



# Caltrain Engineering Standards Update

Citizens Advisory Committee January 20, 2021 Agenda Item 9

### Why Caltrain needs Engineering Standards?

Establish the minimum standards for planning, design, construction, and maintenance of JPB facilities.

- Compliance with Laws and Regulations
- Maintaining infrastructure integrity
- Compatibility with the future demands from operations
- Best industrial standards and practices



### What are the Engineering Standards?

- Design Criteria
- Specifications
- Drawings
- Design & Maintenance of Structures
- Excavation Support Systems
- CADD Manual



#### Reasons for Update

#### Change of Laws and Regulations

- MS4 General Permits Storm Water Quality Management (July 1, 2013)
- ADA FTA Circular 4710.1 (Nov 4, 2015)
- CPUC Resolution SED-2 on Caltrain Electrification (Nov 10, 2016)



#### Reasons for Update (Cont.)

#### Plan for Future Upgrades and Improvements

- Track design speed increased from 90 MPH to 110 MPH
- Platform length from 700' to 875'
- Compatibility with Electrification
- Station communications connection to Fiber backbone
- Guideline for bike parking



#### Reasons for Update (Cont.)

#### Lessons learned from Capital Projects

- Improving control of work process Clearly delineate QA/QC, submittal, testing requirements, and acceptance criteria in specifications
- Correction of errors and omissions in standard drawings and specifications



#### Scope of Work

- Update the following Engineering Standard:
  - Design Criteria
  - Specifications
  - Drawings
  - Standard for Design & Maintenance of Structures
  - Engineering Standards for Excavation Support Systems
  - CADD Manual



#### Phased Approach

#### Phase I

- Review current standards and project specifications
- Conduct workshops to develop update lists
- Update the Design Criteria

#### Phase II

- Update Standard Specifications
- Update Standard Drawings
- Update Engineering Standards for Excavation Support Systems

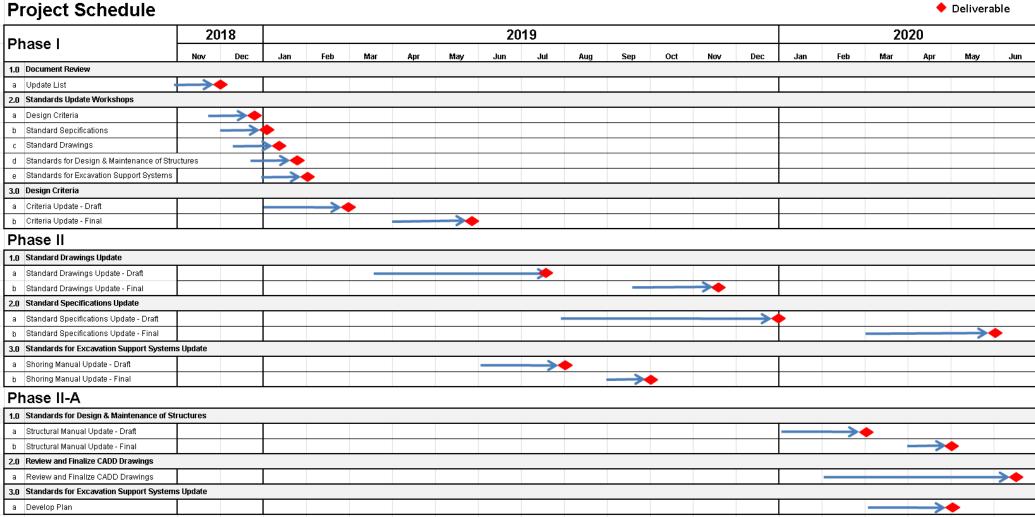


#### Phased Approach (cont.)

- Phase II-A
  - Update Standard for Design and Maintenance of Structures
  - Update CADD Manual
  - Develop a plan and recommendations to integrate Electrification Design Criteria and Technical Specifications into the Engineering Standards.



