Peninsula Corridor Electrification Update Meeting

South San Francisco Community Meeting
February 21, 2018

Caltrain

CalMod

Agenda

- Project Overview Recap
- Project Update
  - Progression & Changes
  - Construction Activities
- Electrification Infrastructure
  - South San Francisco Activities
- Questions

Caltrain

CalMod

Caltrain System

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

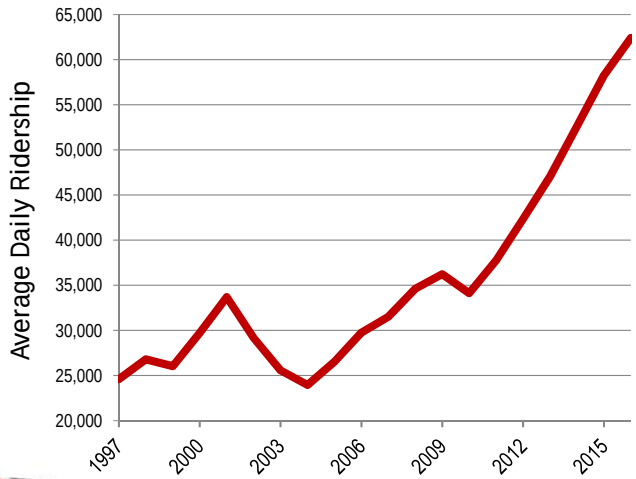
- 32 Stations Gilroy to San Francisco
- 92 Weekday Trains
- At-Grade Crossings, viaducts, and bridges
- Intermodal Connections
- Bike Commuters

Union Pacific owns

Caltrain

CalMod

Ridership



Caltrain

CalMod

At Capacity Today

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

Caltrain

CalMod

Aging Fleet

Table 1.2: Caltrain Fleet Inventory

SERIES	QUANTITY	NUMBER OF SEATS	YEAR OF MANUFACTURE	MAKE	RETIRE DATE
Locamotives					
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
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.

Caltrain

CalMod

Regional Transportation Needs

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

Caltrain

CalMod

Project Description

Area	Project	Service
51 miles San Francisco to San Jose (Tamien Station)	Electrification: • Overhead Contact System (OCS) • Traction Power Facilities Electric Trains (EMUs) • 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

Caltrain

CalMod

Service Benefits

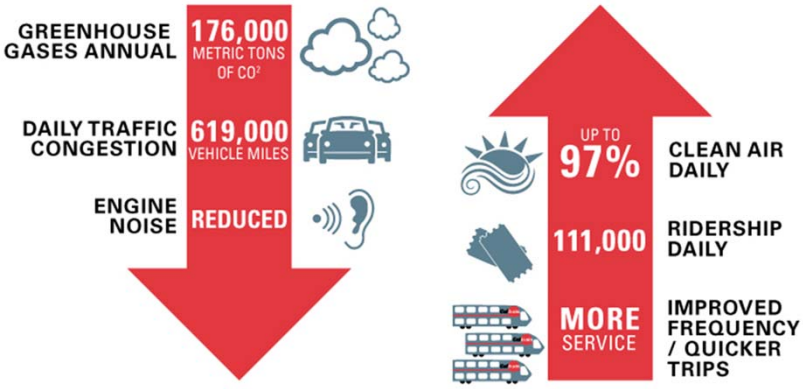
Metric	Today	PCEP
Example Baby Bullet Train		
Retain 5-6 stops	60 minutes	45 minutes
Retain SF to SJ 60 minutes	6 stops	13 stops
Example Redwood City Station		
Train stops / peak hour	3	5

