outreach

## FEEDBACK COLLECTION PROCESS



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



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## Electric Train Onboard Bike Storage Design

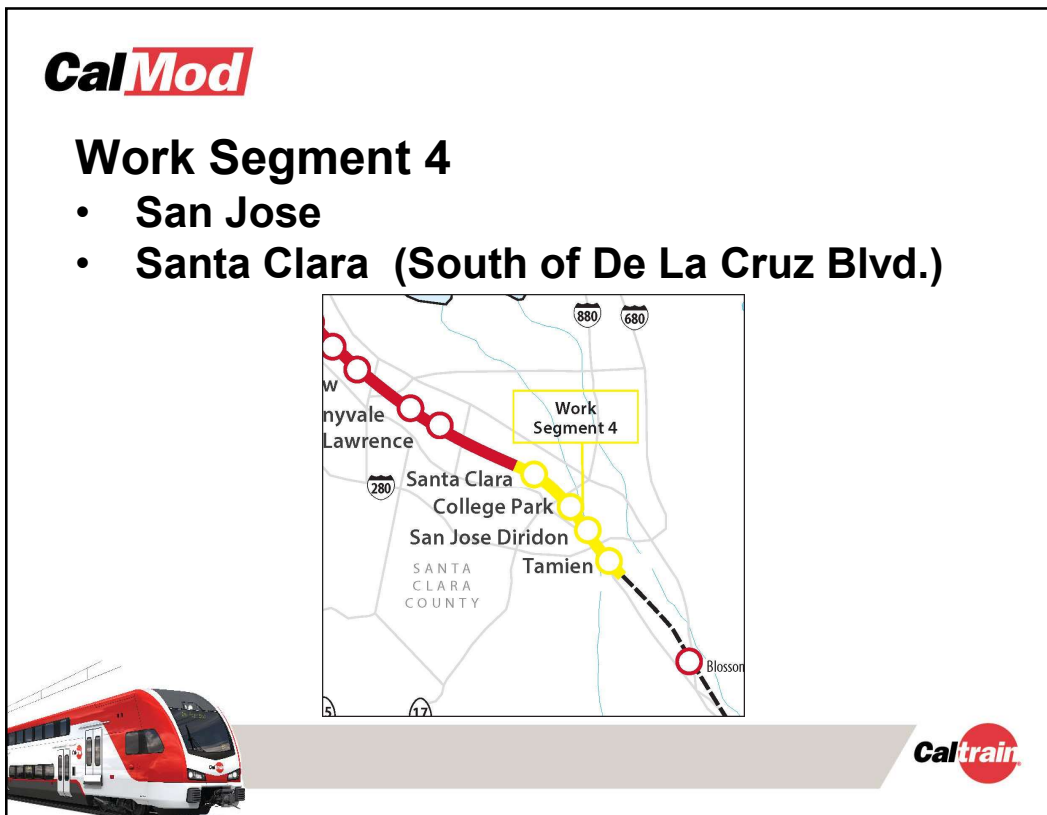
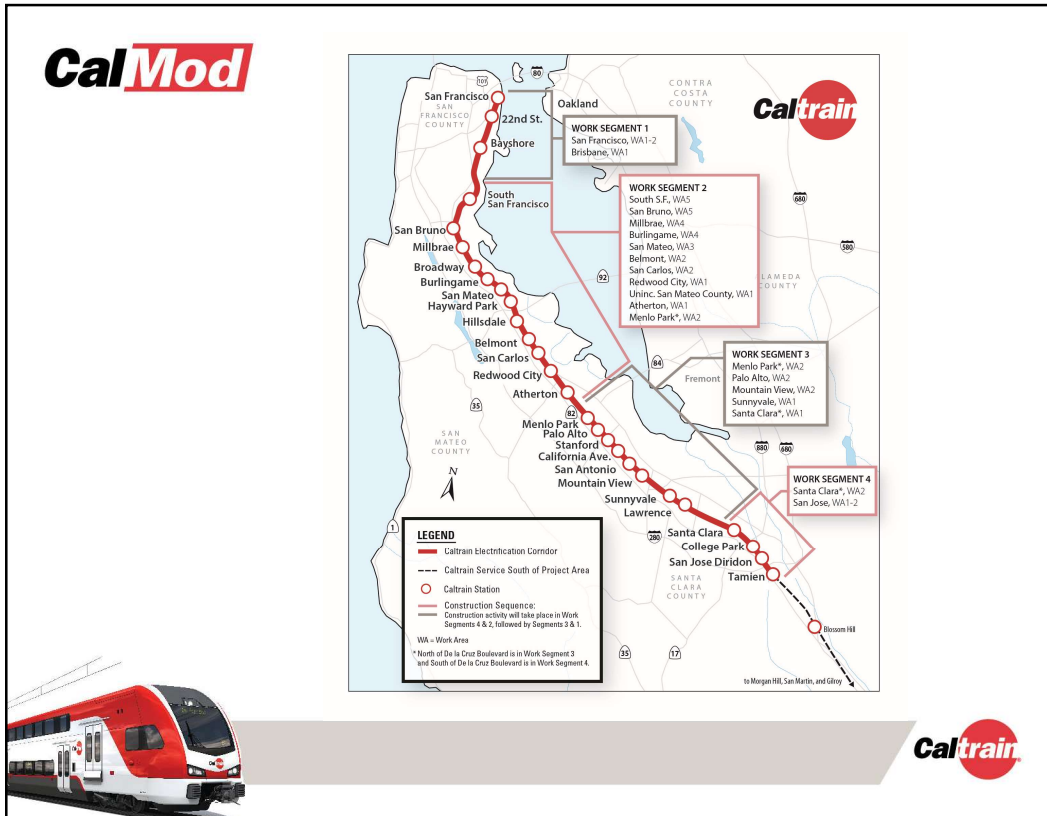


