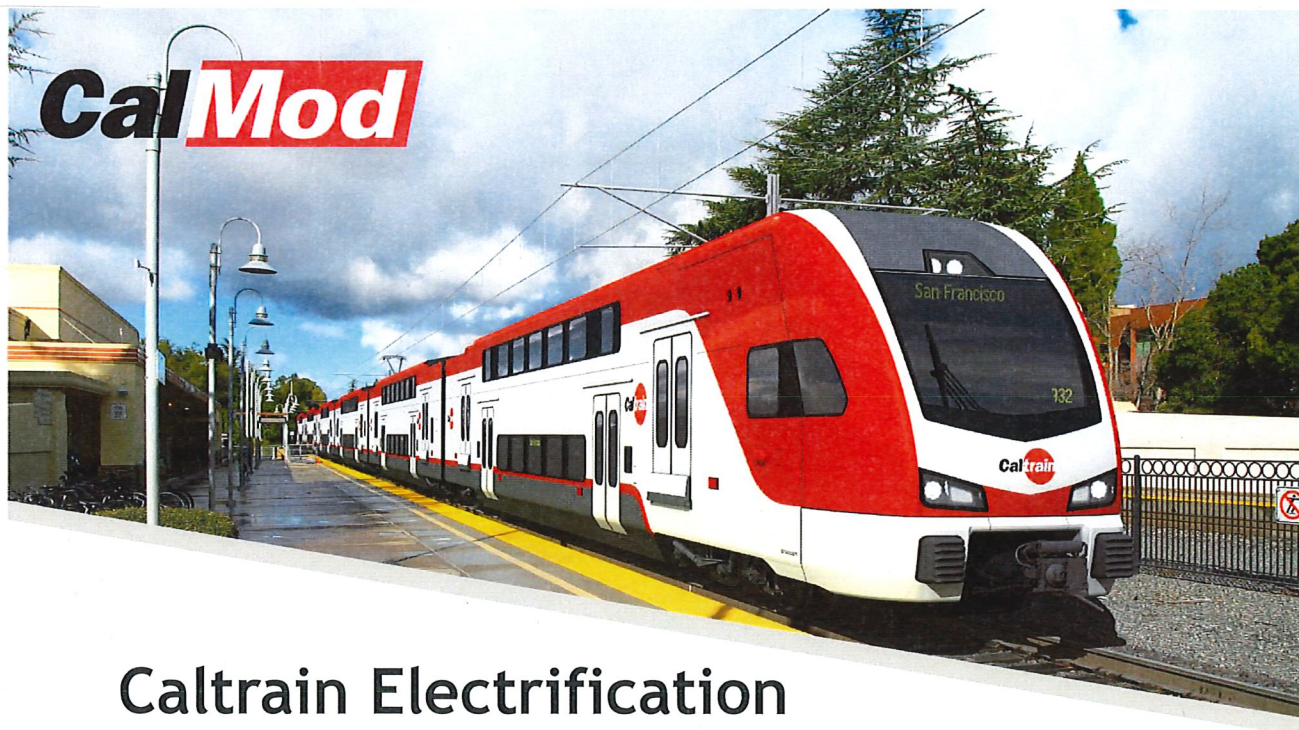




Caltrain Electrification Update

Santa Clara City Council Presentation
December 4, 2018



Agenda

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



POST MEETING MATERIAL

Caltrain System

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

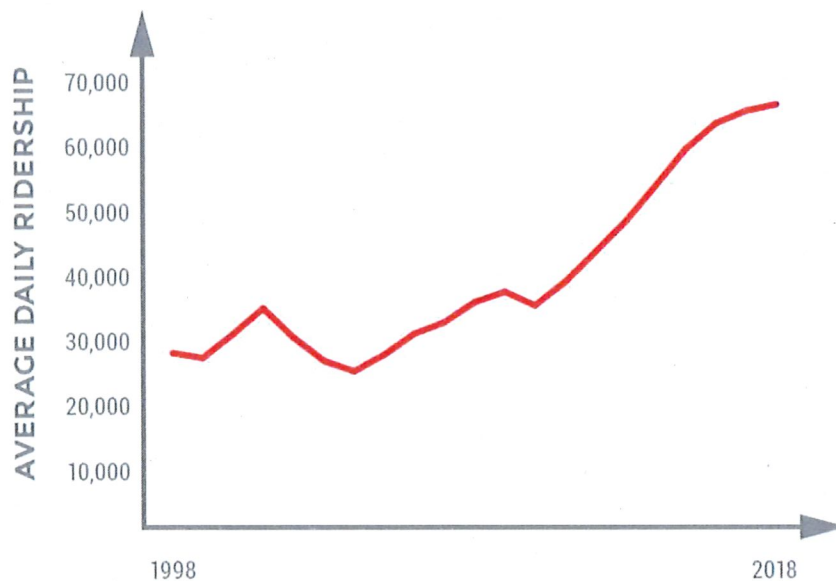


- 32 Stations Gilroy to San Francisco
- 92 Weekday Trains
- At-Grade Crossings, viaducts, and bridges
- Intermodal Connections
- Bike Commuters

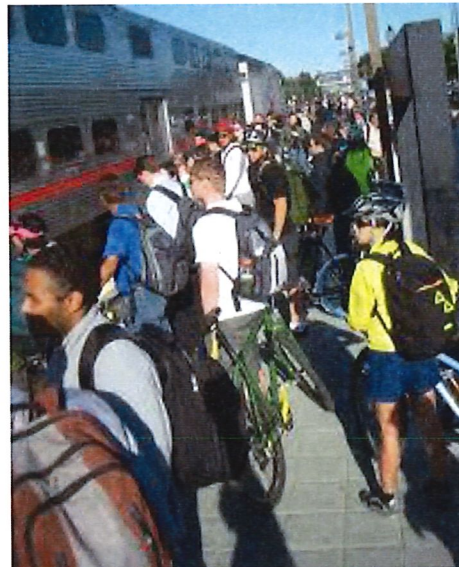
Union Pacific
owns



Ridership



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	2026
