






## Caltrain Electrification Update


Sunnyvale Community Meeting  
September 17, 2018



## Agenda

- Caltrain System Overview
- Project Overview
- Electric Train Design
- Sunnyvale Construction Activities
- Questions







# Caltrain System

JPB 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
1998	28,000
2000	35,000
2002	26,000
2004	32,000
2006	38,000
2008	45,000
2010	55,000
2012	62,000
2014	65,000
2016	66,000
2018	66,000





# 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	2026
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.



At Retirement Age: 20/29 loco; 73/134 cars



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## Regional Transportation Needs

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



Genentech



facebook



SILICON VALLEY  
LEADERSHIP GROUP

Google



**Caltrain**

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## Project Description

Area	Project	Service
51 miles San Francisco to San Jose (Tamien Station)	<p>Electrification:</p> <ul style="list-style-type: none"> <li>• Overhead Contact System (OCS)</li> <li>• Traction Power Facilities</li> </ul> <p>Electric Trains</p> <ul style="list-style-type: none"> <li>• 75 percent of fleet</li> </ul>	<p>Up to 79 mph</p> <p>Service Increase</p> <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> <p>Mixed-fleet service (interim period)</p> <p>Continue tenant service</p> <ul style="list-style-type: none"> <li>• ACE, Capital Corridor, Amtrak, Freight</li> </ul>



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## Service Benefits

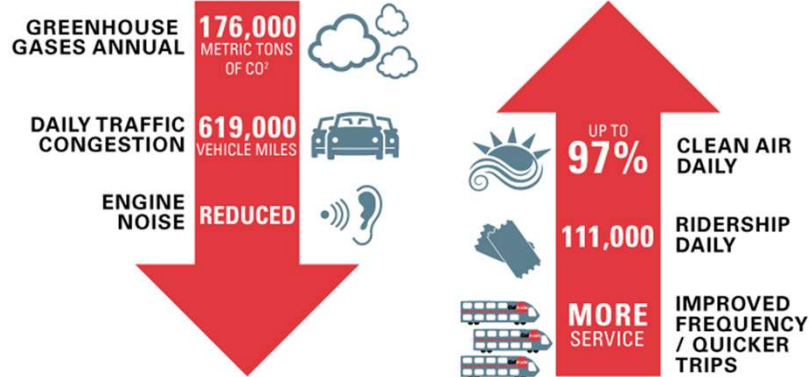
Metric	Today	PCEP
Example Baby Bullet Train		
Retain 5-6 stops	60 minutes	45 minutes
Retain SF to SJ 60 minutes	6 stops	13 stops
Example Redwood City Station		
Train stops / peak hour	3	5



Note: Prototypical Train and Schedule




## Key Regional Benefits (2040)



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

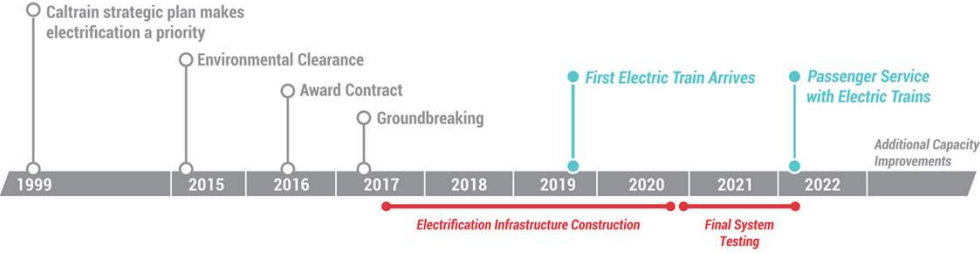







# Schedule



**MILESTONES**



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

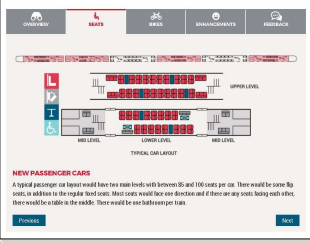





Note: Schedule Subject to Change

# Electric Train

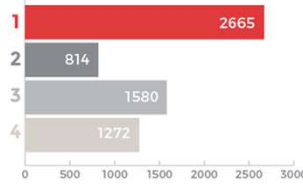
- 2016 Capacity Board Decision (bike to seat ratio, onboard bathrooms, upper doors ‘not precluded’)
- 2017 Design Progressing w/ Additional Public Input
  - Completed: Exterior design, Seat colors, Bike Storage, ADA restroom
- 2018 Virtual Reality 360 Tour

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# Electric Train Exterior Design Public Poll