- Maximizes capacity
- Accommodates variety of bike types
- Recommended by:
  - Bicycle Advisory Committee
  - Bike Coalitions (SF and Silicon Valley)

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## Construction

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# Field Work Status

Pre-Construction Work Completed	<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>• Foundation Potholing</li> <li>• Tree Pruning and Removal</li> <li>• Foundation Construction</li> <li>• Pole Installation</li> <li>• Wire Installation</li> </ul>
Future Work	<ul style="list-style-type: none"> <li>• OCS Pole Installation</li> <li>• OCS Wire Installation</li> </ul>



# Potholing





## Future Construction Activities

### San Jose and Santa Clara (Work Segment 4)

Date	Work Activity	Expected Duration
December 2017	Tree Pruning/Removal	1-3 months
Early 2018	Foundation Construction	3-5 months
Early 2018	Traction Power Substation (San Jose only)	1 year
Late 2018	Wire Installation	3-4 months



## Future Construction Activities

### Santa Clara (Work Segment 3)

- North of De La Cruz Blvd.
- Tree Work Expected Mid-2018
- Foundation Work Expected Late-2018
- Poles and Wires Expected 2019

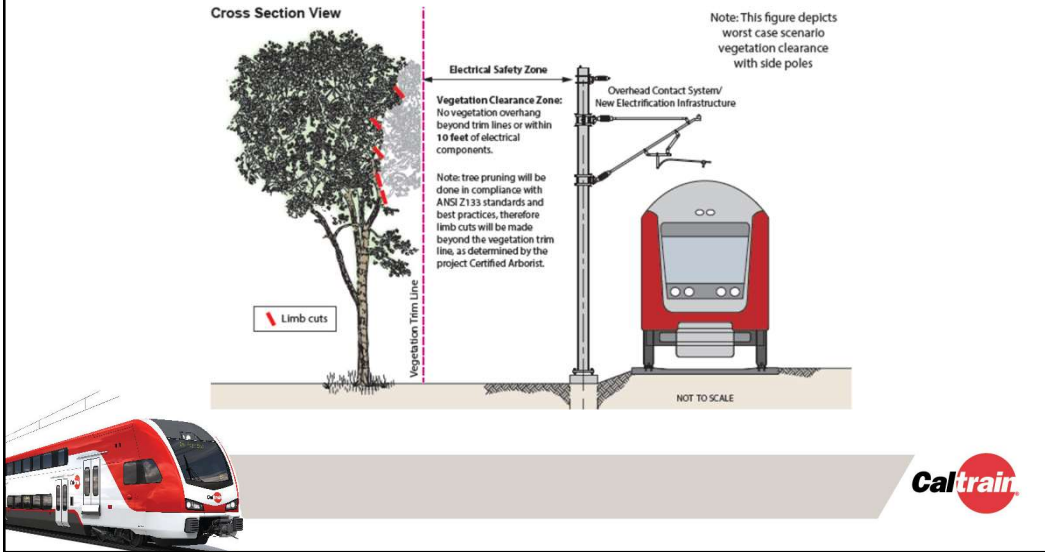
Note: Schedule Subject to Change Based on Design





