

REQUEST FOR EXPRESSIONS OF INTEREST

TO:

DESIGN and CONSTRUCT THE “INITIAL CONSTRUCTION SECTION” (OR PART THEREOF) BEING THE FUNDED SECTION IN THE CENTRAL VALLEY OF CALIFORNIA, FROM NORTH OF FRESNO TO BAKERSFIELD

AND / OR

PARTICIPATE IN FUTURE DESIGN, CONSTRUCTION, FUNDING, OPERATIONS AND MAINTENANCE SERVICES FOR DELIVERY AND SERVICE OF THE PHASE I (OR PART THEREOF) PROGRAM

OF THE

CALIFORNIA HIGH-SPEED TRAIN PROJECT

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1.0 INTRODUCTION

1.1 Request for Expressions of Interest

The California High-Speed Rail Authority (the "AUTHORITY") is requesting Expressions of Interest ("EOIs") from entities ("Respondents") that may be interested in participating in the following elements of the California High-Speed Train Project (the "Project"):

a) The design and construction of the "Initial Construction Section" (ICS) [FY 10 SDP/ARRA Funded Section] generally located in Madera, Fresno, Kings, Kern and Tulare Counties, California as described in **Section [2.1]** (the "FY 10 SDP/ARRA Project"); and/or

(b) The design, construction, financing, operation and/or maintenance of the remaining sections in the statutorily defined Phase 1 of the Project, as described in **Section [2.2.]** (the "Phase 1 Program"), or any part thereof, with the aim to determine, and place in operation at the earliest possible time, an Initial Operable Section ("IOS") which would not require an operating subsidy by the Authority.

This is not a formal solicitation. The purpose of this Request for Expressions of Interest (RFEI) is to assist the Authority in refining its approach to potential procurement processes for elements of the Project. Submissions will not be evaluated. While submission of an EOI is not a prerequisite for participating in the ICS procurement process, or for participating in procurement processes for components of the Phase 1 Program, interested firms and parties are strongly encouraged to submit responses with detailed comments.

Based on the funding presently available for initial construction of the project, the AUTHORITY anticipates that the design and construction of the ICS will use the design-build project delivery method. Responses to this RFEI that address the ICS will be utilized in developing and issuing a Request for Qualifications (RFQ) to contractors in spring 2011 and, subsequently, a Request for Proposals (RFP) by late 2011.

Responses to this RFEI that address the Phase 1 Program will be utilized to assist the AUTHORITY as it refines the procurement approach for Phase 1 Program components to maximize cost-effectiveness and timeliness of Phase 1 Program delivery. While submission of an EOI is not a prerequisite for participating in procurement processes for components of the Phase 1 Program, interested firms and parties are strongly encouraged to submit their responses with detailed comments. Submittal of an EOI addressing the Phase 1 Program will ensure that the AUTHORITY receives the benefit of industry expertise to develop the high-quality procurement approach necessary for effective Project delivery, and to better determine the interest of the industry to participate in aspects of Public Private Partnerships ("PPP") including Operations and Maintenance ("O & M").

Respondents may respond as independent companies, corporations or individuals as the Authority is interested in the maximum amount of constructive comments. It is not necessary for Respondents to respond as the consortiums or partnerships which are planning to submit future bids, although the

Authority would be interested in being informed as to the formation of any future bidding groups for work on the Project. Such information would not be binding on the Respondents.

It is important for Respondents to note, that the potential Project, including the ICS and the Phase 1 Program, remains in the environmental review process under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) at this time and that final decisions by the Authority and the FRA regarding alignment, station, and maintenance facility alternatives have not been made. A range of alternatives, including a no-build alternative, are being considered in the environmental process and it is possible that the Project scope may be modified through the environmental process or that a no-build alternative may be adopted. Nothing contained in this RFEI is intended to modify, limit or otherwise constrain the environmental process or commit the Authority or any other entity to undertake any action with respect to the Project including any procurement or the design and construction of a potential project or particular alignment.

1.2 Acronyms and Definitions

Acronyms and Definitions are contained in **Appendix -A**.

1.3 Project Requirements

The Authority's statutory mandate is to plan, design, build, operate and maintain a High-Speed Train (HST) system that is coordinated with California's existing transportation network, particularly intercity rail and bus lines, commuter rail lines, urban rail transit lines, highways, and airports. In accordance with this mandate, the AUTHORITY's primary requirements for the Project include:

- The Project will provide reliable, safe and efficient HS rail service to the State of California when completed.
- Passenger service on the completed Project will not require a local, state, or federal operating subsidy.
- The Project (and Phase 1 program) will be capable of demonstrating/testing vehicle, infrastructure, system and interoperability designs/components and certify trains operating at speeds of at least 220 miles per hour.
- The Project (and Phase 1 program) will require one or more locations for maintenance (light, intermediate and heavy maintenance) as well as storage of HST equipment during final operation as well as during the testing/certification process (as required).
- The Project will minimize construction impacts on adjacent highway, rail and transit operations, including any planned improvements.
- The Project will result in measureable job creation.
- The ICS will be completed by fall of 2017.
- The Phase 1 Program will be completed by 2020 (subject to the availability of funds).

1.4 AUTHORITY Point of Contact

Submittal of the EOI and all subsequent written communications will be addressed to Mr. Roelof van Ark (the "Authority's Point of Contact"). The Authority will distribute addenda and other communications

directly to the Respondent's identified point of contact, and will also post them on the Authority web site. Contact information for the Authority Point of Contact is provided below:

Roelof van Ark, Chief Executive Officer
925 L Street, Suite 1425
Sacramento, CA 95814

2.0 HIGH-SPEED RAIL OVERVIEW

The proposed Project encompasses approximately 800 route miles (Phase 1 and 2) and will provide intercity travel in California between the major metropolitan centers of Sacramento, the San Francisco Bay Area, the Central Valley, Los Angeles, the Inland Empire, Orange County, and San Diego. The Project is envisioned as a state-of-the-art, electrically powered, high-speed, steel-wheel-on-steel-rail technology, including, state-of-the-art safety, signaling, and automated train-control systems. This train technology has proven to be the safest and most reliable form of rail transportation currently in operation, based on extensive revenue operating experience in Europe and Asia.

The Project will operate on exclusive tracks with the potential for portions of the route shared with other passenger rail operations (LOSSAN in Orange County and Caltrain in the San Francisco Bay area) and private freight rail operations between Los Angeles and Anaheim. The route will be constructed at-grade, in an open trench, in a tunnel, or on an elevated guideway, depending on the terrain and physical constraints encountered. Extensive portions of the Project will lie within, or adjacent to, existing rail or highway rights-of-way (rather than new alignment) to reduce potential environmental impacts and minimize land acquisition costs.

