



**CALIFORNIA  
HIGH-SPEED RAIL  
AUTHORITY**

**BRIEFING: APRIL 2010 MEETING AGENDA ITEM #7**

**TO: Chairman Pringle and Authority Board Members**

**FROM: Carrie Pourvahidi, Interim Executive Director**

**DATE: 3/31/10**

**RE: Transbay Transit Center Design / Trainbox**

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**Background**

Authority staff and the Federal Railroad Administration directed the Program Management Team to review a number of concepts and drawings in recent weeks from the Transbay Joint Powers Authority's design consultants, Parsons Corporation.

The most recent of these drawings was submitted on March 9, 2010, and the PMT was asked to comment on its viability for use by high-speed trains. In particular, PMT was asked to evaluate whether, if the track layout was suitable for the high-speed trains, then would the trainbox shown on these drawings designed by Parsons under Phase 1 allow the necessary station platform and track layouts to be built.

PMT has completed its review, and have provided Authority staff with the attached memo outlining the review.

The track drawings supplied, with design variance as outlined in the memo, would be acceptable to receive the high-speed trains at the current planned level of service set for the Transbay Transit Center.

**Staff Recommendation**

Accept the track design layout subject to the comments outlined in the attached memo.

**Attachments:**

- ✓ Memorandum dated 3/17/10 from Dominic Spaethling and Ken Jong to Tony Daniels.
- ✓ Drawings:
  - Alternative 3: Transbay Transit Center
  - Trainbox Blue Line Phase 1
  - Parsons End Platform Design
  - PB End Platform Design
  - Trainbox Red Line Phase 2



**To:** Anthony Daniels, CHSRA PMT Program Director

**CC:** John Harrison, CHSRA PMT Deputy Program Director

**From:** Dominic Spaethling, Regional Manager  
Ken Jong, Engineering Manager

**Date:** 3/17/10

**Subject:** **Review of Transbay Transit Center Design of March 9, 2010**

The Engineering Management Team (EMT) has reviewed the drawing submitted by TJPA's design consultant Parsons Corporation on March 9, 2010. While the team did not conduct a comprehensive review of proposed station configuration and alignment, they were able to focus on three major components of the design:

- horizontal curve radii and the approach alignment
- distance required for the end stop
- and platform length, tangency and platform gaps.

Below is a summary of the initial findings by the team.

#### Horizontal Radius

Horizontal radius of 650-foot is commensurate with the tightest radii (622-foot / 190 m) that the EMT has found in revenue service at Cologne Central Station. This will require a design variance for it to be accepted as part of the HST system.

#### Approach Alignment

Alignment does not provide length of tangent track (75 foot) either side of platform needed to ensure swing of the cars do not require a tapered platform. In the absence of the tangent, we assessed platform tapers is all that is required. This will also require a design variance.

#### End Stop

In the absence of a design, the 40 foot length of track to allows for 30 feet inclusive of physical 'bumper' requirements plus a 10 foot distance from normal train parking position for end stop requirements. This 40 total distance would require a 3-5 mph operational speed.

#### Platform length



Platforms (23, 24, 25 or 26) meet the exceptional design criteria length of 1315 feet. The 1315 foot exceptional length does not provide for the TSI (European Technical Specifications for Interoperability) tolerance that permits train length to be increased 1% for aerodynamic design. A design variance will be required for the total length of the platforms.

### Platform Gap

Platforms on tracks 23, 24, 25 and 26 will all require additional offsets due to the adjacent or proximate curves in the platform tracks. The beginning point of the need for additional car to platform clearance is based on the point at which the swing in the car body begins due to curvature, which is based on vehicle characteristics.

Since the CHSRA has not selected its vehicle type for the system, the EMT tested the vehicle / platform interface with two different trainset technologies. The acceptable gap between the vehicle and platform is governed by two requirements:

*Americans with Disabilities Act (ADA)*: requires a maximum gap between platform and side of the train at door positions of 3 inches.

*CHSRA PMT Design Criteria*: The distance between the platform edge and the center of the nearest track is 5.75 feet inclusive of gap.

For the Shinkansen equipment, as a typical case, with the ADA standard offset of 3 inches:

Track 23: 82.5 feet into the platform, maximum offset at end: 10.1 total inches or a 7.1 inch additional gap.

Track 24: 108.9 feet into the platform, maximum offset at end: 6.7 inches or a 3.7 inch additional gap.

Track 25: 56.5 feet into the platform, maximum offset at end: 4.7 inches or a 1.7 inch additional gap.

Track 26: 29.1 feet into the platform, maximum offset at end: 3.7 inches or a 0.7 inch additional gap.

A design variance would be required for the potential platform gap issues.

