PENINSULA CORRIDOR ELECTRIFICATION PROJECT (PCEP)

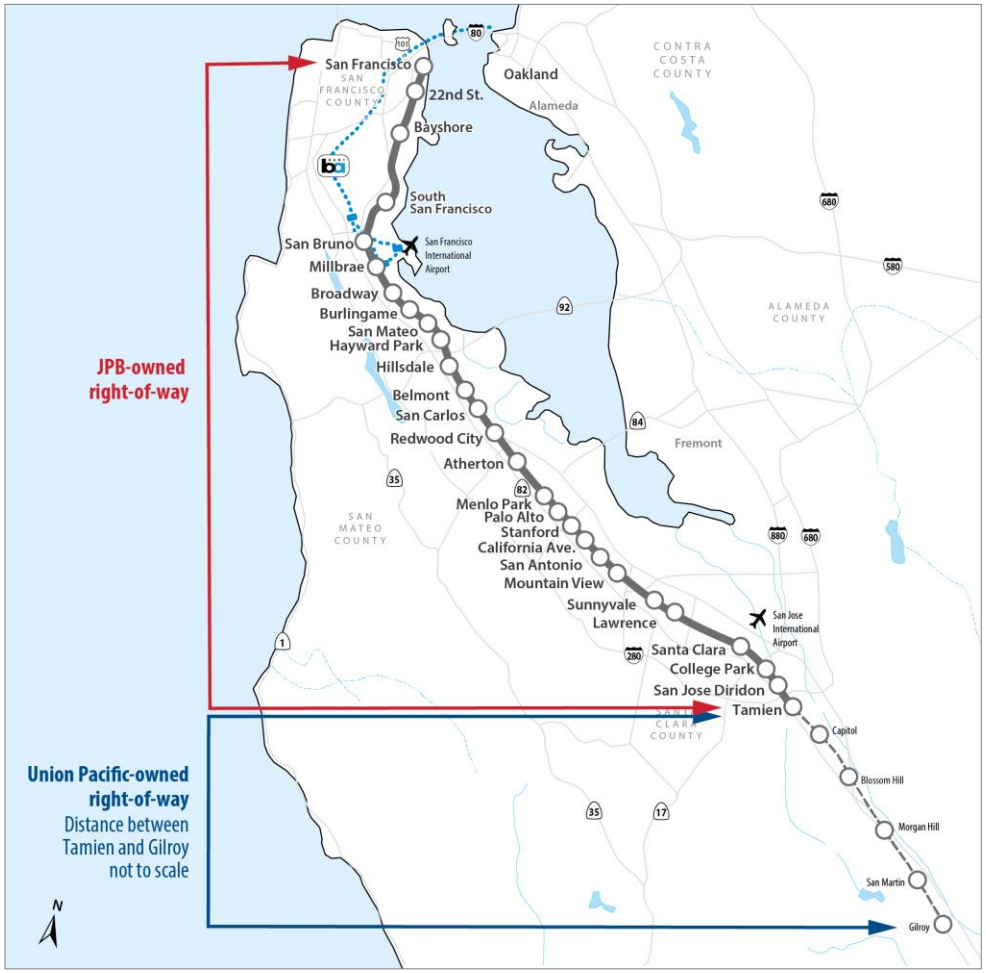
Citizens Advisory Committee

April 21, 2021

Agenda Item #7

Caltrain CalMod

CALTRAIN SYSTEM



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

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.