2.1 INITIAL CONSTRUCTION SECTION (ICS) DESCRIPTION

The following ICS description is provided to prospective Respondents so that they might recommend approaches to make the opportunity more attractive to industry, accelerate ICS delivery, and/or reduce FY 10 SDP/ARRA Project costs. The Design-Build Contractor will be responsible for management, design, and construction of the ICS, or parts thereof. If it is determined that the ICS, generally estimated at approximately \$5.5Billion, is too large for one Contractor, multiple Contractors may be used. The intent is to allow flexibility in design and construction to accommodate processes, procedures, and innovative techniques subject to standards and criteria as will be described in the RFQ and RFP. The Authority intends to pay for the ICS with Federal and State funds but also welcomes any and all ICS cost reduction and/or revenue generation strategies, including proposals for private financial participation or actual developments, of the ICS or such ICS parts such as joint development of HST stations and surrounding properties.

For the ICS, there are various alignment options under consideration. The preferred alignment will result from the National Environmental Policy Act/California Environmental Quality Act (NEPA/CEQA) environmental process outcome expected to be completed in late 2011. The example alignment and project components presented in **Figure B1** of the Appendix graphically represent the work elements

associated with this ICS alternative route. It is only presented in this RFEI to give the respondents a basis to prepare their submittals and in no way indicate a preference by the Authority for any of the alignment alternatives presented.

2.1.1 FRESNO to SHAFTER

Starting 0.8 miles north of West Herndon Avenue in Madera this ICS alternative route continues south through and including a new basic HST Station in Fresno, then south through Bowles bypassing the cities of Hanford and Corcoran. The alignment may either pass through or bypass Shafter and Wasco before connecting to the BNSF just north of Bakersfield. This alignment would be approximately 120 miles in length and leads to a practical interface with the WYE which would (as part of the Phase 1 Program) connect in a westerly direction with San Jose and/or in a northerly direction to Merced. This ICS alternative route incorporates:

- Civil infrastructure including trackwork.
- The potential for a basic High-Speed Rail (HSR) station in Fresno (a platform prepared for four (4) tracks of which two (2) tracks into and out of the station will be installed in this phase) which can be used by Amtrak in case of Independent Utility.
- The potential for a basic HSR station at Kings/Tulare Regional Station (a platform prepared for four (4) tracks of which two (2) tracks into and out of the station will be installed in this phase) which can be used by Amtrak in case of Independent Utility.
- A basic signaling system (Positive Train Control (PTC) as required for Independent Utility.
- Interconnectors to the BNSF line to ensure Independent Utility:
 - One mile reserved for Interconnector in Bakersfield.
 - An eight mile Interconnector to a point approximately 0.4 miles north of Avenue 13, north of Fresno.

This ICS alternative route may include the following subsections:

2.1.1.1 Madera to West Clinton Avenue

Designated as the A1-1 and A1-5 subsections in the Merced to Fresno EIR/EIS, and with a total length of approximately 17 miles, this alignment starts with an interconnection to the BNSF lines in Madera County and continues south on the A1-1 subsection to the UPRR corridor just north of the San Joaquin River. It continues southward to the A1-5 subsection into Fresno, ending at West Clinton Avenue. The A1-1 portion of the alignment will be constructed primarily at-grade, The A1-5 subsection will include a new bridge over the San Joaquin River, and will include a mixture of at-grade and elevated sections into Fresno.

2.1.1.2 West Clinton Avenue to Bowles

Designated as the F subsections in the Fresno to Bakersfield EIR/EIS, and with a total length of approximately 10 miles, this alignment starts at West Clinton Avenue, continues south on one of the F subsections along the UPRR corridor through downtown Fresno to the new Fresno HST Station, and rejoins with the BNSF corridor

near the community of Bowles. The entire alignment through Fresno, including the Fresno HST Station, may be on elevated guide-way or at-grade. Approximately two miles at the south end of the alignment will be at-grade.

2.1.1.3 Bowles to Shafter

Designated as the H and C2 subsections in the Fresno to Bakersfield EIR/EIS, and with a total length of approximately 40 miles, this alignment starts near the community of Bowles and continues south on the H alignment along the BNSF corridor. Just south of the community of Conejo, the alignment leaves the BNSF corridor to bypass the City of Hanford to the East, and includes a Kings/Tulare Regional Station at the intersection of SR-198 and SR-43. The alignment then follows the C2 subsection south by-passing the City of Corcoran on the east side of the city (at-grade) where it turns into the rural at-grade Subsection P. Just north of Allensworth, Subsection P turns into Subsection A which is a partially elevated rural subsection. In the vicinity of the City of Wasco, Subsection A becomes Subsection WS. The ARRA funded section enters into this partially elevated subsection for a distance of approximately 13 miles ending in the vicinity of Snow Road just north of the Bakersfield.

As indicated above, this description is representative of the project being studied as part of the NEPA/CEQA process and does not represent and preference final decision, or conclusion about the project as a whole or individual alternative.

2.2 “PHASE-1 PROGRAM” SECTION DESCRIPTIONS

The following Phase 1 Program description is provided to prospective Respondents so that they might recommend approaches to make the opportunity more attractive to industry, accelerate Phase 1 Program delivery, and enhance Program-related revenue generation and/or reduce Program costs. The intent is to allow flexibility in approaches to delivery of the Phase 1 Program or components thereof, and to accommodate processes, procedures, and innovative techniques that are preferred by the Respondents, subject to standards and criteria as described in applicable documents. The AUTHORITY also welcomes any and all Phase 1 Program cost reduction and/or revenue generation strategies, including proposals to privately develop, operate and maintain the Phase 1 Program components such as maintenance facilities, and/or joint development of Phase 1 Program HST stations and surrounding properties.

The preferred alignment for the Phase 1 Program will result from the National Environmental Policy Act/California Environmental Quality Act (NEPA/CEQA) environmental processes, and alignment and project components presented in this RFEI are only to provide the respondents with an equally comparative basis to prepare their submittals. The following section descriptions and other information are provided to prospective respondents to assist them in formulating their responses, recommendations, and suggestions to this Request for Expressions of Interest and should not be construed as a preference by the Authority for any of the alignment alternatives presented.