In addition to the observations outlined above, the EMT would also need to confirm:

- Width of platform to be confirmed at 30 ft.



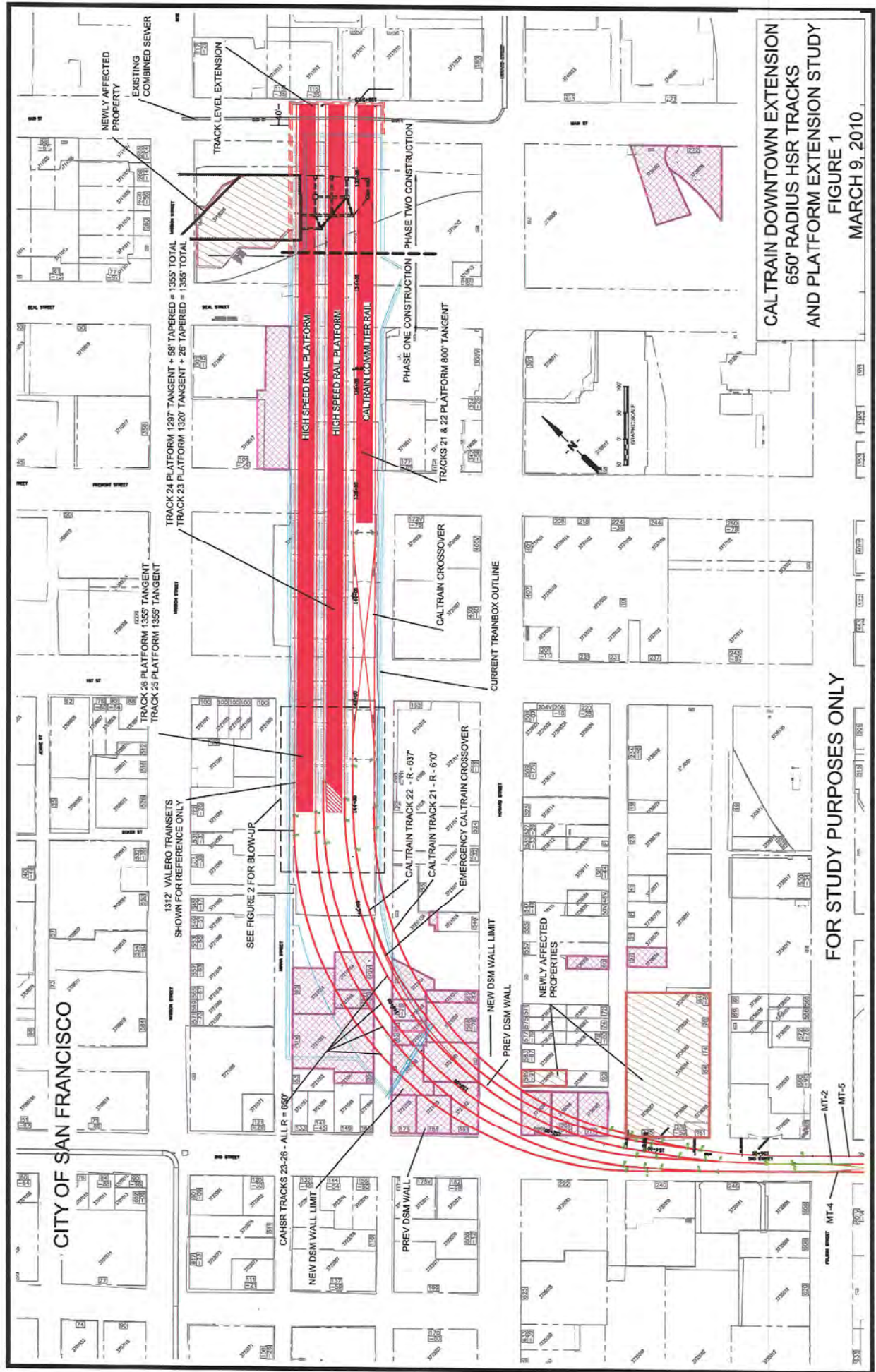
- Distance between face of platform and track centerline to be confirmed at 5.75 ft
- Superelevation
- Full approach with trackwork for consistency with the operational requirements.
- Operational mitigations (platform gap fillers, wheel lubrication devices, etc)

In conclusion, while the current design for the Transbay Transit Center would require a series of design variances in order for it to be acceptable for the HST system, the project, as currently described, can accommodate the planned level of service at the TTC. The appropriate next step would be to enter into a formal design variance process whereby the CHSRA and the TJPA can discuss the possible operational, design or other mitigations for the issues with the horizontal radius, approach alignment, platform length and platform gap. Finally, this terminal concept is only feasible if both Phase I and II as outlined in the plan set of March 9, 2010 are constructed before the initiation of service to the terminal. The Phase I construction alone would not be sufficient to accommodate the HST forecasted level of service.