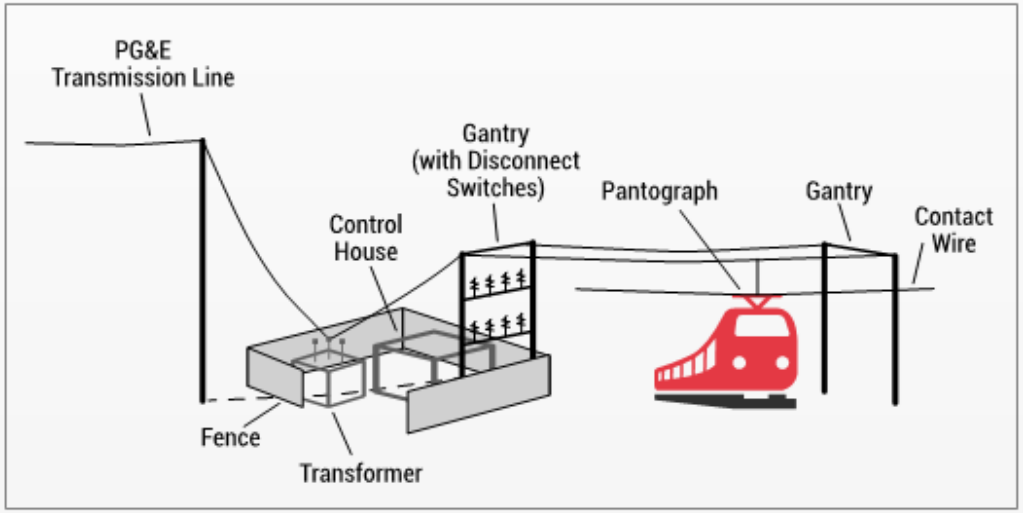
At Retirement Age: 20/29 loco; 73/134 cars

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

PROJECT BENEFITS

Improved Train Performance, Increased Service and Greater Capacity

Improved Regional Air Quality and Reduced Greenhouse Gas Emissions

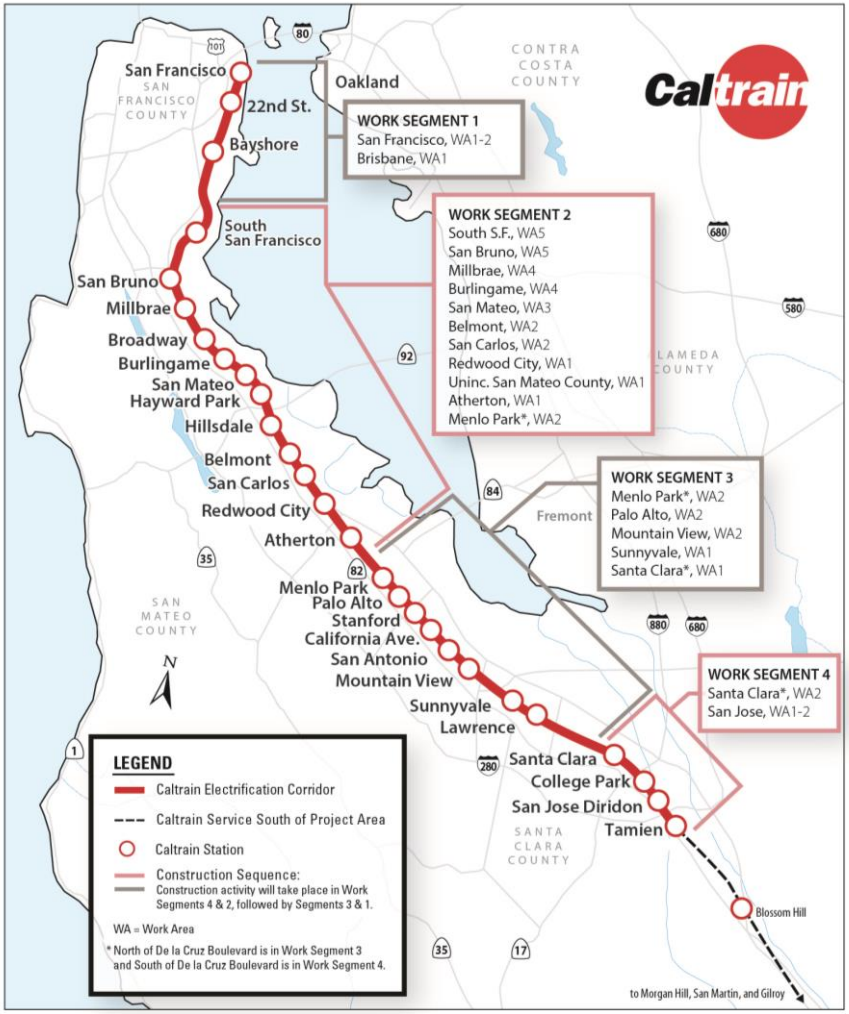
Positive Economic Benefits for the Region