Further Federal and State funding is expected beyond the initial \$5.5B ICS investment in subsequent years, and the Authority intends to continue construction to extend the length of the initial line, either:

1. In a northerly/north-westerly direction to Gilroy, San Jose and on to San Francisco thereby ensuring interconnectivity between Bakersfield, Kings County Fresno and on to the Bay Area.,
OR
2. In a northerly direction to Merced, then on to Gilroy, San Jose and on to San Francisco, thereby ensuring interconnectivity between Bakersfield, Kings County, Fresno and Merced and on to the Bay Area.
3. In a southerly direction to Palmdale, to the San Fernando Valley, on to Los Angeles Union Station, and on to Anaheim, thereby connecting Fresno, Bakersfield, and Palmdale to the Greater Los Angeles basin.

Extension of the system into any of the aforementioned directions will be part of the Authority's designation of an "Initial Operable Section" ("IOS") being a system which would result in sufficient distance and ridership so that "Core Systems" such as electrification, signaling, dispatching, central control as well as maintenance facilities be installed, and high-speed trains be supplied, so as to start a HST Operation ("HST Operation"), not requiring any local, state, or federal operating subsidy. Furthermore, such IOS as well as HST Operation should benefit from the maximum private financial investment participation, so as to optimize the PPP balance on this project.

Irrespective of which direction the IOS will extend beyond the ICS it remains the goal of the Authority to complete the Phase 1 Program by connecting San Francisco with Los Angeles/Anaheim, and then to expand to subsequent phases(s), connecting San Diego and Sacramento to the system.

Below is a description of the various alternative sections of the Phase 1 Program alignment. In addition to the descriptions provided the reader is referred to the appendix for additional information on all alternatives being considered in the environmental process.

2.2.1 SAN FRANCISCO to SAN JOSE SECTION

The San Francisco to San Jose section extends from San Francisco Transbay Transit Center in the north to the San Jose Diridon Station in the south. The overall length of this section is approximately 50 miles. As shown in **Figure B2**, three alternatives within the Caltrain corridor are currently being evaluated as part of the NEPA/CEQA development efforts. All three options incorporate at-grade, aerial, trench and tunnel track sections. Additionally, all three alignments incorporate a complete automatic train control (ATC) and communication system as well as traction power supply and distribution system, new HST stations as well as reconstruction of affected Caltrain stations. A light maintenance facility and yard track is also planned to be incorporated in this section, however its final site selection is currently being evaluated in the environmental process.

2.2.2 SAN JOSE to MERCED WYE SECTION

The approximately 100 mile San Jose to Merced/Fresno WYE Section is divided into five subsections which are listed below from northwest to southeast. **Figure B3** shows the different alignment alternatives being studied within this section:

2.2.2.1 San Jose Approach Subsection

The San Jose Approach Subsection is located between the San Jose High-Speed Train Station, at Park Avenue and West Alma Avenue (San Jose) a distance of approximately 2 miles. Currently the subsection is in the EIS/EIR evaluation phase and final alignment selection has not been made. However, it is envisioned that for this subsection the High-Speed Train would run on an aerial structure until it joins the Monterey Highway subsection. Additionally, the subsection incorporates a complete automatic train control (ATC) and communication system as well as a traction power supply and distribution system.

2.2.2.2 Monterey Highway Subsection

This approximately nine mile subsection is located between West Alma Avenue just south of Caltrain's Tamien Station, and proceeds southeastward terminating at Coyote-South on Bernal Road, near SR85 in south San Jose. It is anticipated that this subsection will be built on a combination of at-grade and aerial structures. Additionally, the subsection incorporates a complete automatic train control (ATC) and communication system as well as traction power supply and distribution system, new and upgraded overcrossings and, pedestrian and bicycle accessways to be provide over or under access to the Caltrain platforms at various locations along the alignment.

2.2.2.3 Morgan Hill-Gilroy Subsection

The Morgan Hill – Gilroy subsection is located between Bernal Road, near SR 85 in south San Jose and Casa de Fruta at the west end of Pacheco Creek Valley is approximately 32 miles long. It is currently envisioned that this section will be built using a combination of at-grade rail, rail on aerial structure, and rail in trenches and tunnels. The two track HST systems transition to a four-track configuration in a trench as it approaches Gilroy Station and returns to a two track configuration near East Luchessa Avenue. The HST stays in the trench and passes underneath the existing UPRR industrial lead track south of US101, after which the track ascends back to an at-grade track. After crossing SR 152 near San Felipe, the HST would enter a tunnel that brings the line to the Pacheco Creek Valley near Casa de Fruta. The subsection also incorporates a complete automatic train control (ATC) and communication system as well as a traction power supply and distribution system.

2.2.2.4 Pacheco Pass Subsection

The approximately 24 mile Pacheco Pass subsection is located between Casa de Fruta, at the west end of Pacheco Creek Valley and to Interstate 5 west of Santa Nella Village in

Merced County. The alignment generally follows SR 152 east along the valley, making use of viaducts and tunnels to maintain the geometric standards required for a high-speed train including very wide radius curves. Additionally, the subsection incorporates a complete automatic train control (ATC) and communication system as well as a traction power supply and distribution system,

2.2.2.5 San Joaquin Valley Crossing Subsection

The approximately 33 mile San Joaquin Valley Crossing from Santa Nella Village to Chowchilla is a relatively straight alignment adjacent to Henry Miller Avenue and Jefferson Road/Avenue 24. The subsection is proposed to be configured predominantly at-grade with aerial structures as needed. Additionally, grade separations are provided along the entire route providing access to properties on each side of the alignment and, the subsection incorporates a complete automatic train control (ATC) and communication system as well as a traction power supply and distribution system,

2.2.3 MERCED to FRESNO SECTION

Currently the alternative alignments being evaluated for the Merced to Fresno Section connect the San Jose – Merced Section via the WYE Connection along either Avenue 24 or Avenue 21. The section also includes a HST Station in Merced and a potential Maintenance Facility located in the Section (potential sites are highlighted in purple on the schematic below). The total length of the section including the Castle Commerce Center site and the San Jose WYE connections is approximately 95 miles. The three subsections and the alternatives being considered are graphically portrayed in **Figure B4**.

2.2.3.1 Alternate A1 BNSF Alignment

This Alternative generally remains west of the BNSF from Castle Commerce Center through Merced and Madera, and then joins to the east side of the UPRR near the San Joaquin River. It is anticipated that the alignment is to be predominantly an at-grade alignment with elevated track proposed in a number of locations. The subsection also incorporates a complete automatic train control (ATC) and communication system as well as a traction power supply and distribution system. This alternative is approximately 96 miles long between Merced and Fresno.