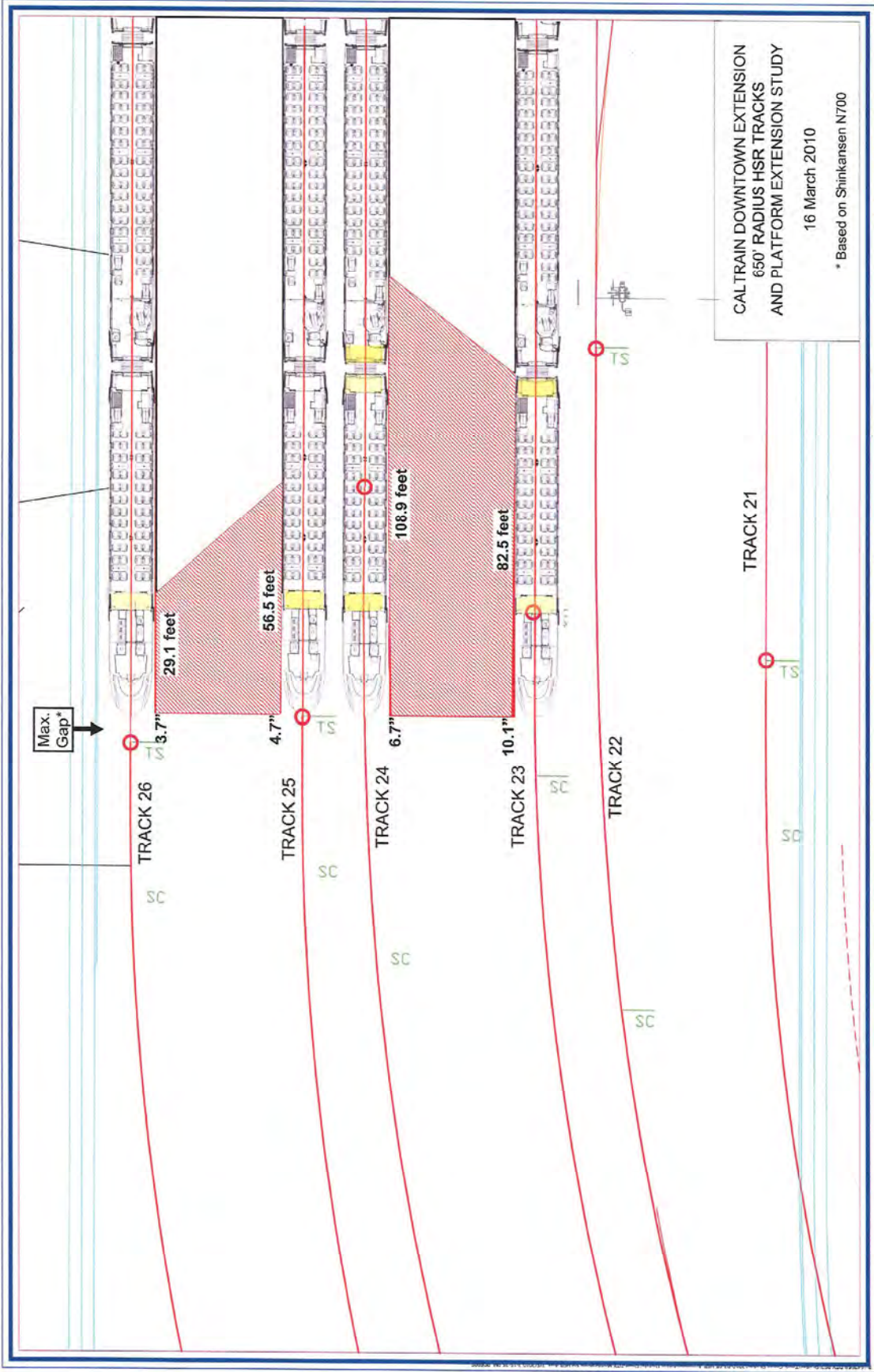


CALTRAIN DOWNTOWN EXTENSION  
 650' RADIUS HSR TRACKS  
 AND PLATFORM EXTENSION STUDY  
 FIGURE 1  
 MARCH 9, 2010

FOR STUDY PURPOSES ONLY







CAL TRAIN DOWNTOWN EXTENSION  
 650' RADIUS HSR TRACKS  
 AND PLATFORM EXTENSION STUDY  
 16 March 2010  
 \* Based on Shinkansen N700