Reduced Engine Noise Emanating from Trains

Increased Revenue and Reduced Fuel Cost

CONSTRUCTION PHASING

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



PRE-CONSTRUCTION WORK

- Utility Survey
- Geotechnical Investigations
- Disposal of Soil from Geotechnical Investigations
- Soil Resistivity Testing
- Site Surveys
- Signal Cable Inspections
- Foundation Potholing
- Tree Pruning and Removal

CONSTRUCTION ACTIVITIES

PCEP Progress

- Ongoing activities include potholing, foundation and pole installation, installation of cable, pipe, wire, ductbank, and conduit
- Signal design and installation underway for the 212 signal locations
  - 4 cutovers complete
- Traction Power Facilities work includes sitework, substation building, installation of low/high voltage equipment, transformer, and gantry
  - Design work is complete for 10 of 10 Traction Power facilities
  - TPSS-1 is 91% complete, TPSS-2 is 92% complete; Switching Station is 90% complete
  - Transformers have been installed in 9 of 10 Traction Power facilities

CONSTRUCTION ACTIVITIES

OCS Progress

Segment	Work Area	Foundations		Poles	
		Required[ab]	Total Completed	Required[a]	Total Completed
1	Tunnels	32	32	32	32
	A	303	0	259	0
	B	232	85	177	0
2	5	247	247	212	160
	4	318	318	253	190
	3	177	177	140	43
	2	239	78	205	60
	1	206	79	154	33
3	2	510	510	460	445
	1	391	391	311	304
4	A	241	241	180	153
	B	128	128	124	95
	CEMOF	85	83	88	0
Total:		**3,109**	**2,369**	**2,595**	**1,515**

Note: [a] Foundations Required do not match Poles Required as guy foundations are needed in some locations for extra support.
[b] 30 foundations have been installed by the South San Francisco in S2WA5 and 65 have been installed by the 25th Ave projects in S2WA3.

Note: Data as of February 28, 2021

OCS Wire Installation Progress

- OCS Static/Feeder Wire
  - 369,998 of 977,612 feet installed;
  - 38% complete
  - Expected completion: October 2021

- OCS Contact/Messenger Wire:
  - 392,076 of 1,514,836 feet installed;
  - 26% complete
  - Expected completion: December 2021

California Avenue Station

CONSTRUCTION ACTIVITIES

PG&E Substations Progress

- Completed construction from FMC temporary power in Nov 2018
- Construction work at East Grand Station and FMC is scheduled to be complete by Apr 2022

East Grand

FMC

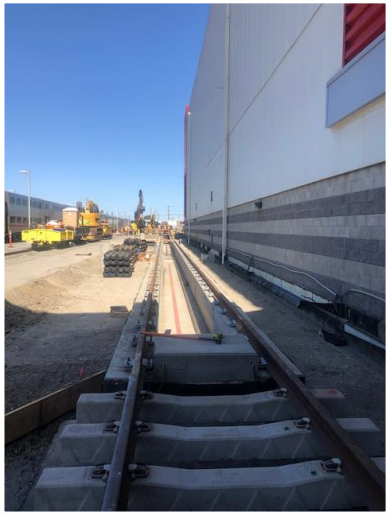
TUNNEL WORK UPDATE

ProVen Management, Inc.