2.2.3.2 Alternate A2 UPRR/SR99 Alignment

Alternate A2 is the shorter of the two alternatives with a total length of approximately 84 miles. It is anticipated to stay adjacent to the UPRR/SR99 transportation corridor, to the extent possible. In order to provide grade separation from the numerous urban roadway and railway crossings the alternative would be on aerial structure for nearly 50 percent (40 miles) of its length. The remaining section is an at-grade alignment and incorporates a complete automatic train control (ATC) and communication system as well as a traction power supply and distribution system.

2.2.3.3 Hybrid Alternative

A combination of Alternatives A1 and A2, the Hybrid Alternative is also capable of incorporating the SR 152 WYE connections into their alignment without major impacts or delays. The advantage being that the Hybrid Alternative connections avoid the commercial centers of Chowchilla and Madera.

2.2.3.4 San Jose to Merced WYE Connection

Two potential at-grade alternatives with minor aerial structures are viable to make the San Jose connection from both the BNSF and UPRR/SR99 Alternatives the preferred Program EIS/EIR alignment at Henry Miller/Avenue 24 or on Avenue 21.

2.2.4 FRESNO to BAKERSFIELD SECTION

The Fresno to Bakersfield Section includes the urbanized areas of Fresno and Bakersfield and the more rural area between the two cities, a distance of approximately 115 miles. The HSR tracks of the Fresno to Bakersfield Sections would be constructed using a combination of at-grade tracks, elevated retained earth tracks, and tracks on aerial structures. The Section also incorporates a complete automatic train control (ATC) and communication system as well as a traction power supply and distribution system, and is also being considered for a Heavy Maintenance Facility. Because urban and rural areas often have varying and different concerns, the Section is divided into three Subsections as identified in **Figure B5**. This figure also identifies the alternatives under consideration in this Section

2.2.4.1 Fresno Subsection

It is anticipated that the HST would be built on an aerial structure through Fresno starting at West Clinton Avenue north of downtown Fresno and terminating in the vicinity of E. Manning Avenue south of Fresno, with a HST station located in downtown Fresno.

2.2.4.2 Rural Subsection

The Rural Subsection begins at E. Manning Avenue in Fresno and continues south to Hageman Road in Rosedale on the northwestern outskirts on Bakersfield. It is currently envisioned that the HSR tracks of this subsection would be constructed using a combination of at-grade tracks, elevated retained earth tracks, and tracks on aerial structures

2.2.4.3 Bakersfield Subsection

The Bakersfield Subsection begins at Hageman Road in Rosedale, northwest of Bakersfield, where it meets the rural subsection. It continues through downtown Bakersfield and terminates at Oswell Street, southeast of downtown, where it meets the Bakersfield to Palmdale Section. It is currently anticipated that this subsection would be constructed predominantly as an aerial track structure with a HST station located in downtown Bakersfield.

2.2.5 BAKERSFIELD to PALMDALE SECTION

As Shown in **Figure B6** the Bakersfield to Palmdale Section is approximately 77 miles long beginning at Oswell Street on the north and proceeding southward terminating at Avenue M/Sierra Highway in Lancaster. The Section begins on the north end of Bakersfield station and continues south to the Palmdale Station. The Section also incorporates a complete automatic train control (ATC) and communication system as well as a traction power supply and distribution system. **Figure B6** depicts the alternatives under consideration.

2.2.5.1 Edison Subsection

From east of the Fresno to Bakersfield Section at Oswell Street through the Community of Edison, following SR58 before crossing Caliente Creek, the Edison Subsection consists mainly of industrial and rural residential areas in the western part of the subsection before transitioning through Edison to mainly agricultural land uses. The anticipated plan is to run the approximately 11 miles of track on aerial structure.

2.2.5.2 Tehachapi Subsection

This approximately 40 mile subsection starts just east of Caliente Creek, passing through the Tehachapi Mountains and traversing a high valley immediately north of the City of Tehachapi before exiting from a tunnel into the desert west of Mojave, and curving south near Purdy Avenue just west of SR14. The Tehachapi subsection travels through undeveloped forest, desert, and mountain lands, low density residential areas, and light industrial areas. The Subsection is planned to be constructed using a combination of at-grade tracks, elevated retained earth tracks, tracks on aerial structures, and tracks in tunnels.

2.2.5.3 Antelope Valley Subsection

From Purdy Avenue in Mojave, this approximately 26 mile long subsection generally parallels the Sierra Highway and UPRR right-of-way through Rosamond and Lancaster and ends at Avenue M between the cities of Lancaster and Palmdale. The Antelope Subsection runs through low density suburban areas and undeveloped desert land before passing through downtown Lancaster and entering Palmdale. It is envisioned that this subsection will be primarily elevated through Rosamond and Lancaster but travel at-grade in the less developed areas adjacent to the west side of the UPRR and Sierra highway.

2.2.6 PALMDALE to LOS ANGELES SECTION

In consideration of the varying settings and terrain covered in this Section the Palmdale to Los Angeles Section is divided into three subsections from north to south these are:

2.2.6.1 Palmdale to Sylmar Subsection

Starting at the HST Station in Palmdale the Subsection proceeds southward through the San Gabriel Mountains to Bledsoe Street in Sylmar. As shown on the included figure in the appendix, two potential alignments are currently being evaluated. These include the SR14 East and SR14 West options. Both alternatives are a combination of at-grade track, track on aerial structure, and tracks in tunnels. Additionally the subsection incorporates a complete automatic train control (ATC) and communication system as well as a traction power supply and distribution system, a HST Station located in Palmdale and a Maintenance of Way Facility (location TBD). The overall length of this subsection is approximately 36 miles.

2.2.6.2 Sylmar to SR2 Subsection

This subsection starts at Bledsoe Street and extends southward terminating at SR2 north of Union station in the City of Los Angeles. The approximately 19 mile subsection is currently planned as a combination of at-grade tracks, tracks in covered and open trenches, tracks on viaducts, and an intermediate HST Station. The subsection incorporates a complete automatic train control (ATC) and communication system as well as a traction power supply and distribution system.

2.2.6.3 SR2 to Los Angeles Union Station Subsection

For this approximately 6 mile long subsection, four alternative subsections are being evaluated using a combination of at-grade tracks, tracks in open and covered trenches, tracks on viaducts, tracks in tunnels, and station work at Los Angeles Union Station. The subsection incorporates an automatic train control (ATC) and communication system as well as a traction power supply and distribution system.

As Shown in **Figure B7** the Palmdale to Los Angeles Section is approximately 61 miles long. This figure also shows the alternatives under consideration.

