Appendix C.
Typical Cross Sections
This summary presents guidance for geometric design as it pertains to horizontal and vertical alignment elements as well as track layouts at Caltrain Stations. There are guidelines and values for three types of design criteria: Desirable, Minimum and Exceptional as described in the Technical Memorandum: Alignment Design Standards for High Speed Train Operation by the California High Speed Rail Authority.

This appendix includes various typical sections that can be used for configurations throughout the corridor and are conceptual. These sections support the various vertical design options (at grade, elevated, below grade, and tunnel). For the at grade sections, two configurations for the electrification system (Overhead Contact System) are shown. There are also sample construction staging concepts shown for various vertical design options such that requirements for temporary construction easements could be identified.

The various typical sections are summarized and arranged by the minimum right-of-way required for the final configuration. These typical sections can be used with the existing Right-of-Way schematics in Appendix J. These sections also include transition sections which are required to move from one vertical design option to another. The Minimum Right-of-Way Requirements schematics depict typical sections that correspond with the detailed typical sections, where Caltrain and California High-speed Train tracks may be elevated, at grade, below grade, or in transition along the corridor. The specified right of way widths (designated in the color scheme) also correlates to the Plan and Profile Drawings (shown in Appendix B) that shows existing rail right of way along the corridor. A 5’ utility easement is considered in the dimensioned ROW widths. Temporary construction easements are not factored in these ROW dimensions. There are total of 3 minimum right-of-way exhibits for:

- Mainline Track
- Stations - Center Island or Inboard Platforms
- Stations - Outboard Platforms

**Main Line**

- HST - Track spacing is 16 feet 6 inches (center to center) – Desirable
- HST - Track spacing is 15 feet (center to center) – Minimum
- HST - Track spacing is 14 feet (center to center) – Exceptional
- Caltrain – Track spacing is 15 feet (center to center)
- Track spacing between mainline track and sidings is 25 feet.

**Utility Easement**

Third party utilities (fiber optic, etc) will be consolidated in a 5 feet utility easement.
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<th>ELEVATED</th>
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<th>115'-0&quot;</th>
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MINIMUM RIGHT-OF-WAY REQUIREMENTS

**CALIFORNIA HIGH-SPEED TRAIN PROJECT**
**MINIMUM RIGHT-OF-WAY REQUIREMENT EXHIBIT**
**MAINLINE**

03/24/2010
### Minimum Right-of-Way Requirements

#### Elevated (Beam / Girder)
- Transition Zone - Elevated to At-Grade
  - Joint Length: Req = 0.288

#### At-Grade (Road Over or Road Under)
- Transition Zone - At-Grade
  - Joint Length: Req = 0.288

#### Below Grade (Cut and Cover Box/Trench)
- Transition Zone - Trench - Bored/Mined Tunnel

#### Below Grade (Cut and Trench Box / RCC Mined Tunnel)

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**CALIFORNIA HIGH-SPEED TRAIN PROJECT**

**MINIMUM RIGHT-OF-WAY REQUIREMENT CONCEPT STATIONS CENTER ISLAND OR INBOARD PLATFORMS**

03/24/2010
MINIMUM RIGHT-OF-WAY REQUIREMENTS

ELEVATED (AERIAL / BERM)

TRANSITION ZONE - ELEVATED TO AT-GRADE (MIN LENGTH REQ = 6,280')

AT-GRADE (ROAD OVER OR ROAD UNDER)

TRANSITION ZONE - AT-GRADE - BELOW GRADE (MIN LENGTH REQ = 6,280')

BELOW GRADE (CUT AND COVER BOX/TRENCH)

TRANSITION ZONE - TRENCH - BORED/MINED TUNNEL

BELOW GRADE (CUT AND COVER BOX/TRENCH)

TRANSITION ZONE - TRENCH - BORED/MINED TUNNEL

CONCEPTUAL SUBJECT TO CHANGE
NOTES:
1. FOR TYPICAL SECTIONS AT ROADWAY CROSSINGS REFER TO SHEET 24.
FOUR-TRACK STRUCTURE (S-1)

NOTES:
1. FOR TYPICAL SECTIONS AT ROADWAY CROSSINGS REFER TO SHEET 24.
NOTES:
1. FOR TYPICAL SECTIONS AT ROADWAY CROSSINGS REFER TO SHEET 24.
1. For typical sections at roadway crossings refer to sheet 24.
1. For typical sections at roadway crossings refer to sheet 24.
NOTES:
1. FOR TYPICAL SECTIONS AT ROADWAY CROSSINGS REFER TO SHEET 26.

