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

• Phase II
  o Update Standard Specifications
  o Update Standard Drawings
  o Update Engineering Standards for Excavation Support Systems
Phased Approach (cont.)

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

### Project Schedule

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<th>Phase I</th>
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### 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 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

### 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 CAD Drawings |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| a Review and Finalize CAD Drawings |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 3.0 Standards for Excavation Support Systems Update |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| a Development 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.)

Wheel Chair Lift

At-Grade Crossing
Pictures of Standard Design (Cont.)

Overhead Contact System

Electrical Bike Locker
Thank You

Any Questions...
Just Ask!