2.2.7 LOS ANGELES to ANAHEIM SECTION

Two alternative alignments are currently being evaluated for this approximately 30 mile long Los Angeles to Anaheim Section. The first option is a dedicated HST alternative, where two tracks would be exclusively reserved for high-speed trains. The second option is a consolidated Shared-Track Alternative as shown in **Figure B8** which consolidates most passenger rail services (Metrolink, AMTRAK and HSR) onto two mainline tracks largely within the existing BNSF right-of-way, along the San Bernardino Subdivision between Fullerton junction and the Hobart Yard vicinity and two at-grade shared use (passenger and freight) tracks within the Orange County Transportation Authority right-of-way from Fullerton Junction to the ARTIC terminal in Anaheim. Provisions for major HSR Stations for Los Angeles (LAUS), Norwalk/Santa Fe Springs, Fullerton and Anaheim (ARTIC) are being evaluated as well as a major Maintenance Facility and yard along the alignment. The Section is currently planned as a combination of at-grade tracks, tracks in covered and open trenches, and tracks on viaducts. Additionally, the subsection incorporates an

automatic train control (ATC) and communication system as well as a traction power supply and distribution system.

3.0 PROCUREMENT PROCESS

3.1 INITIAL CONSTRUCTION SECTION

It is anticipated that the Authority will use a two-step procurement process to select one or more Design-Build Contractors to deliver the ICS or parts thereof. The selection process will have two steps. One or more RFQs are anticipated to be issued by April, 2011. Responses to the RFQ(s) will be evaluated to establish a list of design-build firms/consortiums/groups (Contractors) that will be invited to submit proposals in response to the RFP(s), which the Authority intends to issue towards the end of 2011. The technical proposals and price proposals are anticipated to be due in the first quarter of 2012, with the design-build firm(s) selected in the second half of 2012. These dates are currently estimated and subject to change. The Authority intends to award the contract to the proposer(s) demonstrating the best value to the ICS or parts thereof. The basis for a best value determination will be identified in subsequent procurement documents. However, such a determination will potentially be based on such criteria as technical competency, technical approach, strength of management team, price, risk analysis and/or schedule for delivery and approach to quality control/quality assurance.

3.2 PHASE 1 PROGRAM

The procurement process for Phase 1 Program will be open and transparent, and will be implemented in accordance with the Authority's policies and procedures and in compliance with applicable State and Federal laws and regulations. The Authority is currently evaluating the most appropriate procurement mechanisms for components of the Phase 1 Program. The Authority anticipates that the EOIs submitted in response to this RFEI will provide insights that will assist the Authority as the procurement process and mechanisms for the Phase 1 Program are developed.

4.0 EXPRESSIONS OF INTEREST

4.1 Questions and Clarifications

The Authority reserves the right to revise, clarify OR WITHDRAW this RFEI at any time before the EOI due date. Such revisions, if any, will be announced by addenda to this RFEI.

4.2 Preparation of the EOI

Respondents preparing EOIs that address the ICS are encouraged to recommend approaches to make the ICS more attractive to industry, accelerate the Project delivery, and reduce costs.

Respondents preparing EOIs that address the Phase 1 Program are encouraged to recommend approaches to make the Phase 1 Program more attractive to industry, accelerate Phase 1 Program delivery, and enhance revenue generation and/or reduce costs. With that goal in mind, Respondents are asked to address the following in their EOIs.

- a) Brief description of the relevant experience and capability of the Respondent (or group of Respondents), particularly as far as large infrastructure and/or very high-speed rail projects (or equivalent) is concerned.
- b) Examples of relevant successful projects.
- c) Particular lessons learned and specific recommendations which the Respondent would make to ensure the success of high-speed rail in California.
- d) Reasonability of approach to ICS procurement process and ICS contracting documents.
 - 1. Indicate whether the Respondent prefers that the Authority release a single RFQ or multiple RFQs for multiple ICS design-build contracts, and what factors might influence this preference. The Authority anticipates dividing the ICS into between four or five separate design-build contracts. The authority anticipates releasing a separate RFP for each ICS design-build contract to Respondents shortlisted during the qualification phase. The Authority has yet to determine if it will release a single RFQ for all ICS design-build contracts, or if it will release separate RFQs for each design-build contract. Would four or six months be reasonable for the Respondent to prepare a proposal in response to an RFP? Respondents should consider the tight schedule to which this project is subjected.
 - 2. Indicate whether Respondent considers a reasonable stipend for short-listed non-selectees to be a factor in deciding whether to submit a proposal in response to an RFP. If so, indicate what minimum stipend amount is reasonable.
 - 3. Identify the preferred level of design (i.e., 30%, or more or less) and ICS project specifications detail in the RFP documents to allocate project risk appropriately between the Design-Builder and the Authority.
 - 4. Indicate the maximum length of time that the Respondent would be willing to commit to the terms of its submitted proposal (i.e., 90 days, 180 days, or other) and under what circumstances (i.e., indexation, steel pre-purchase, etc.) it would be willing to commit to a longer timeframe.
 - 5. Indicate whether the Respondent would be willing to submit a proposal in response to an RFP, if the Authority releases the RFP prior to obtaining a Record of Decision (ROD) for the ICS and, if so, under what circumstances.
 - 6. Please comment on how the current federal requirements applicable to an ARRA/PRIIA funded project, including Buy America and stimulus related Buy America requirements might impact Respondents approach to the ICS.
- e) Risk assessment for the ICS.
 - 1. Discuss factors influencing the Respondent's ability to take on specific types of project risk, such as construction cost, construction delay, construction performance, equipment delivery.
 - 2. Identify anticipated principal construction risk and propose potential mitigation measures that could be taken either by the Design-Builder or, if the Respondent believes it would provide value, the Authority.
 - 3. Discuss the impact that a cap on Design-Builder liability would have on industry interest in the ICS, including maximum dollar value.
 - 4. Provide assessments and recommendations regarding insurance issues, including various project insurance regimes, such as OCIP and CCIP.