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.



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



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: • Overhead Contact System (OCS) • Traction Power Facilities Electric Trains • 75 percent of fleet	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, Capital Corridor, Amtrak, Freight





Service Benefits

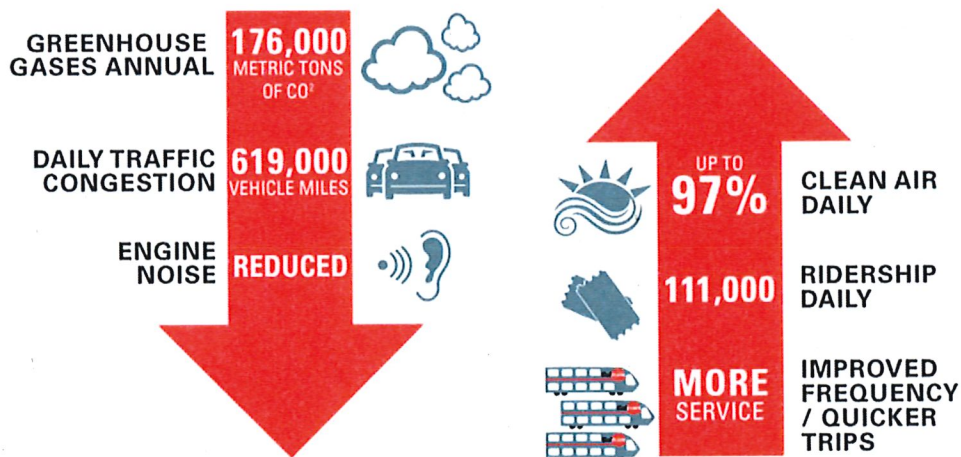
Metric	Today	PCEP
Example Baby Bullet Train		
Retain 5-6 stops	60 minutes	45 minutes
Retain SF to SJ 60 minutes	6 stops	13 stops
Example Redwood City Station		
Train stops / peak hour	3	5



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.