FOUR-SINGLE TRACK TUNNELS
(1-3)
NOTES:
1. FOR TYPICAL SECTIONS AT ROADWAY CROSSINGS REFER TO SHEET 24.
1. For typical sections at roadway crossings refer to sheet 24.
NOTES:

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NOTES:
1. For typical sections at roadway crossings refer to sheet 24.
DOUBLE TRACK CUT/COVER BOX WITH TWO-SINGLE TRACK TUNNELS (CCB-T-2)

DOUBLE TRACK AT GRADE WITH TWO-SINGLE TRACK TUNNELS (AG-T-2)

NOTES:
1. For typical sections at roadway crossings refer to Sheet 24.
NOTES:
1. FOR TYPICAL SECTIONS AT ROADWAY CROSSINGS REFER TO SHEET 24.
NOTES:
1. FOR TYPICAL SECTIONS AT ROADWAY CROSSINGS REFER TO SHEET 24.
DOUBLE TRACK ON RETAINED FILL WITH DOUBLE TRACK IN TUNNEL
(RF-T-2)

DOUBLE TRACK STRUCTURE WITH TWO-SINGLE TRACK AT GRADE
(S-AG-2)
NOTES:
1. FOR TYPICAL SECTIONS AT ROADWAY CROSSINGS REFER TO SHEET 24.
NOTES:
1. FOR TYPICAL SECTIONS AT ROADWAY CROSSINGS REFER TO SHEET 24.

TWO DOUBLE TRACK TRENCHES (TNCN-1)

TWO-SINGLE TRACKS AT GRADE WITH DOUBLE TRACK TRENCH (AG-TNCN-1)

CALIFORNIA HIGH-SPEED TRAIN PROJECT
TRANSITION
DRAFT TYPICAL SECTIONS
03/24/2010
NOTES:
1. For typical sections at roadway crossings refer to sheet 24.
NOTES:

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NOTES:
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1. FOR TYPICAL SECTIONS AT ROADWAY CROSSINGS REFER TO SHEET 24.
FOUR TRACK ELEVATED ON RETAINED FILL (RF-3)

NOTES:
1. FOR TYPICAL SECTIONS AT ROADWAY CROSSINGS REFER TO SHEET 24.
NOTE:
REFER TO TYPICAL SECTIONS SHEETS FOR THE DIFFERENT AT-GRADE, BELOW-GRADE AND ELEVATED SECTIONS OPTIONS.
TYPICAL CALTRAIN-ONLY STATION
OUTBOARD PLATFORM
(STA-1)

TYPICAL CALTRAIN-ONLY STATION
CENTER ISLAND PLATFORM
(STA-2)

TYPICAL CALTRAIN-ONLY STATION
CENTER ISLAND PLATFORM
(STA-3)

NOT TO SCALE
TYPICAL CALTRAIN-ONLY AT GRADE STATION
CENTER ISLAND PLATFORM WITH HSR TUNNEL
(STA-14)
TYPICAL HSR 4-TRACK RAISED STRUCTURE OUTBOARD STATION
WITH CALTRAIN 9-TRACK AT GRADE STATION
(STA-17)
HST SAN JOSE JUNCTON STATION
(LEVEL)

DUCT (TYP)
CABLE

CALTRAIN

MEZZANINE LEVEL

5'-9"
NOTE:
REFER TO TYPICAL SECTIONS SHEETS FOR THE DIFFERENT AT-GRADE, BELOW-GRADE AND ELEVATED SECTIONS OPTIONS.
CONCEPTUAL SUBJECT TO CHANGE

CALIFORNIA HIGH-SPEED TRAIN PROJECT

DRAFT TYPICAL SECTIONS - STAGING
AT-GRADE
CALTRAIN STATION WITH OUTBOARD PLATFORMS
02/19/2010

CONCEPTUAL SUBJECT TO CHANGE