5. Describe the Respondent's opinion regarding the availability of payment and performance security instruments suitable to a design-build contract for the ICS.
 6. Indicate whether the Respondent would assist the Authority to acquire ICS right-of-way if selected as Design-Builder and, if so, what level of responsibility the Respondent would accept and what conditions would be required from the Authority.
 7. Indicate whether the Respondent would assist the Authority to relocate/protect-in-place any utilities as necessary for ICS delivery if selected as Design-Builder and, if so, what level of responsibility the Respondent would accept.
 8. Describe the Respondent's interest, if any, in a Guaranteed Maximum Price design-build contract and what factors would make it more or less favorable than a traditional design-build contract.
- f) Concerns of feasibility for the ICS (refer to proposed approach in Section 2.2).
1. Impact of bundling ICS elements in to one or more large contracts vs. dividing into many smaller contract packages. Please indicate what Dollar value of contract you believe would be most acceptable to be contracted, thereby indicating to the Authority how many packages the ICS should be divided into.
 2. Largest and smallest contract packages for design and construction that the Respondent would consider, with reasoning including technical specialization, materials and other considerations.
 3. Discuss considerations relating to feasibility of bundling vs. packaging separate design and construction contracts for: (1) HST stations and infrastructure; (2) maintenance shops and equipment; (3) multiple structures and/or grade separations; (4) multiple utility relocations; and (5) other ICS elements.
- g) Ideas and suggestions for the ICS and/or the Phase 1 Program.
1. Potential approaches to achieve on-time, on-budget ICS/Phase 1 Program delivery with safe, quality construction results while minimizing community impacts, and mitigating major risks.
 2. Potential approaches to maximize participation in the ICS/Phase 1 Program by locally-based small businesses (SB) and disabled veteran business enterprises (DVBE).
 3. Discuss the advantages and disadvantages of increasing the SB percentage above the statutory 25% goal and the DVBE above 3% goal.
 4. Recommendations to maintain communications with ICS/Phase 1 Program stakeholders and the surrounding community through the course of ICS/Phase 1 Program implementation.
 5. Recommended approach to resolution of disputes between Authority and the Design-Builder/Developer, including the use of dispute resolution boards, mediation, and/or binding/nonbinding arbitration.
 6. Recommendations regarding the use of sustainable construction methods, such as LEED, etc.
 7. Recommended approaches to addressing federal and state labor compliance requirements, such as implementing job training programs, project labor agreements, etc.
 8. Recommend specific steps that the Authority could take to incentivize innovation and reduce ICS costs – either through an Alternative Technical Concept mechanism in the bid process, gain sharing mechanisms in the Design Build Contract or other mechanisms the Respondent has utilized on similar projects...

9. Identify and discuss topics or issues regarding the ICS/Phase 1 Program not addressed by this RFEI that Respondents believe are important to address in any future RFQ/RFP.
 10. Additional information that would assist the Respondent in its evaluation of interest for future participation in the ICS/Phase 1 Program.
- h) To gauge conceptual viability of pursuing private investment in the Phase 1 Program or components thereof, please provide brief responses to the following, ideally with justification and precedents if appropriate:
1. Indicate whether the Respondent would consider the concept of structuring an Infrastructure Operations and Maintenance agreement for the Phase 1 Program or component thereof (“InfraCo”) based on Availability and Milestone Payments with deductions for underperformance.
 2. Indicate what percentage equity and private funding the Respondent would consider to invest in such “InfraCo”.
 3. Would that concession be more attractive if it included the Design, Build and Financing of the Phase 1 Program or component thereof as well as the Infrastructure Operations and Maintenance (i.e. a DBFO Concession)?
 4. What does the Respondent consider the maximum project size/value for such a DBFO Concession?
 5. In the case of a DBFO Concession would the Respondent be willing to bid on the amount of scope to be delivered for a fixed Milestone/ Availability Payment profile?
 6. Indicate the minimum term that would be attractive for an Infrastructure operating concession and the preferred term.
 7. Indicate whether, as a potential Infrastructure Concessionaire, the Respondent would find investing in the Phase 1 Program or component thereof to be more attractive if station development were to be included at this stage.
 8. Indicate whether the Respondent would be interested in an operating concession for the HST system passenger transportation for the Phase 1 Program (“TransCo”) based on Availability and Milestone Payments with deductions for underperformance.
 9. Indicate whether the Respondent would be interested in an Operating concession for the HST system passenger transportation for the Phase 1 Program (“TransCo”) taking some or all of the ridership risk. Details of any applicable schemes should be provided.
 10. Indicate what percentage equity and private funding the Respondent would consider to invest in such “TransCo”.
 11. Indicate whether, as a potential Operating Concessionaire, the Respondent would be willing to supply the rolling stock as well as maintenance facilities as part of their private investment into the project.
 12. Indicate whether, as a potential Operating Concessionaire, the Respondent would find investing in the project to be more attractive if station development were to be included at this stage.
 13. Would that Concession be more attractive if it included the Design, Build and Financing of the infrastructure of the Phase 1 Program or components thereof?
 14. What does the Respondent consider the maximum project size/value for such a DBFOM Concession?

15. Indicate the minimum term that would be attractive for an Operating concession and the preferred term.

16. Other information the Respondent wishes to submit.

4.3 Submittal of the EOI

The Authority requests that EOIs responding to this RFEI be submitted electronically (as a PDF) no later than 12:00PM March 16, 2011 via email to rfei@hsr.ca.gov. The Authority also requests that all letters of transmittal include the name, title and contact information of the person responsible for interfacing with the Authority.

Following the receipt and compilation of the Respondents' submissions, the Authority intends to hold an informational meeting to discuss the responses contained in the EOIs, and to present the path forward. A preliminary date for the informational meeting, subject to confirmation, is April 4, 2011. The time and place of such meeting have not been established as of yet but all respondents will be invited to attend.

4.4 Public Disclosure Requirements

All written correspondence, exhibits, photographs, reports, printed material, photographs, tapes, electronic disks, and other graphic and visual aids submitted to the Authority are, upon their receipt by the Authority, the property of the State, may not be returned to the submitting parties, and are subject to the Open Government Laws, including the provisions of the California Public Records Act (Government Code §6250 et seq.). In no event shall the State, the Authority, or any of their agents, representatives, consultants, directors, officers or employees be liable to a Respondent or Respondent team member for the disclosure of all or a portion of an EOI submitted in response to this RFEI.

4.5 Clarification of the EOI

The Authority reserves the right, at its sole option, to contact a Respondent to seek clarification regarding information contained in its EOI, but shall have no obligation to do so. If a similar opportunity would likely benefit other Respondents, the Authority shall contact them as well. However, the decision to contact and request clarification from a Respondent rests solely with the Authority. In submitting its EOI, a Respondent should not assume that it will be provided an opportunity to subsequently clarify or otherwise discuss any feature thereof.

5.0 AUTHORITY'S RESERVED RIGHTS

The Authority reserves to itself all rights available to it under applicable law.

