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**CALTRAIN ELECTRIFICATION UPDATE**

Santa Clara Community Meeting  
May 13, 2019

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## AGENDA

- Caltrain System Overview
- Project Overview
- Electric Train Design
- Santa Clara Construction Activities
- Questions

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## CALTRAIN SYSTEM

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

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## RIDERSHIP

Year	Average Daily Ridership
1998	28,000
1999	27,000
2000	35,000
2001	28,000
2002	26,000
2003	27,000
2004	30,000
2005	32,000
2006	35,000
2007	38,000
2008	36,000
2009	40,000
2010	45,000
2011	50,000
2012	55,000
2013	60,000
2014	63,000
2015	65,000
2016	66,000
2017	67,000
2018	68,000

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## AT CAPACITY TODAY



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

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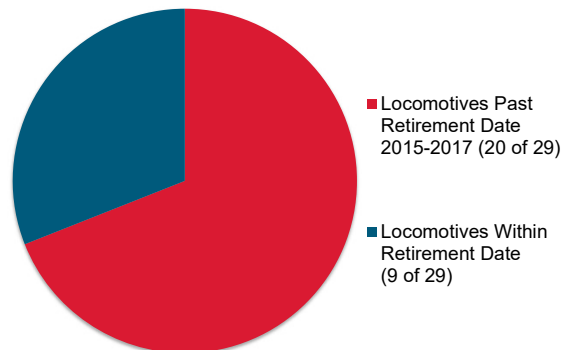


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## AGING FLEET

### Locomotives



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## CORRIDOR SUPPORTS GROWING ECONOMY

- The corridor is the #3 most congested area in the U.S.
- US 101 and Interstate 280 congested
- 75% Caltrain riders commute to work
- 60% are choice riders
- Organizations shown represent Caltrain Commuter Coalition (P3)

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## 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


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## 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

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## SERVICE BENEFITS

Metric	Today	PCEP	Benefit
EXAMPLE: BABY BULLET TRAIN			
Retain 5-6 stops	60 minutes	45 minutes	<b>15 minute savings</b>
Retain SF to SJ 60 minutes	6 stops	13 stops	<b>7 more stops</b>
EXAMPLE: REDWOOD CITY STATION			
Train stops / peak hour	3	5	<b>2 more stops</b>


\* Note: Prototypical Train and Schedule

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## 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**

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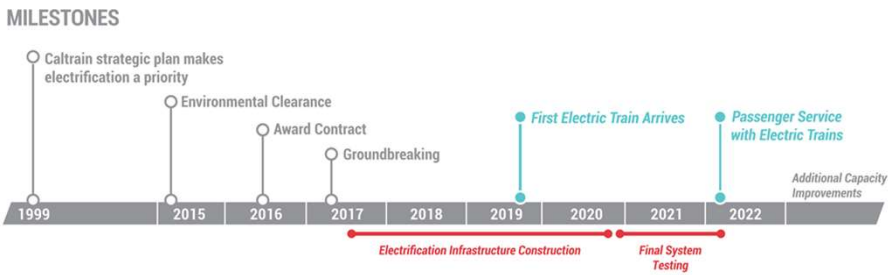
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## SCHEDULE


**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**

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# ELECTRIC TRAIN

- **2016** Capacity Board Decision (bike to seat ratio, onboard bathrooms, upper doors 'not precluded')
- **2017** Design Finalized with Additional Public Input (exterior design, seat colors, bike storage, ADA restroom)
- **2019** Virtual Reality 360 Tour



FEEDBACK COLLECTION PROCESS



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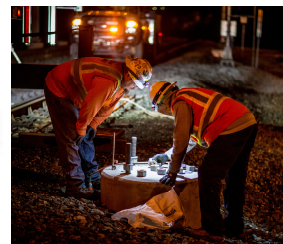
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# CONSTRUCTION PHASING



- 51 Miles Corridor
- 4 Work Segments
- 3,000 Poles
- 10 Traction Power Facilities



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## SANTA CLARA

The map displays the Caltrain tracks through Santa Clara. A green line indicates 'Santa Clara Work Segment 3' and a yellow line indicates 'Santa Clara Work Segment 4'. A red arrow points to the 'Santa Clara Station' location. Landmarks such as the Triton Museum of Art and Mission Santa Clara de Asis are also visible.