- Contract Scope:
  - Increase tunnel clearances in four 100+ year old tunnels (complete)
  - Install OCS (complete)
  - Drainage improvements and track rehabilitation (complete)
  - Testing (to take place next year)

CEMOF Progress

- Centralized Equipment Maintenance and Operations Facility (CEMOF)
  - Modifications will provide work areas to perform maintenance on new electric trains
  - Parts Storage Warehouse installation is complete; interior work is ongoing
  - Construction of the north and south pit extension are nearing completion
  - Equipment testing room reconstruction will be finalized next month
  - Work scheduled to be complete by May 2021



EMU Progress

- Stadler is providing 133 rail cars configured in 19 seven-car trainsets
- Each trainset includes: operating cab car at each end, 2 bike cars, 1 accessible toilet car, 2 passenger coaches
- 70 car shells have been shipped from Stadler Switzerland, 55 are in Stadler Salt Lake City, 15 are in transit
- Train 1 was shipped to Pueblo, CO for dynamic type testing
- Despite COVID-19, manufacturing in Switzerland is on schedule
- COVID-19 has caused delays to production in USA from labor shortages, parts shortages, supplier bankruptcies; Stadler is working on re-baselining their schedule

EMU VEHICLES

Photo by Lester Clark

BUDGET & EXPENDITURES (in millions)

	Budget	Current Budget	Costs to Date	Estimate at Completion
Electrification	$696.61	$742.01	$481.89	$742.01
SCADA	$0.00	$3.45	$1.93	$3.45
EMU	$550.90	$556.28	$210.49	$556.28
PG&E	$57.22	$88.49	$116.83	$88.49
Tunnel Modifications	$11.03	$41.47	$41.31	$41.47
CEMOF Modifications	$1.34	$7.37	$6.12	$7.37
Separate Contract & Support Costs	$347.62	$386.32	$295.62	$386.32
Contingency[1]	$315.53	$154.87	$0.00	$150.61
Anticipated Changes	$0.00	$0.00	$0.00	$4.26
PCEP Total	$1,980.25	$1,980.25	$1,154.20	$1,980.25

Note 1: Contingency is not for out of scope changes.

Budget / Expenditures as of February 28, 2021

OUTREACH SUMMARY

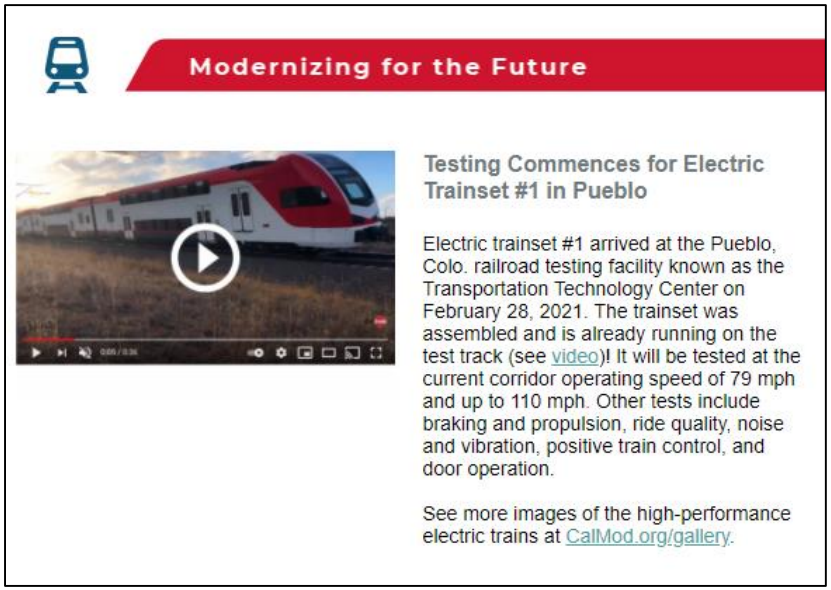
- 10,000 direct mailers / door hangers
- 4,741 subscribers to the monthly enewsletter
  - 700 new sign-ups
- 2,418 subscribers to the weekly construction updates

Modernizing for the Future

Electric Trainset #1 to Pueblo

Electric trainset #1 is on its way to the Transportation Technology Center, a railroad testing and training facility in Pueblo, Colo. There it will be tested at and above the top speeds allowed on our corridor and undergo tests simulating operating conditions. Stay tuned for more updates from the Pueblo test track!

