



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

Project Schedule

◆ Deliverable

Phase I	2018		2019												2020					
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1.0 Document Review																				
a	Update List																			
2.0 Standards Update Workshops																				
a	Design Criteria																			
b	Standard Specifications																			
c	Standard Drawings																			
d	Standards for Design & Maintenance of Structures																			
e	Standards for Excavation Support Systems																			
3.0 Design Criteria																				
a	Criteria Update - Draft																			
b	Criteria Update - Final																			
Phase II																				
1.0 Standard Drawings Update																				
a	Standard Drawings Update - Draft																			
b	Standard Drawings Update - Final																			
2.0 Standard Specifications Update																				
a	Standard Specifications Update - Draft																			
b	Standard Specifications Update - Final																			
3.0 Standards for Excavation Support Systems Update																				
a	Shoring Manual Update - Draft																			
b	Shoring Manual Update - Final																			
Phase II-A																				
1.0 Standards for Design & Maintenance of Structures																				
a	Structural Manual Update - Draft																			
b	Structural Manual Update - Final																			
2.0 Review and Finalize CADD Drawings																				
a	Review and Finalize CADD Drawings																			
3.0 Standards for Excavation Support Systems Update																				
a	Develop Plan																			

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

Pictures of Standard Design (Cont.)



Mini-high at Center Island Platform



Mini-high at Out Board Platform

Pictures of Standard Design (Cont.)



Signal Bridge



Signal Cantilever

Pictures of Standard Design (Cont.)



Automatically Controlled Switch



Manually Controlled Switch

Pictures of Standard Design (Cont.)



Wheel Chair Lift



At-Grade Crossing

Pictures of Standard Design (Cont.)



Overhead Contact System



Electrical Bike Locker

Thank You

**Any Questions...
Just Ask!**