# Tree Pruning and Replacement

- Vegetation cleared for Electrical Safety Zone



## San Jose : Tree Pruning and Replacement Plan

City of San Jose			
	Caltrain Right of Way	Public Property	Private Property
Trees Removed	20	10	0
Trees Pruned >25%	16	8	0
Trees Pruned <25%	33	17	0




Note: Information may change as the design progresses

**CalMod****Santa Clara: Tree Pruning and Replacement Plan**

City of Santa Clara			
	Caltrain Right of Way	Public Property	Private Property
Trees Removed	12	0	0
Trees Pruned >25%	14	0	10
Trees Pruned <25%	39	1	23



Note: Information may change as the design progresses 

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





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## Foundation Specifics

- Approx. 460 poles installed in San Jose
- Approx. 60 poles installed in Santa Clara
- Pole size varies from 30' to 45'
- Pole spacing approx. 180' apart

Note: Schedule Subject to Change

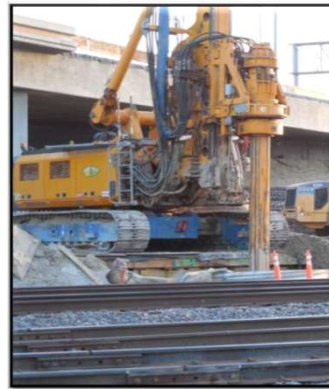
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## Foundation Construction

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*



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## Wire Installation

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
- Social Media
- Construction Outreach Office

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# Public Outreach


- Physical Notices







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


Presented  
by  
CalMod  
PCEP  
Alstom Inc.

**Estimado vecino de Caltrain:**  
Durante los próximos tres meses, Caltrain estará trabajando en el corredor del Ferrocarril en su área para mejorar el servicio de Caltrain como parte de su Península Corridor Electrificación Proyecto. Las actividades previstas durante este tiempo incluyen la instalación de instalaciones subterráneas, ajustando las condiciones de la tierra, inspección de terreno de calidad, inspección y mantenimiento de líneas para preparar al corredor para la instalación y operación de servicios de transporte electrificados. Después del comienzo de la construcción, se espera comenzar a trabajar en los trenes para el sistema antes de 2021.  
Los trabajos 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 de noche, el equipo utilizará métodos de barrido acústico y colocará barreras acústicas de contención y áreas reservadas de silencio.  
El proyecto de electrificación permitirá que Caltrain opere más silenciosamente, más rápido, más seguro y con servicios más frecuentes. Mayor capacidad de servicio ayudará a Caltrain a satisfacer la creciente demanda de viajes diarios y a ser la columna vertebral de nuestro sistema. Los nuevos trenes eléctricos están programados para comenzar en 2021.  
No dude en preguntarnos por las medidas que podemos tomar para ayudar a mitigar estos impactos críticos a nuestro vecindario.  
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 the 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 an inconvenience this may cause. To mitigate noise and other impacts during nighttime activities, we 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. Increased capacity and improved service 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 improvements to our system.  
Please visit our website at [www.caltrain.com/PCEP](http://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.

 @Caltrain #CalModTrains
  Caltrain.com/PCEP
  650-399-9659
  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 crews 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/PCEP/Construction](http://www.caltrain.com/PCEP/Construction) 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. - 5 p.m. Monday-Friday**

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