Note: Prototypical Train and Schedule

Caltrain

CalMod

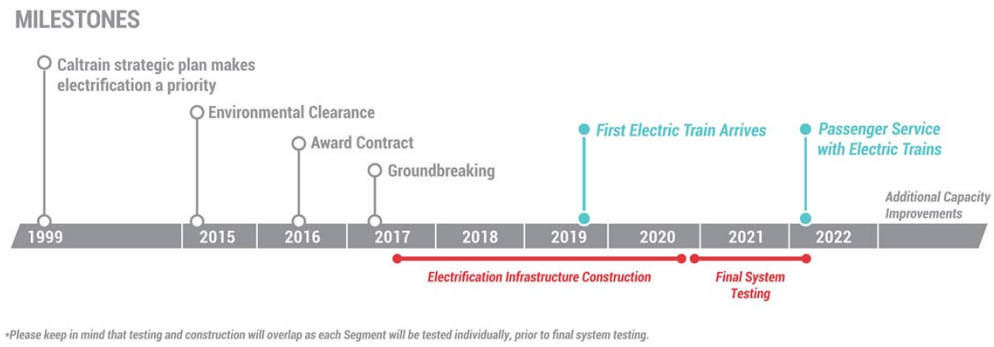
Key Regional Benefits (2040)



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

Caltrain

Schedule

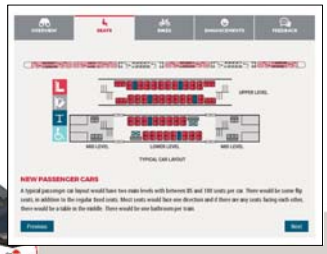


*Please keep in mind that testing and construction will overlap as each Segment will be tested individually, prior to final system testing.

Note: Schedule Subject to Change

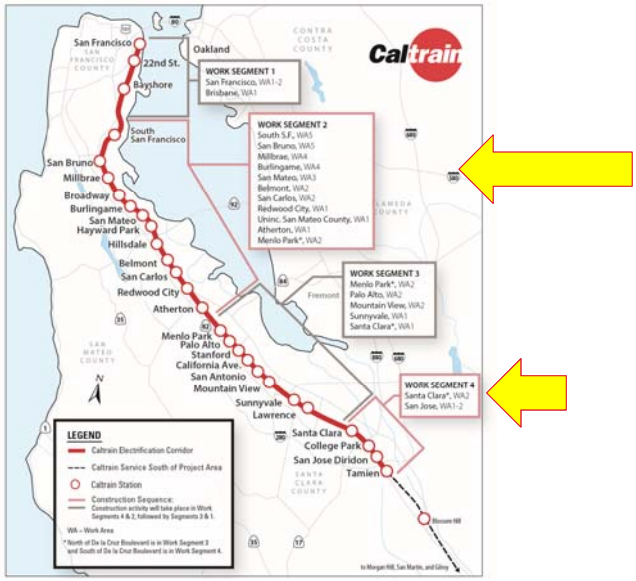
Electric Train

- 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



CalMod Construction Phasing

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



- Segments 2 & 4 followed by 1 & 3

Caltrain

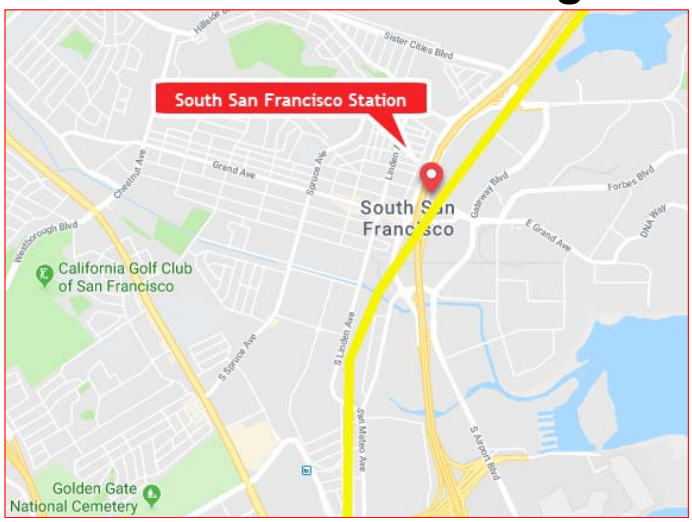
CalMod Field Work Progression

Work Completed	• Utility Survey • Geotechnical Investigations • Disposal of Soil from Geotechnical Investigations • Soil Resistivity Testing • Site Surveys • Signal Cable Inspections • Potholing
Work In Progress	• Foundation Installation
Future Work	• Overhead Contact System Pole Installation • Overhead Contact System Wire Installation • Traction Power Substation (TPS) • TPS Interconnection

