

California High-Speed Train Project



TECHNICAL MEMORANDUM

Station Platform Geometric Design TM 2.2.4

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Released by: Signed document on file _____ 16 May 08
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| Revision | Date | Description |
|----------|-------------|-----------------|
| 0 | 16 May 2008 | Initial Release |
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System Level Technical and Integration Reviews

The purpose of the review is to ensure:

- Technical consistency and appropriateness
- Check for integration issues and conflicts

System level reviews are required for all technical memorandums. Technical Leads for each subsystem are responsible for completing the reviews in a timely manner and identifying appropriate senior staff to perform the review. Exemption to the System Level technical and integration review by any Subsystem must be approved by the Engineering Manager.

System Level Technical Reviews by Subsystem:

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|-----------------|--|--------------------------|
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TABLE OF CONTENTS

| | |
|--|-----------|
| ABSTRACT | II |
| 1.0 INTRODUCTION | 1 |
| 1.1 PURPOSE OF THE TECHNICAL MEMORANDUM | 1 |
| 1.2 STATEMENT OF TECHNICAL ISSUE | 1 |
| 2.0 DESIGN STANDARDS AND GUIDELINES..... | 4 |
| 2.1 GENERAL | 4 |
| 2.2 LAWS AND CODES | 4 |
| 2.3 APPLICABILITY TO FEDERAL CODE OF REGULATIONS..... | 4 |
| 3.0 ASSESSMENT/ANALYSIS..... | 5 |
| 3.1 BACKGROUND | 5 |
| 3.2 GEOMETRIC CONSIDERATIONS | 5 |
| 3.3 PLATFORM GEOMETRY | 8 |
| 3.4 CHARACTERISTICS OF DIFFERENT PLATFORMS | 9 |
| 3.5 DESIGN CONSIDERATIONS – SHARED USE CORRIDORS..... | 10 |
| 3.6 DESIGN CONSIDERATIONS – HIGH-SPEED RAIL CORRIDORS..... | 10 |
| 4.0 SUMMARY AND RECOMMENDATIONS..... | 12 |
| 5.0 SOURCE INFORMATION AND REFERENCES..... | 13 |
| 6.0 DESIGN MANUAL CRITERIA | 14 |
| 6.1 STATION PLATFORMS | 14 |
| 6.1.1 Platform Length | 14 |
| 6.1.2 Platform Width | 14 |
| 6.1.3 Platform Curvature..... | 14 |
| 6.1.4 Platform Height Above Rail | 14 |
| 6.1.5 Track Centerline to Platform Dimension..... | 15 |
| 6.1.6 Platform Edge to Train Gap..... | 15 |
| 6.1.7 Platform Cross Slope..... | 15 |
| 6.1.8 Platform Longitudinal Slope..... | 15 |

ABSTRACT

The California High-Speed Train Project (CHSTP) will provide high-speed train service in the State of California with proposed terminal stations in Sacramento, San Francisco, Fresno, Bakersfield, Los Angeles, Anaheim, and San Diego. Intermediate stations will serve locations along the alignment. For much of the alignment, high-speed trains will operate along a dedicated track with stations that exclusively serve high-speed train operations. There are locations (LOSSAN and Caltrain corridors) where the California High-Speed Rail (CHSR) line will operate within a shared right-of-way with conventional passenger railroad lines. Some of the stations located within the shared use corridors will need to accommodate both conventional passenger and high-speed trains, which vary with regard to vehicle length, width, floor height, and location of train doors. These stations will need to achieve the design requirements for both dedicated high-speed and shared use train operations.

This technical memorandum presents design guidance for the configuration of high-speed train station platforms in order to advance the design of alignment and stations, and promote efficient train operations, passenger safety, and meet applicable regulatory requirements. This document establishes station platform design requirements for geometric elements, clearance elements, and other design elements such as drainage provisions for platform facilities.

High-speed train station facilities throughout the world were considered in the development of the platform design criteria for the CHST project. Where appropriate, this memorandum presents the current design practices in Europe and Asia for reference.

The programmatic and functional requirements for station platforms such as the type and number of patron facilities to be provided on the platforms will be addressed in a separate document.

6.0 DESIGN MANUAL CRITERIA

6.1 STATION PLATFORMS

These design guidelines apply to station platforms for both shared and high-speed train corridors.

6.1.1 Platform Length

The platform length will be fixed definitively when rolling stock criteria are known. The following is provided for insofar as it may affect the alignment design.

- Desirable: 1380 ft (420 m)
- Minimum: 1345 ft (410 m)
- Exceptional: 1315 ft (400 m)

6.1.2 Platform Width

Center and side platform widths will be defined in accordance with the maximum number of passengers based on projected ridership at each station. The platform width shall also meet CPUC, FRA, NFPA 130, and ADA requirements, including requirements for vertical access and circulation.

1. Center platform

- Desirable: 30.0 ft (9.00 m)
- Minimum: 30.0 ft (9.00 m)
- Exceptional: 25.0 ft (7.50 m)

2. Side platform

- Desirable: 20.0 ft (6.00 m)
- Minimum: 18.0 ft (6.00 m)
- Exceptional: 18.0 ft (5.50 m)

6.1.3 Platform Curvature

The platform maximum and exceptional curvature will be fixed definitively when rolling stock criteria are known. The following is provided for insofar as it may affect the alignment design.

- Desirable: none
- Minimum: none
- Exceptional: 0 d 05 m 09 s (radius 67,300 ft or 20,500 m) which correspond to 60 mm superelevation with 200 mph (320 kph) speed

6.1.4 Platform Height Above Rail

Since the type of equipment is unknown at this time, the platform height above rail is unknown at this time. The height of the platform above the top of the closest rail will be established when the rolling stock criteria are known. The following guidance on the platform height is provided insofar as it may help to design station facilities.

- Desirable: 3' - 0" (91.5 cm)
- Maximum: 4' - 5" (134.6 cm)
- Minimum: 2' - 0" (61.0 cm)

6.1.5 Track Centerline to Platform Dimension

The distance between the track center line and the platform edge will be established when rolling stock criteria are known. The following information may affect the alignment design prior to obtaining the vehicle information.

- Desirable: 5'-9" (1.750 m)
- Minimum: 5'-9" (1.750 m)
- Exceptional: 5'-9" (1.750 m)

6.1.6 Platform Edge to Train Gap

a) Horizontal Gap

ADA requires a maximum horizontal gap, measured when the vehicle is at rest, of no greater than 3 inches (76.2 mm) between platform edge and train door sill. This dimension anticipates a sliding plug door design and requires 3 inches clearance between station platform edge and door threshold.

- Desirable: 3.0 in (7.62 cm)
- Minimum: 3.0 in (7.62 cm)
- Exceptional: 3.0 in (7.62 cm)

b) Vertical Gap

The vertical gap between the train door threshold and the platform edge will be established when rolling stock criteria are known. The following information is provided for use as it may affect the alignment design prior to obtaining the vehicle information.

- Desirable: 0 in (0.00 cm)
- Maximum: $\pm 5/8$ in (± 1.60 cm)
- Exceptional: 1-1/2 in (3.80 cm)

6.1.7 Platform Cross Slope

The platform cross slope shall be away from the tracks to provide for drainage for the track structure and to provide a rolling slope away from the track for safety purpose. In case of use of center island platforms, an under drain shall be provided at the center of the platform.

- Desirable: 1.0%
- Minimum: 1.0%
- Maximum: 2.0%
- Exceptional: 2.0%

6.1.8 Platform Longitudinal Slope

The platform longitudinal slope must follow the longitudinal profile of the rail as drainage of the platform is provided by the cross slope of the platform.