EXTERIOR  
DESIGN POLL  
RESULTS  
6331 TOTAL VOTES



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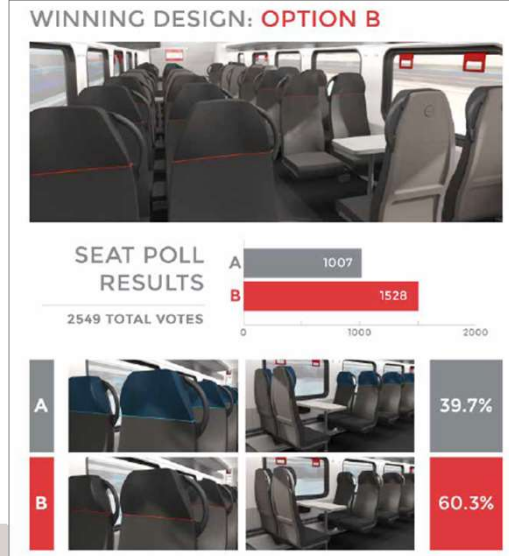
# Electric Train Exterior Design

WINNING DESIGN: **OPTION 1**



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# Electric Train Seat Design



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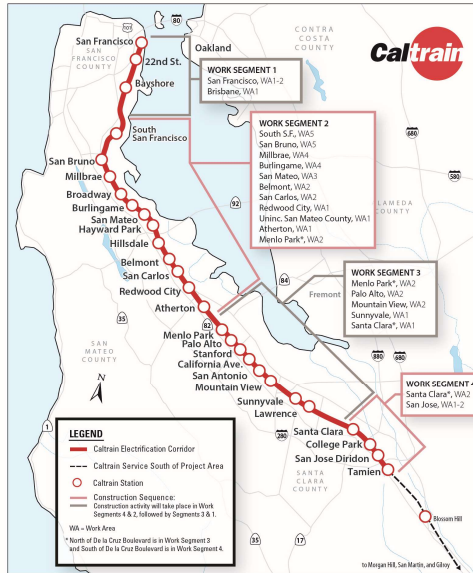
# Electric Train Onboard Bike Storage Outreach





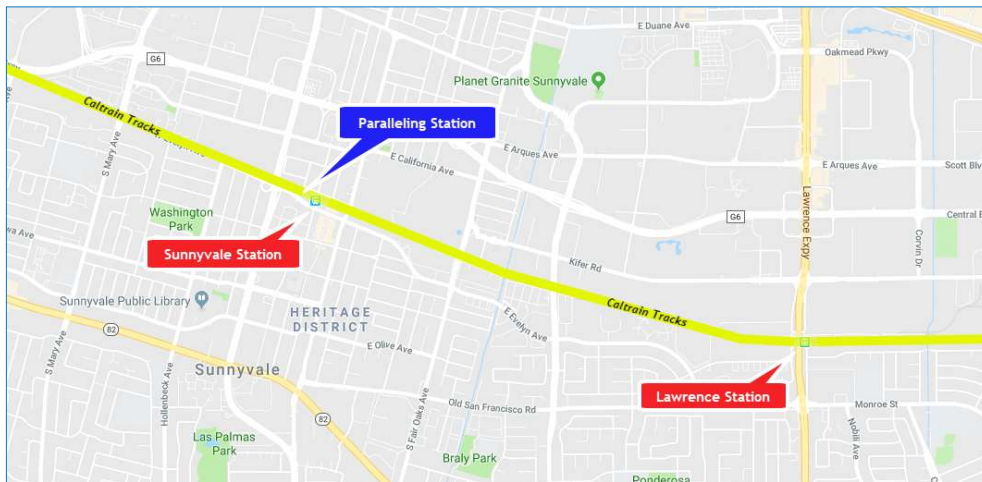
# CalMod Construction Phasing

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



## CalMod

### Sunnyvale – Work Segment 3



Sunnyvale Work Area 4 miles





## 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>
Pre-Construction Work In Progress	<ul style="list-style-type: none"> <li>• Foundation Potholing</li> </ul>
Future Work	<ul style="list-style-type: none"> <li>• Tree Pruning and Removal</li> <li>• Foundation Installation</li> <li>• Overhead Contact System Pole Installation</li> <li>• Overhead Contact System Wire Installation</li> <li>• Paralleling Station</li> </ul>



## Future Construction Activities

### Sunnyvale

Date	Work Activity	Expected Duration*
Summer/Fall 2018	Potholing	2-3 months
Fall 2018	Tree Pruning/Removal	2-3 months
Spring 2019	Foundation Installation	2-4 months
Summer/Fall 2019	Pole/Wire Installation	4-5 months
Summer/Fall 2019	Paralleling Station Construction	4-6 months



\*Expected duration indicates first and last day of activity. Number of actual work days will be fewer.