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## FIELD WORK PROGRESSION

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	<ul style="list-style-type: none"> <li>• Tree Pruning/Removal</li> <li>• Foundation Potholing</li> <li>• Foundation Installation</li> </ul>
Future Work	<ul style="list-style-type: none"> <li>• Pole Installation</li> <li>• Wire Installation</li> <li>• Bridge Barrier Installation</li> </ul>

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### FUTURE CONSTRUCTION ACTIVITIES

Santa Clara (Segment 4 - South of De La Cruz)

Date	Work Activity	Expected Duration*
In Progress	Potholing	2-3 months
Spring/Summer 2019	Foundation Construction	3-4 months
Summer 2019	Pole Installation	3-4 months
Late 2019	Wire Installation	3-4 months

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### FUTURE CONSTRUCTION ACTIVITIES

Santa Clara (Segment 3 - North of De La Cruz)

Date	Work Activity	Expected Duration*
In Progress	Potholing	2-3 months
Summer/Fall 2019	Foundation Construction	3-4 months
Fall 2019	Bridge Barrier Installation	2-3 months
Early 2020	Pole Installation	3-4 months
Early-Mid 2020	Wire Installation	3-4 months

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## POTHOLING



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## CONSTRUCTION STAGING

- Equipment will be staged between the Santa Clara and College Park Stations
- Construction staging will occur along the Caltrain right-of-way south of Santa Clara Station
- Use of trucks, loading/unloading construction trains, occasional use of backup alarms
- 6-8 month period
- Day and night work from 7 p.m. to 5 a.m.

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# CONSTRUCTION STAGING



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# FOUNDATION INSTALLATION



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On Track Equipment



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## FOUNDATION CONSTRUCTION

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

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## POLE INFORMATION

- 3,000 Installed throughout Corridor
  - Approx. 150 poles in Santa Clara
- Pole Height: 30-50'
- Pole Spacing: ~180' apart

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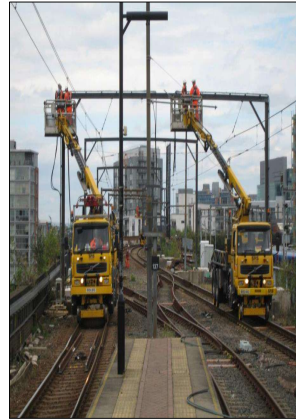
## POLE TYPES SANTA CLARA



Single Track Cantilever



Two Track Cantilever



Portals

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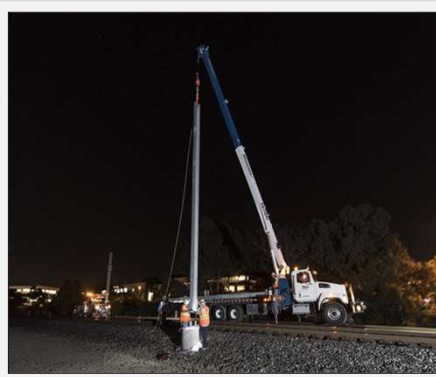
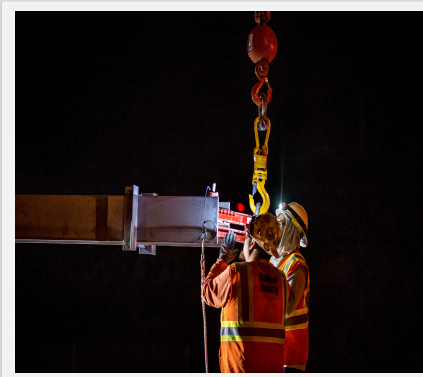
Example of Poles Planned for Use in Santa Clara



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## POLE INSTALLATION



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Current Pole Installation



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## STRINGING WIRE



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## SANTA CLARA TEST TRACK

- Approximately 1.5 miles of track
- Located between Santa Clara Station and Caltrain CEMOF facility
- Foundations, poles and wires to be installed prior to electric train testing

