What is level boarding?

- Examples: BART and Muni
- Definition
  - Horizontal gap less 3"
  - Vertical gap less 5/8"
Level Boarding Important to Caltrain

- Safety enhancements
- Operating efficiencies
- Passenger convenience
- ADA compliant

Caltrain Corridor
Stations / Platforms

- 33 stations (SF to Gilroy)
- Shared stations / platforms
- Caltrain and tenants
  - Altamont Corridor Express (ACE)
  - Capitol Corridor (CC)
  - Amtrak
  - Freight

Platform Height and Vehicle Threshold

<table>
<thead>
<tr>
<th></th>
<th>Caltrain</th>
<th>Tenants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thresholds</strong></td>
<td><strong>Existing Platform Height 8” at top of rail (ATOR)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bi-level</td>
<td>ACE</td>
</tr>
<tr>
<td></td>
<td>18” 1st step (25” @ floor)</td>
<td>18” 1st step (25” @ floor)</td>
</tr>
<tr>
<td></td>
<td>Gallery</td>
<td>CC</td>
</tr>
<tr>
<td></td>
<td>18” 1st step (45” @ floor)</td>
<td>18” @ floor</td>
</tr>
</tbody>
</table>

Bi-Level

Gallery
Conflicting Regulations

California Public Utilities Commission Regulation (General Order 26D)

- Tends to push platform and vehicle apart
- Protect freight and passenger operations
- Creates clearance envelope
- Govern train/platform interface
California Public Utilities Commission (CPUC) Regulation (General Order 26D)

Federal Americans with Disabilities Act (ADA)

- Tends to bring platform and vehicle together
- Provide level boarding where practicable
- Waivers when shared with freight
- Station improvements can trigger level boarding requirement
ADA Regulation

Regulation Compliant

- Mini highs
- Wayside and on-board lifts
- Hand-crank lifts (backup)
Caltrain Electrified Service (2019)

Electrified Service Context

- Maximize capacity and support growing ridership
- Utilize existing stations and tracks
- Continue ADA and CPUC compliance
- Service
  - Electric service from SF to SJ
  - Continued diesel for Gilroy service
- Vehicles
  - Convert from diesel to EMU fleet
  - Utilize remaining life of diesel fleet
Electrified Service Context, cont.

- Continued tenant access
  - ACE, CC, Amtrak
  - Freight
- Support future HSR service
- Consider other planned services
  - Coast Daylight
  - Dumbarton

EMU Design Considerations

- Service proven
- Existing design / safety standard approved
- Compatible with existing fleet
- Maximize capacity
- Maintain/Improve current customer experience
- Future station platform implications
  - Caltrain level boarding
  - Shared platforms with tenants
Service Proven EMU Options

- **Single Level EMU**
  - Floor threshold 46” to 51” ATOR
  - Capacity 80 – 100 passengers per car (less than today)

- **Multi-Level EMU**
  - Floor threshold ~25” ATOR
  - Capacity 110 – 130 passengers per car (similar to today's)

Platform Height and Vehicle Threshold

<table>
<thead>
<tr>
<th>Thresholds</th>
<th>Caltrain</th>
<th>Tenants</th>
</tr>
</thead>
</table>
| Existing Platform Height 8” at top of rail (ATOR) | Bi-level  
  - 18” 1st step (25” @ floor)  
  - Gallery  
  - 18” 1st step (45” @ floor)  
  - Multi-level EMU  
  - Removable 18” 1st step (25” @ floor)  | ACE  
  - 18” 1st step (25” @ floor)  
  - CC  
  - 18” @ floor  
  - Amtrak  
  - 18” @ floor |
Future Caltrain Level Boarding

Caltrain Level Boarding Approach

- Identify cost / funding
- 25” platforms at 27 Caltrain stations (SF to SJ)
- SJ to Gilroy TBD
- Dedicated tenant platforms
- Phasing consideration
- CPUC waiver for regulation compliance
## Platform Height and Vehicle Threshold

<table>
<thead>
<tr>
<th>Caltrain Level Boarding</th>
<th>Tenants Dedicated Platform</th>
<th>HSR Dedicated Platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF to SJ</td>
<td>Diridon, Santa Clara</td>
<td>Millbrae, TTC</td>
</tr>
<tr>
<td>Platform height at top of rail (ATOR) 25”</td>
<td>Platform height at top of rail (ATOR) 18”</td>
<td>Platform height at top of rail (ATOR) ~50”</td>
</tr>
<tr>
<td>Bi-level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– (Remove 1st step)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– 25” @ floor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multi-level EMU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– (Remove 1st step)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– 25” @ floor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– 18” 1st step (25” @ floor)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– 18” @ floor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amtrak</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– 18” @ floor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Systems with Dedicated Platforms

- Essen Central Station, Germany
- L.A. Union Station, USA
- Denver Union Station, USA (under construction)
Next Steps

- Public Dialogue
- Agency Stakeholder Dialogue
- Inform Industry Discussions
- Inform Vehicle Procurement

Discussion