See more images of the high-performance electric trains at CalMod.org/gallery.



Modernizing for the Future

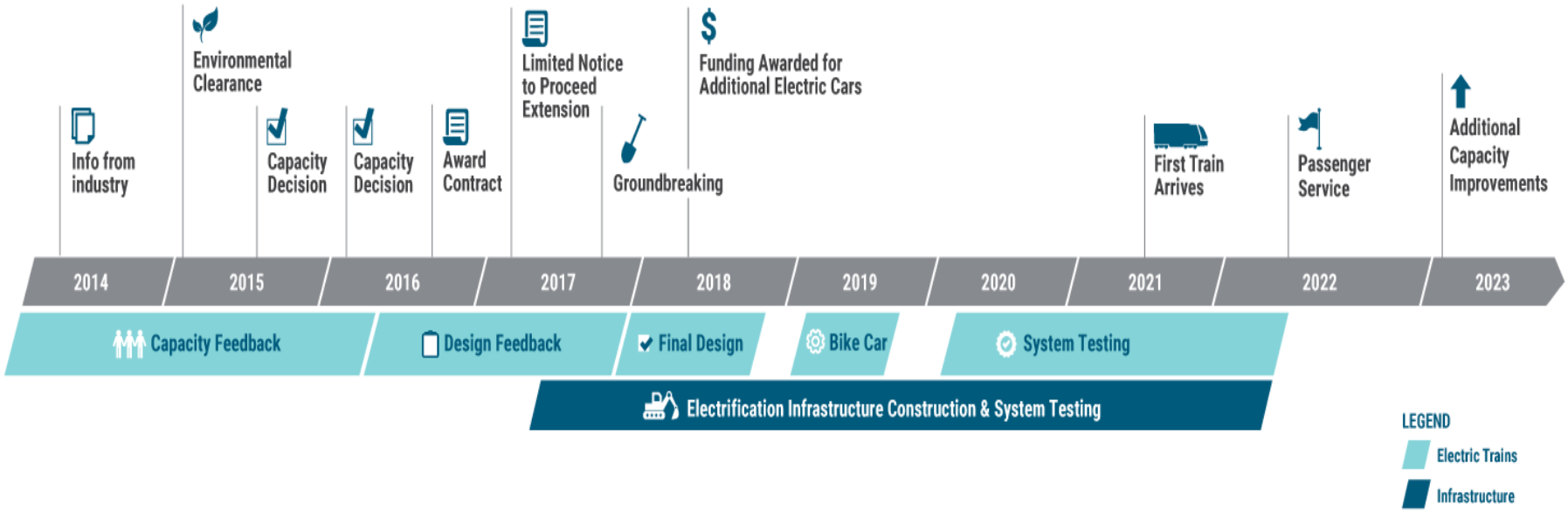
Testing Commences for Electric Trainset #1 in Pueblo

Electric trainset #1 arrived at the Pueblo, Colo. railroad testing facility known as the Transportation Technology Center on February 28, 2021. The trainset was assembled and is already running on the test track (see video)! It will be tested at the current corridor operating speed of 79 mph and up to 110 mph. Other tests include braking and propulsion, ride quality, noise and vibration, positive train control, and door operation.

See more images of the high-performance electric trains at CalMod.org/gallery.

January 1 – March 31, 2021

SCHEDULE



** Note: Schedule subject to change*

QUESTIONS