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## SANTA CLARA TEST TRACK

- New electric trains will be tested on track
- Testing to occur between 2020 and 2021
- Testing anticipated to be during daytime

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## BRIDGE BARRIERS

- Ensure the safety of pedestrians and electrical infrastructure
- Will be installed at:
  - Scott Boulevard
  - Lafayette Street
  - De La Cruz Boulevard

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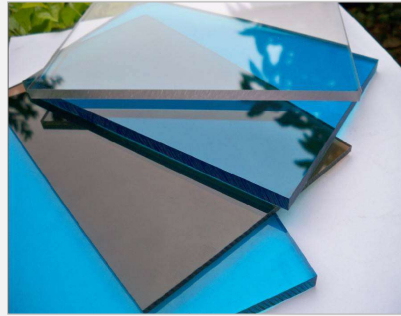


## BRIDGE BARRIERS



Screen Mesh

Polycarbonate Panel



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9'6" fence height required for pedestrian bridges



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## 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


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**CALTRAIN MODERNIZATION PROGRAM**  
Test File Construction Activities

**DAY TIME WORK**  
08/28/17 - 09/11/17

**ANTICIPATED WORK HOURS**  
7:00 a.m. - 5:00 p.m.

**CREWS CONDUCTING WORK IN YOUR AREA TO INSTALL AND TEST FOUNDATION PILES**  
During the week of August 28, Caltrain electrician crews will be working in your area to construct one test pile foundation for energy piles. 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 5 p.m. Crews will arrive at the site late in the day to begin the installation of the installed piles.

Other construction activities include:

- Survey and layout of proposed pile test locations
- Trucks and equipment working near Caltrain right-of-way
- Site visits for placement of test piles
- Pile construction and installation
- Backfill holes to cover work areas


We apologize for any inconvenience this may cause. The full team will work as quickly 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/PM2017construction](http://www.caltrain.com/PM2017construction) to sign up for weekly construction updates.

We appreciate your patience during construction.

**Doorhanger**

## PUBLIC OUTREACH



**CALTRAIN ELECTRIFICATION PROJECT**  
STATUS UPDATE | January 2018

**MILESTONES**

- Caltrain strategic plan release
- Environmental Clearance
- Amend Contract
- Construction
- Finalize Design
- Finalize Contract
- Finalize Design
- Finalize Contract
- Finalize Design
- Finalize Contract

**KEY REGIONAL BENEFITS 2040**

- OPERATIONAL COST SAVINGS: **175,000**
- SAVES 1.1 MILLION GALLONS OF FUEL
- SAVES 119,000 TONS OF CO2
- SAVES 21% FUEL COST
- SAVES \$2.5 MILLION IN OPERATING COSTS
- SAVES 100,000 HOURS OF TRAVEL TIME
- SAVES 100,000 HOURS OF TRAVEL TIME

**FOR MORE INFORMATION**


- www.calmod.org
- 1-800-399-3638
- PM2017@caltrain.com
- 1-800-399-3638
- PM2017@caltrain.com
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**CALTRAIN MODERNIZATION**

- IMPROVING CONVENIENCE**  
An electric system means the train can run more frequently and more efficiently.
- BOOSTING ECONOMIES**  
Caltrain will also provide economic benefits, including creating nearly 10,000 jobs across the country.
- ADVANCING SUSTAINABILITY**  
Reducing the need for new electric trains will reduce CO2 and improve air quality.
- INCREASING CAPACITY**  
Caltrain anticipates that as more trains run, it will increase capacity by over 30%.


There are just a few examples of how Caltrain and the CalMod program are innovating to better serve the Bay Area. Learn more at [CalMod.org](http://CalMod.org) and stay in touch with us on social media!

**Postcard**




**Public Meeting**

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## PUBLIC OUTREACH

- Subscribe to Weekly Updates  
– Visit [www.calmod.org/get-involved](http://www.calmod.org/get-involved)
- Social Media
- Construction Outreach Office

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## 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

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## CALMOD CONTACT INFORMATION

**WEEKLY UPDATES** 📧 [CalMod.org/get-involved](http://CalMod.org/get-involved)

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