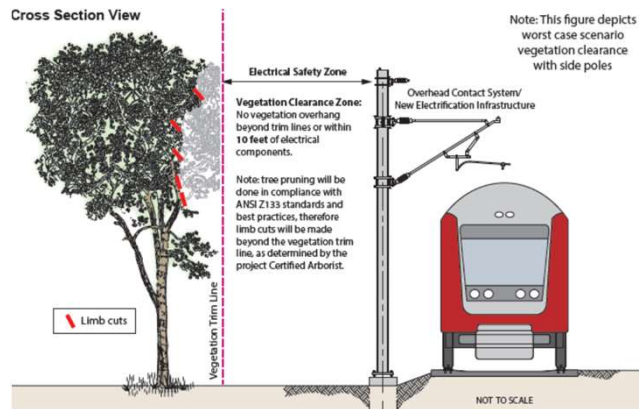
# Potholing



Approx. 325 Potholes Sunnyvale



# Tree Pruning and Replacement



Vegetation cleared for Electrical Safety Zone





## City of Sunnyvale: Tree Pruning and Replacement Plan

City of Sunnyvale			
	Caltrain Right of Way	Public Property	Private Property
Trees Removed	85	1	45
Trees Pruned >25%	133	2	38
Trees Pruned <25%	148	5	101
304 Trees will be replaced per the Sunnyvale Tree Replacement Plan			



Note: Information may change as the design progresses



## Foundation Construction

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



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## Foundation Installation



On Track Equipment

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## Pole Installation

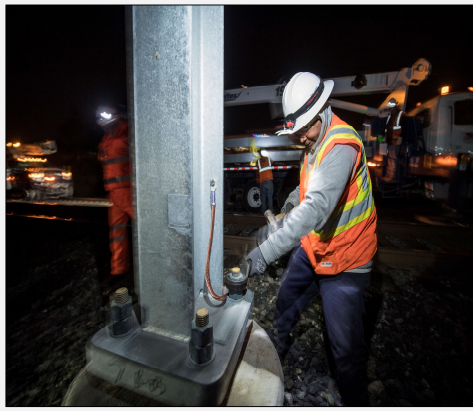
- 3,000 Installed throughout Corridor
  - Approx. 250 Poles in Sunnyvale
- Pole Height: 30-45.5'
- Pole Spacing: ~180' apart





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## Pole Installation

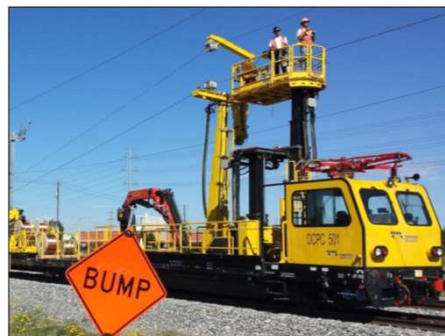


Current Pole Installation



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## Stringing Wire



On-track Equipment





## Traction Power Facilities

- 10 Traction Power Facilities Installed throughout Corridor
  - 1 Paralleling Station installed in Sunnyvale
  - Gantry structures up to 50'
- Provides electrical power to trains through the Overhead Contact System
- Unmanned station
- Day and weekend construction work
- Limited night work during construction



## Construction Impacts

- 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



**CalMod****San Francisco Tunnel Work**

- Within the four San Francisco Tunnels:
  - Overhead Contact System Installation
  - Grouting and Notching
  - Drainage and Track Work
- Pre-construction: September 2019

**CalMod****SF Weekend Caltrain Closures**

- Weekends - Oct 6, 2018 to Spring 2019
  - Caltrain service north of the Bayshore Station will be suspended on the weekends
  - Bus service will be provided from Bayshore to 4<sup>th</sup> and King and 22<sup>nd</sup> Street stations
- Weekday service will remain unchanged
- Caltrain service south of Bayshore will remain unchanged
- Bus schedule will be available in September





# Public Outreach

- Subscribe to Weekly Updates
  - Visit [www.calmod.org/get-involved](http://www.calmod.org/get-involved)
- Additional Community Meetings
  - Pole and Wire Installation
  - Paralleling Station Construction
- Social Media
- Construction Outreach Office



# Public Outreach

## Physical Notices







## CALMOD CONTACT INFORMATION

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