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CALTRAIN ELECTRIFICATION UPDATE

San Jose Community Meeting
April 22, 2019

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1

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AGENDA

- Caltrain System Overview
- Project Overview
- Electric Train Design
- San Jose Construction Activities
- Questions

2

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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

3

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RIDERSHIP

Year	Average Daily Ridership
1998	28,000
1999	27,000
2000	35,000
2001	30,000
2002	26,000
2003	25,000
2004	28,000
2005	32,000
2006	35,000
2007	38,000
2008	35,000
2009	40,000
2010	45,000
2011	50,000
2012	55,000
2013	60,000
2014	65,000
2015	68,000
2016	68,000
2017	68,000
2018	68,000

4

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AT CAPACITY TODAY



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

5

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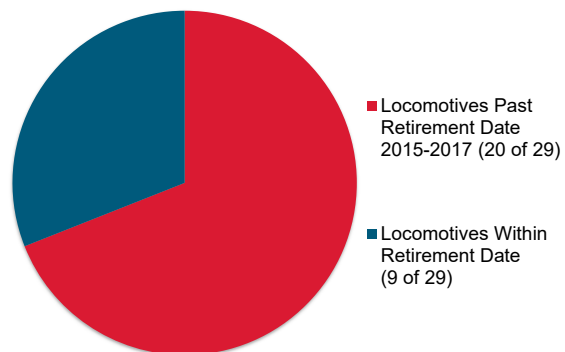


5



AGING FLEET

Locomotives




6


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6




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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7



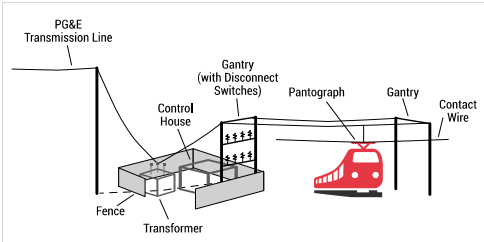
PROJECT DESCRIPTION

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

9

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SERVICE BENEFITS


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

* Note: Prototypical Train and Schedule


10

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10




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

11


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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*

12

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12

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

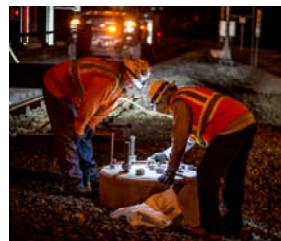


13

CONSTRUCTION PHASING



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



14

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SAN JOSE

15

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FIELD WORK PROGRESSION

Work Completed	<ul style="list-style-type: none"> Utility Survey Geotechnical Investigations Disposal of Soil from Geotechnical Investigations Soil Resistivity Testing Site Surveys Signal Cable Inspections
Work In Progress	<ul style="list-style-type: none"> Tree Pruning/Removal Potholing Foundation Installation Traction Power Substation Construction Paralleling Station Construction
Future Work	<ul style="list-style-type: none"> Pole Installation Wire Installation CEMOF Facilities Modifications

16

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16


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FUTURE CONSTRUCTION

San Jose

Date	Work Activity	Expected Duration*
In Progress	Potholing	2-3 months
In Progress	Foundation Construction	4-5 months
Fall 2019	Pole Installation	3-4 months
Fall 2019	Wire Installation	3-4 months
In Progress	Traction Power Substation Construction	2-3 month
In Progress	Paralleling Station Construction	3-4 months
Spring 2019	CEMOF Facility Modifications	6-9 months

17

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17

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FOUNDATION CONSTRUCTION

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

18

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FOUNDATION INSTALLATION



19

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On Track Equipment



19

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POLE INFORMATION

- 3,000 Installed throughout Corridor
 - Approx. 460 poles in San Jose
- Pole Height: 30-50'
- Pole Spacing: ~180' apart

20

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20



POLE TYPES SAN JOSE



Single Track Cantilever



Two Track Cantilever



Center

21

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Example of Poles Planned for Use in San Jose



21



POLE TYPES SAN JOSE



Portal



Headspan

22

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Example of Poles Planned for Use in San Jose



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POLE INSTALLATION



23

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Current Pole Installation



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STRINGING WIRE



24

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On-track Equipment



24



TRACTION POWER FACILITIES

- 10 Traction Power Facilities Installed throughout Corridor
 - 1 Traction Power Substation Installed in San Jose
 - 1 Paralleling Station in San Jose
 - 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

25

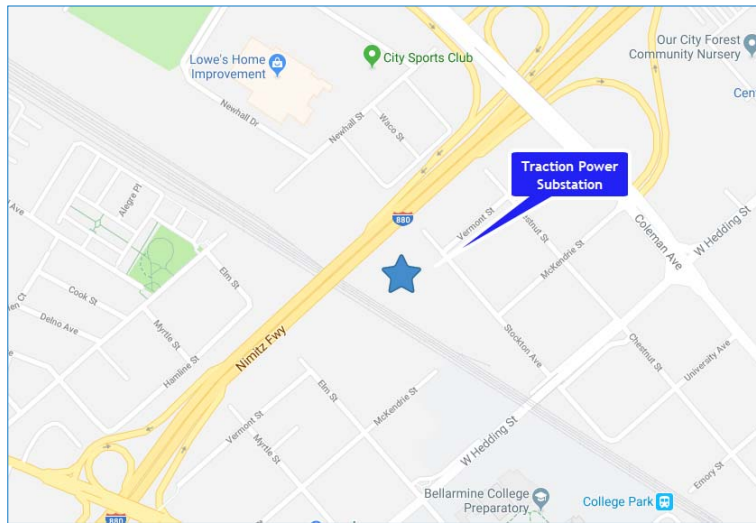
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25