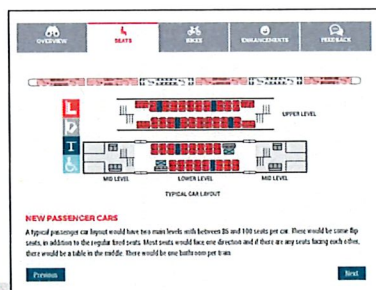


Note: Schedule Subject to Change



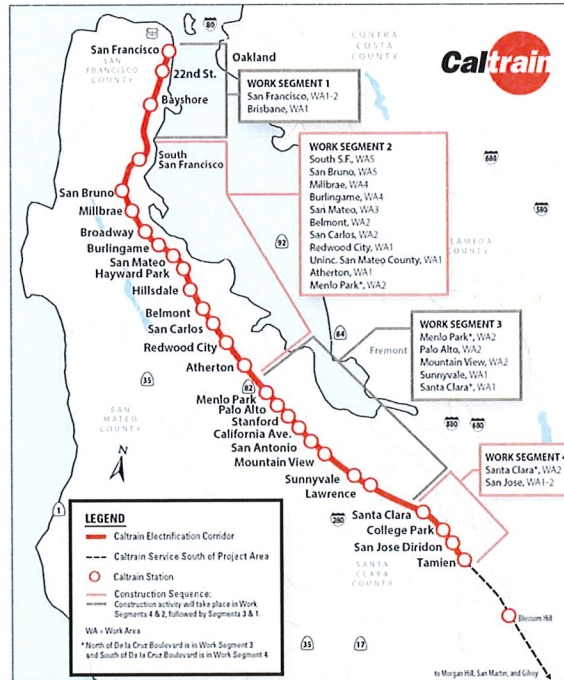
Electric Train

- 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
- 2019 Virtual Reality 360 Tour



CalMod Construction Phasing

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



CalMod

Field Work Status

Pre-Construction Work Completed	• Utility Survey • Geotechnical Investigations • Disposal of Soil from Geotechnical Investigations • Soil Resistivity Testing • Site Surveys • Signal Cable Inspections
Pre-Construction Work In Progress	• Foundation Potholing • Tree Pruning and Removal
Future Work	• Foundation Installation • Overhead Contact System Pole Installation • Overhead Contact System Wire Installation





Future Construction Activities

Santa Clara

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



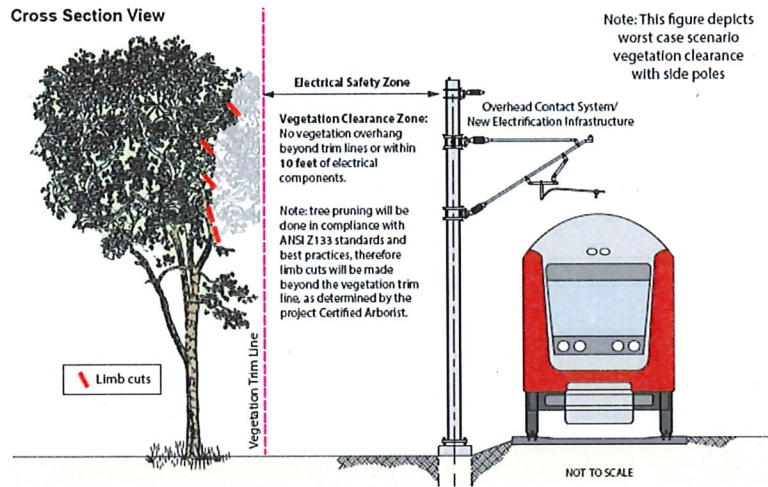
*Expected duration indicates first and last day of activity.
Number of actual work days will be fewer.



Potholing



Tree Pruning and Replacement



Vegetation cleared for Electrical Safety Zone



City of 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
35 Trees will be replaced per the Santa Clara Tree Replacement Plan			



Note: Information may change as the design progresses





Foundation Construction

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



Foundation Installation



On Track Equipment



Pole Installation

- 3,000 Installed throughout Corridor
 - Approx. 150 Poles in Santa Clara
- Pole Height: 30-45.5'
- Pole Spacing: ~180' apart