EOIs received become the property of the California High-Speed Rail Authority and the State of California.

The Authority assumes no obligations, responsibilities, and liabilities, fiscal or otherwise, to reimburse all or part of the costs incurred or alleged to have been incurred by parties responding to this RFEI. All such costs shall be borne solely by the Respondent. In no event shall the Authority be bound by, or liable for,

any obligations with respect to the ICS and/or the Phase 1 Program until such time (if at all) as one or more contracts/agreements, in form and substance satisfactory to the Authority, have been authorized and executed by the Authority and, then, only to the extent set forth in any subsequent procurement documents.

APPENDIX A

ACRONYMS and DEFINITIONS

ACRONYMS

CCIP	Contractor Furnished Insurance Program
DVBE	Disabled Veteran Business Enterprise
EOI	Expression of Interest
ICS	Initial Construction Section
IOS	Initial Operating Section
OCIP	Owner Controlled Insurance Program
RFEI	Request for Expressions of Interest
ROM	Rough Order-of-Magnitude
SB	Small Business

DEFINITIONS

Initial Construction Section – The [Fresno-Bakersfield Design-Build Section] of the California High-Speed Rail Project as described in Sections 2.1 of this RFEI.

Authority – The California High-Speed Rail Authority.

Design-Builder – The Person or legal entity contracting with the AUTHORITY for the performance of the work required to deliver the FY 10 SDP/ARRA Project.

Expression of Interest (EOI) – The document prepared by a Respondent and submitted to the Authority, recommending approaches to make the ICS and/or the Phase 1 Program more attractive to industry, accelerate the ICS and/or the Phase 1 Program delivery, reduce costs and/or enhance Phase 1 Program-related revenue generation, as requested in the RFEI.

Open Government Laws – Collectively, the California Public Records Act (Ca. Gov. Code §§ 6250 et seq.), the Bagley-Keene Open Meeting Act (Ca. Gov. Code §§ 11120 et seq.) and the Ralph M. Brown Act (Ca. Gov. Code §§ 54950 et seq.).

Person – Any individual, corporation, company, voluntary association, partnership, trust, unincorporated organization, or Governmental Person, including the AUTHORITY.

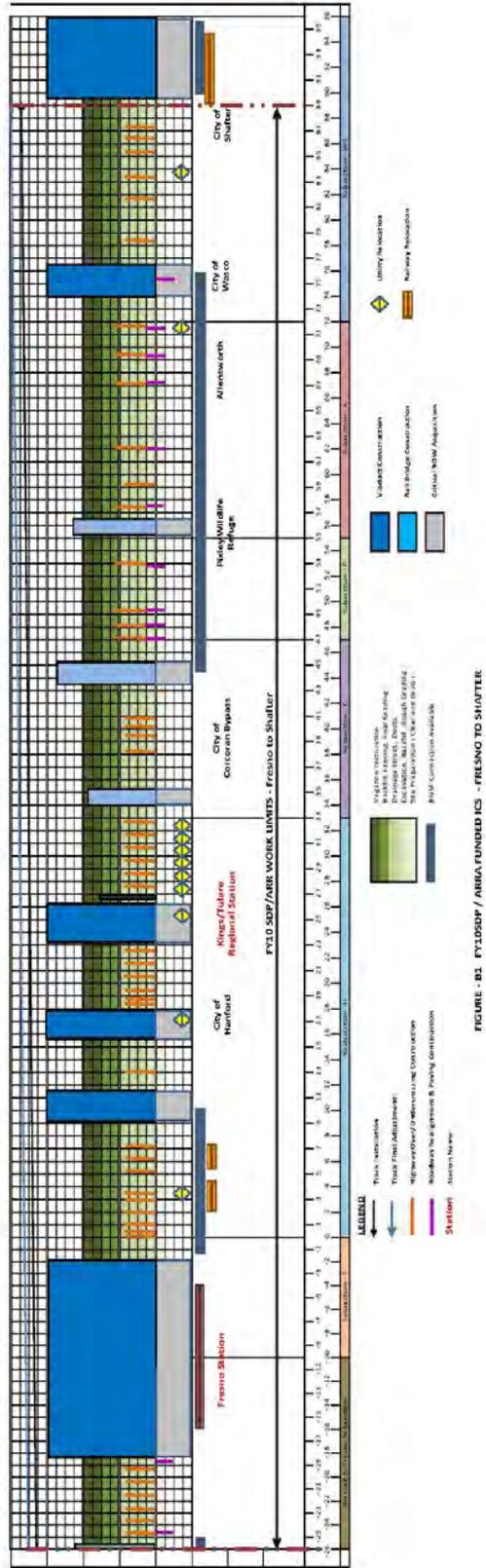
Phase 1 Program – The statutorily defined Phase 1 of the Project.

Project – The California High-Speed Rail Project.

Request for Expressions of Interest (RFEI) – This document, intended to elicit ICS and/or Phase 1 Program delivery improvement recommendations from Respondents, in the form of EOIs.

Respondent – A company, team, joints venture, partnership or consortium interested in participating in the design and construction, and possibly the financing, operation and maintenance of the ICS and/or Phase 1 Program, that submits an EOI in response to this RFEI.