TRACTION POWER SUBSTATION LOCATION



26

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26

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TRACTION POWER SUBSTATION



27

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Example Traction Power Substation



27

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TRACTION POWER SUBSTATION



28

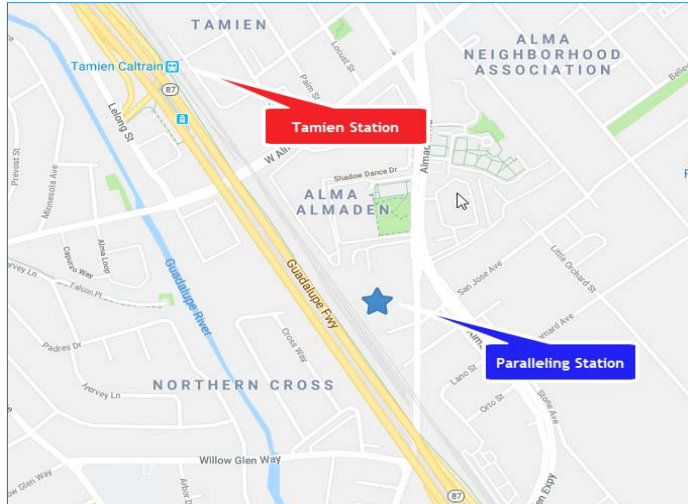
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28



PARALLELING STATION LOCATION



29

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29



EXAMPLE PARALLELING STATIONS



30

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Examples from Amtrak Northeast Corridor



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TEST TRACK LOCATION

31

CalMod.org *Currently existing maintenance track (no new track)* **Caltrain**

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TEST TRACK INFORMATION

- Approximately 1.5 miles of existing maintenance track (no new track)
- Located between Santa Clara Station and Caltrain CEMOF facility
- Foundations, poles and wires to be installed prior to electric train testing
- New Electric trains will be tested on track
- Testing to occur between late 2019 to Spring 2022
- Testing anticipated to be during daytime

32

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32




CONSTRUCTION INFORMATION

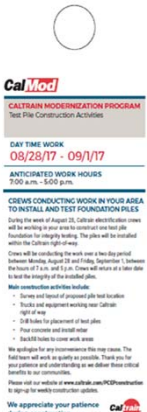
- Work will occur during day and night
- Some 24 hour weekend work
- Crews will utilize acoustical barrier blankets and position lights away from homes
- Dedicated hotline for construction complaints

33

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PUBLIC OUTREACH



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CALTRAIN MODERNIZATION PROGRAM
Track 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 electrification crews will be working in your area to install and test pile foundation for integrity testing. 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 Tuesday, September 5 between the hours of 7 a.m. and 5 p.m. Crews will start at a later date to test the integrity of the installed piles.


Main construction activities include:


- Survey and layout of proposed pile test locations
- Install and equipment working over Caltrain right of way
- Drill holes for placement of test piles
- Pour concrete and install cap
- Install piles to cover work areas

We apologize for any inconvenience this may cause. The field crew will work as quickly as possible. Thank you for your patience and understanding as we deliver these critical benefits to our customers.

Please visit our website at www.caltrain.com/CMOConstruction to sign up for weekly construction updates.

We appreciate your patience during construction.





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CALTRAIN ELECTRIFICATION PROJECT
STATUS UPDATE | January 2018

MILESTONES

Caltrain strategy plan under development a priority

Environmental Clearance

Final Contract

Final Design

Final Electric Run Dates

Finalize Track with Electric System

Finalize Construction

KEY REGIONAL BENEFITS 2040

CREATING 176,000 SALES ANNUALLY	21% FASTER TRIP TIMES
OVER 100 LOWER EMISSIONS	\$2.5 MILLION MORE REVENUE
TRAVEL COSTS	


FOOD-MORSE INFORMATION


www.calmod.org

650.396.5655

calmod@caltrain.com

Project Outreach Office
1275 W. 14th St.
2015-11 Corvallis, OR 97331
503.754.4444





CALTRAIN MODERNIZATION

IMPROVED PERFORMANCE
We will deliver more trains per hour for our customers and more efficiency.


INCREASED CAPACITY
Caltrain capacity plan is now 10% more, which means more trains to meet demand.

REDUCING EMISSIONS
Caltrain will also provide economic benefits, including creating nearly 10,000 jobs across the country.

IMPROVING SUSTAINABILITY
Caltrain will also provide economic benefits, including creating nearly 10,000 jobs across the country.

These are just a few examples of how Caltrain and the CalMod program are working to better serve the Bay Area. Learn more at CalMod.org and stay in touch with us on social media.


CALTRAIN



Postcard

Public Meeting

34

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PUBLIC OUTREACH

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

35

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35



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

36

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36




CALMOD CONTACT INFORMATION

WEEKLY UPDATES  CalMod.org/get-involved

EMAIL  CalMod@caltrain.com

PHONE  650-399-9659
800-660-4287 (Toll Free)

OFFICE  2121 S. El Camino, Suite A-100
San Mateo, CA 94403
9 a.m. - 5 p.m. Monday - Friday

WEBSITE  CalMod.org

FACEBOOK  www.facebook.com/caltrain

TWITTER  @caltrain

37

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