Example Pole Types



Single Track Cantilever



Two Track Cantilever

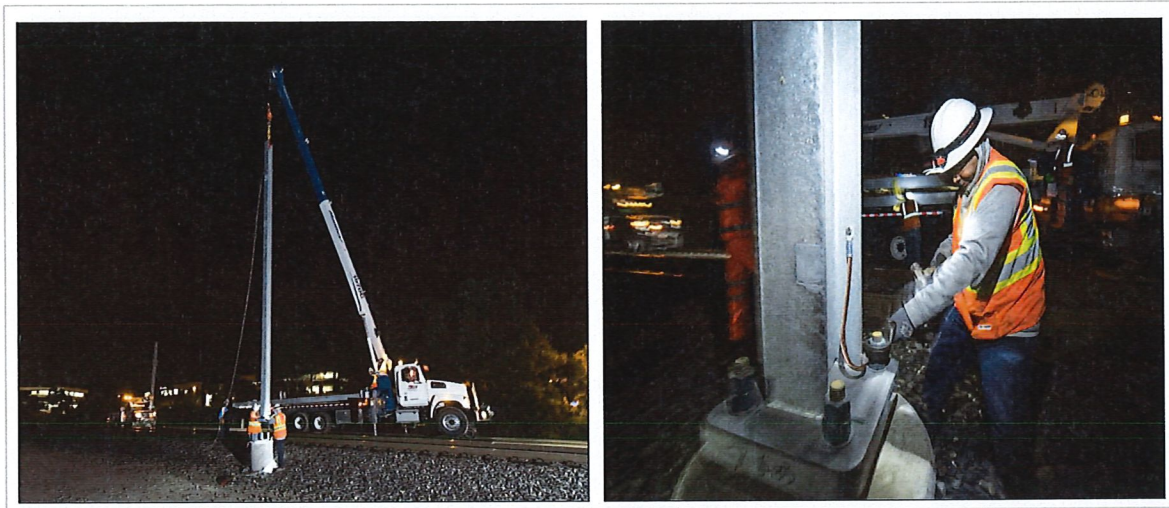


Portals



CalMod

Pole Installation



Current Pole Installation

Caltrain

CalMod

Stringing Wire



On-track Equipment

Caltrain



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



Santa Clara Test Track

- New electric trains will be tested on track
- Testing to occur between Summer 2019 to Fall 2021
- Testing anticipated to be during daytime





Overall 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



SF Weekend Caltrain Closures

- Weekends - Oct 6, 2018 to Late Spring 2019
 - Caltrain service north of the Bayshore Station will be suspended on the weekends
 - Bus service will be provided from Bayshore to 4th and King and 22nd Street stations
- Weekday service will remain unchanged
- Caltrain service south of Bayshore will remain unchanged
- Bus schedule available at caltrain.com





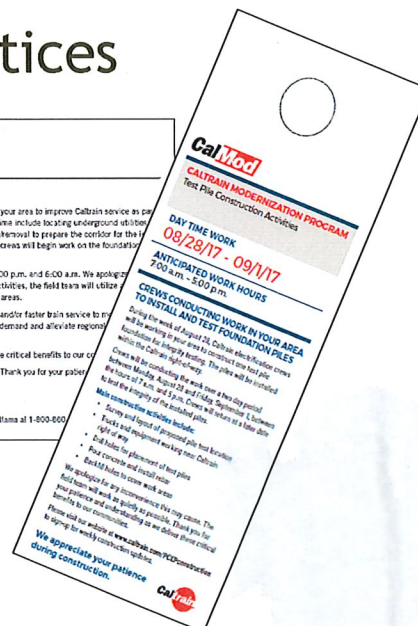
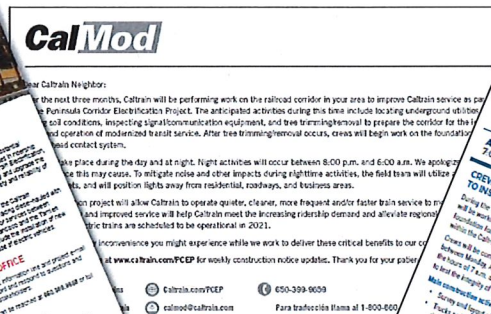
Public Outreach

- Subscribe to Weekly Updates
 - Visit www.calmod.org/get-involved
- Additional Community Meetings
 - Pole and Wire Installation
- Social Media
- Construction Outreach Office



Public Outreach

Physical Notices





What's Next

- Caltrain Business Plan
 - caltrain2040.org
- High Speed Rail Blended System
 - hsr.ca.gov
- Caltrain Downtown Extension
 - sfcta.org/transbay-transit-center
- Diridon Concept Plan



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