Caltrain

CalMod

South San Francisco – Work Segment 2



South San Francisco Project Area 2.6 miles

Caltrain

CalMod

Future Construction Activities

South San Francisco

Date	Work Activity	Expected Duration*
In Process	Foundation Installation	1-2 months
March 2018	Pole/Wire Installation	3-4 months
April 2018	Traction Power Station (TPS)	12 months
August 2018	TPS Interconnection	5-6 months

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

Caltrain

Foundation Installation

On and Off Track Equipment

Pole Information

- 3,000 Installed throughout Corridor
  - 97 poles installed in South San Francisco
- South San Francisco Pole Types*
  - Single-Track Cantilever (30'-35' height)
  - Two-Track Cantilever (45.5' height)
  - Center Poles (30-35' height)
  - Portals (45' height)
- Pole Spacing: ~180' apart
- Black poles at South San Francisco Station

* Currently 95% Design

CalMod

Pole Installation South San Francisco

Single Track Cantilever (48)

Two Track Cantilever (39)

Example of Poles Currently Planned for Use in South San Francisco

Caltrain

CalMod

Pole Installation South San Francisco

Center (4)

Portals (6)

Example of Poles Currently Planned for Use in South San Francisco

Caltrain

CalMod

Stringing Wire

On-track Equipment

Caltrain

CalMod

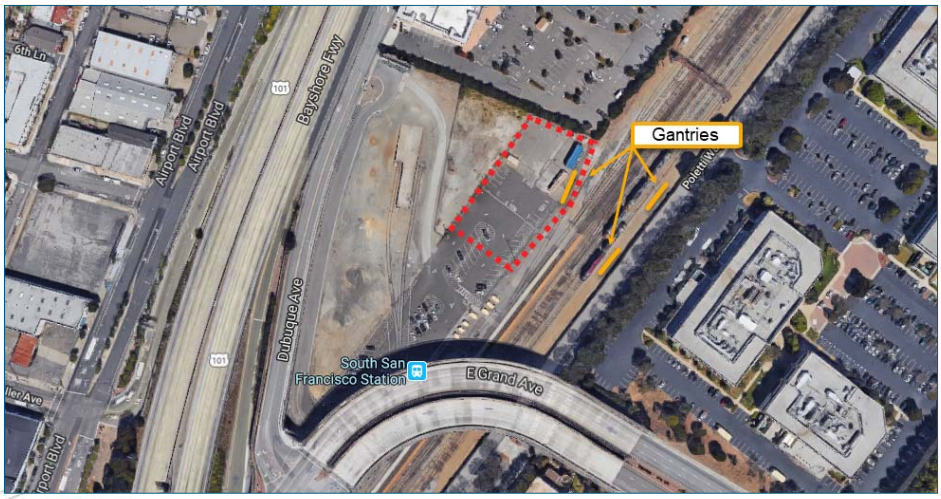
Traction Power Substation

- 10 Traction Power Facilities Installed throughout Corridor
  - 1 Traction Power Station installed in South San Francisco
  - 279 ft. x 115 ft. site footprint
  - Gantry structures up to 50’
- Provides electrical power to electric trains through the Overhead Contact System (OCS)
- Unmanned station
- Day and weekend construction work 6:30am – 5:00pm
- Limited night work during construction