#### Schedule





#### **Future Work**

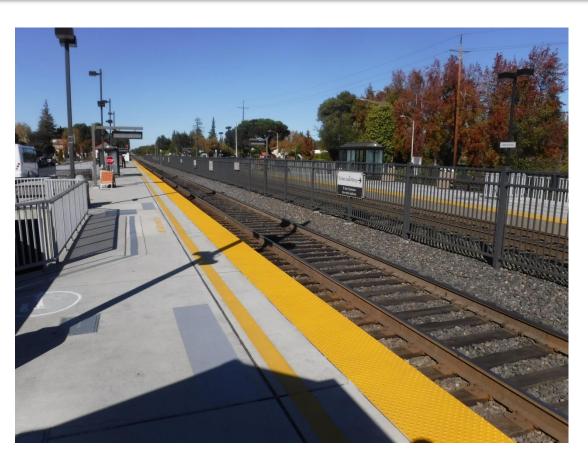
- Update the Communications Standards/Specifications, specifically for the Fiber Optic Network
- Update the Rail Network Standards/Specifications (including PTC and Back Office)
- Develop GIS to identify the underground utilities
- Integrate new infrastructure constructed by Electrification into Engineering Standard - Overhead Contact System (OCS) and Traction Power System (TPS), etc.



### Pictures of Standard Design



Center Island Platform

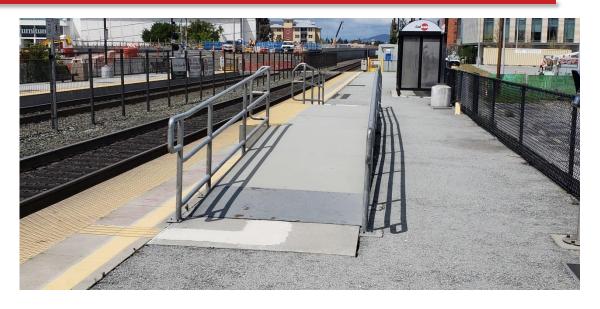


**Outboard Platform** 





Mini-high at Center Island Platform



Mini-high at Out Board Platform







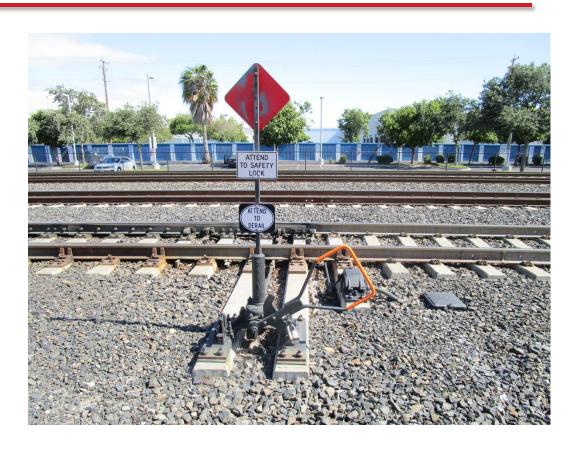
Signal Bridge

Signal Cantilever





**Automatically Controlled Switch** 



Manually Controlled Switch



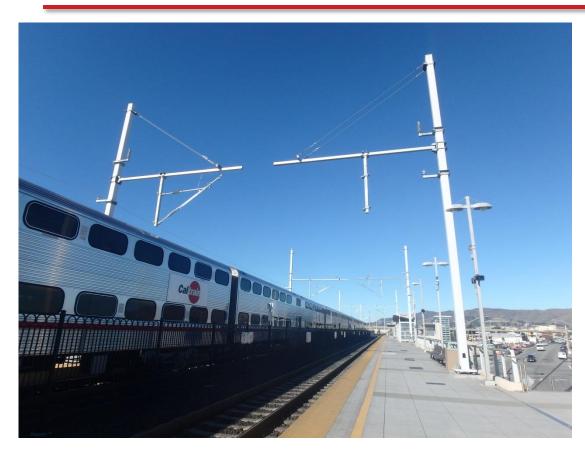


Wheel Chair Lift



**At-Grade Crossing** 





Overhead Contact System



Electrical Bike Locker



#### Thank You

## Any Questions... Just Ask!