Caltrain

CalMod

Traction Power Substation



Caltrain

CalMod

Traction Power Substation

Example Traction Power Substation

Example Screening Option

Collaboration with the City of South San Francisco for Potential screening options

Caltrain

CalMod

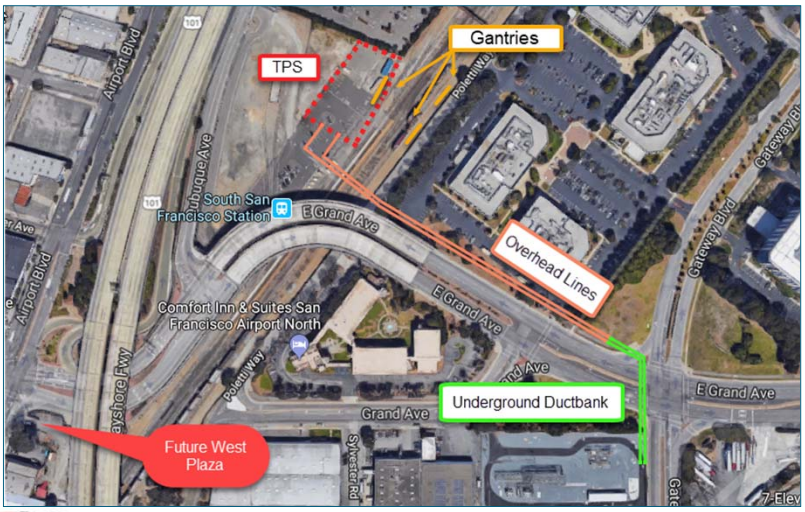
Traction Power Substation Interconnection

- Combination of underground duct bank and aerial transmission line.
  - Underground circuit will route from PG&E East Grand Substation to the North-East corner of East Grand/Gateway
  - Overhead transmission line
    - 3 aerial transmission line structures over railroad tracks and into TPS
- Construction expected to be completed in 2019
- Tree pruning and removal may be required

Caltrain

CalMod

Traction Power Substation Interconnection



Caltrain

CalMod

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

Caltrain

CalMod

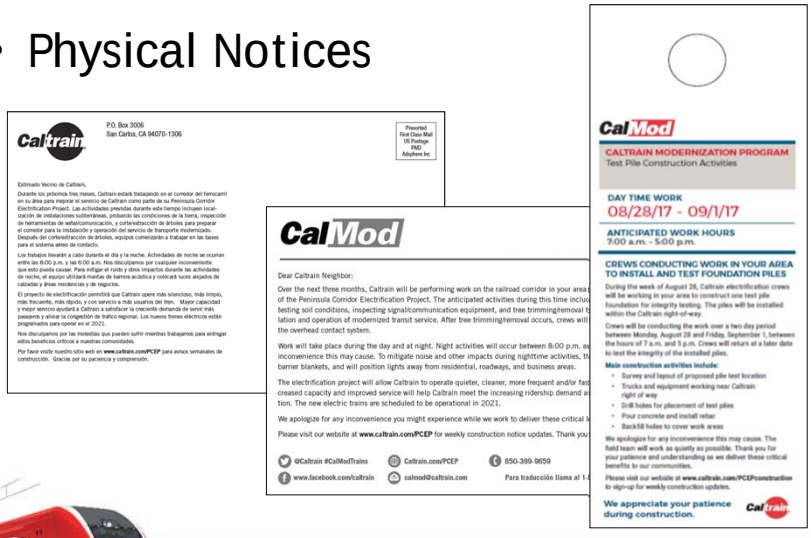
Public Outreach

- Subscribe to Weekly Updates
  - Visit www.calmod.org/get-involved
- Additional Community Meetings
  - Traction Power Interconnection
- Social Media
- Construction Outreach Office

Caltrain

Public Outreach

- Physical Notices



Caltrain

Construction Contact Information

Email: 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.calmod.org

Caltrain