APPENDIX B
REFERENCE DOCUMENTS



B1 FY10SDP/ARRA Funded Section Fresno to Shafter

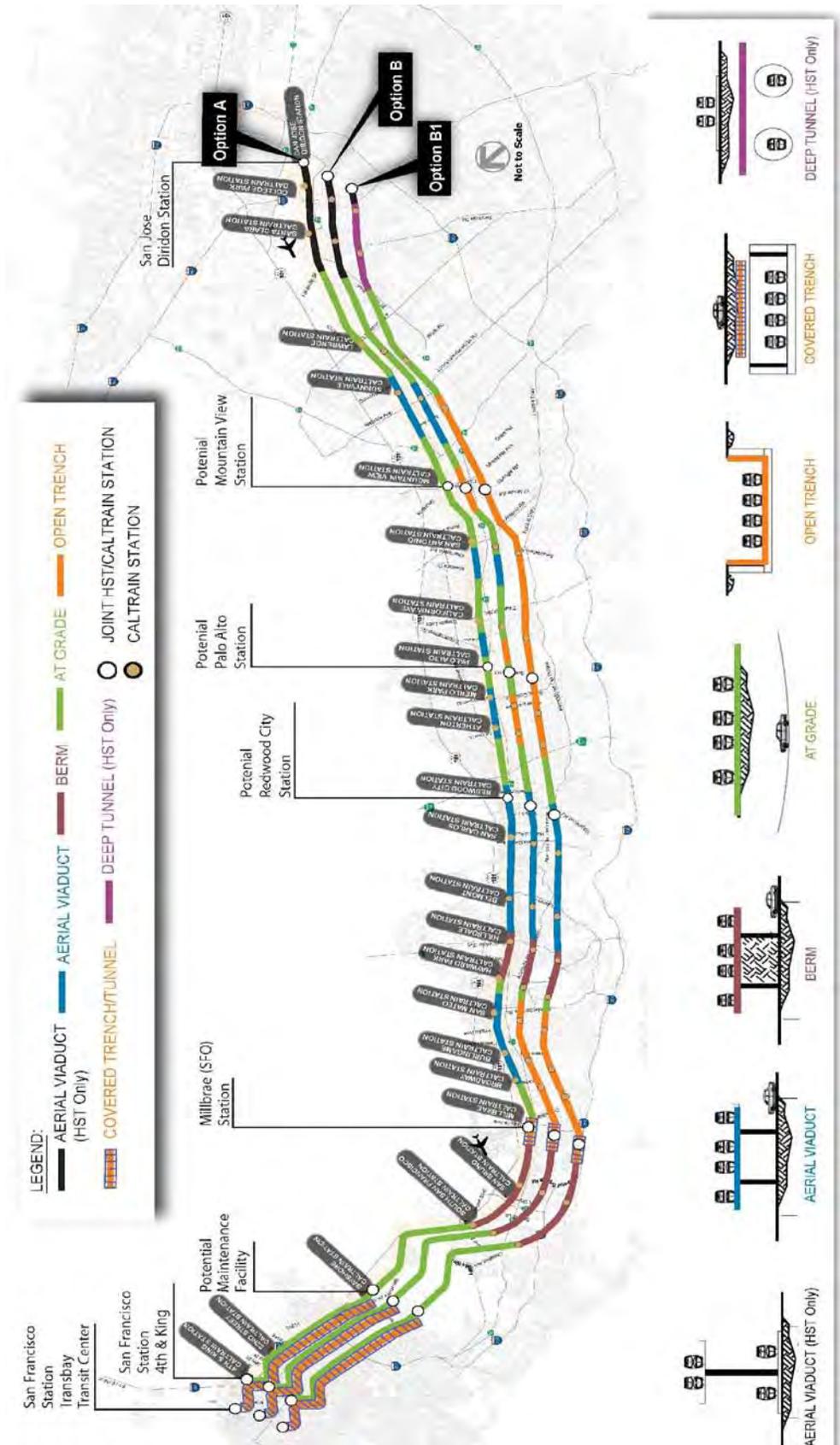


FIGURE – B2 San Francisco to San Jose Section

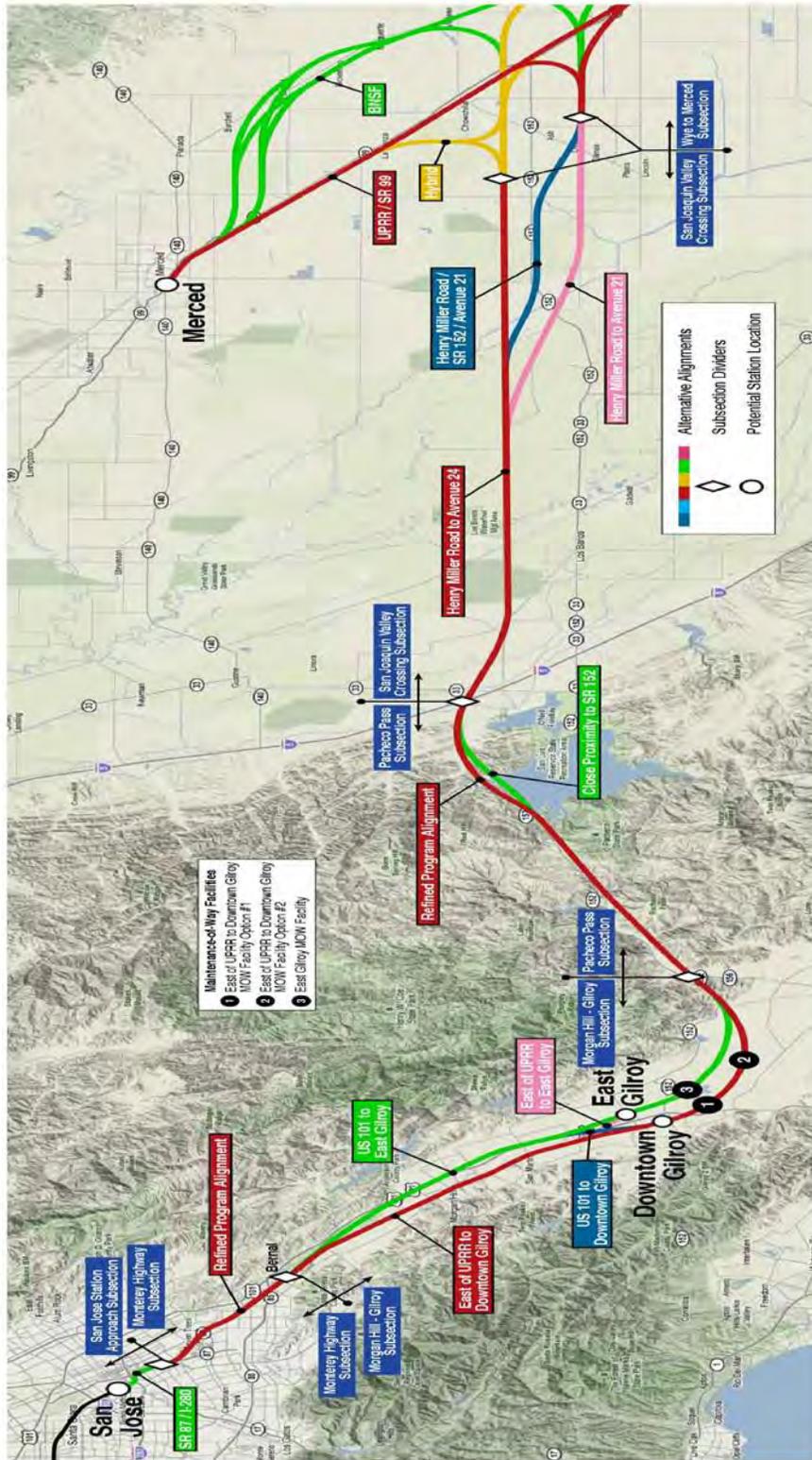
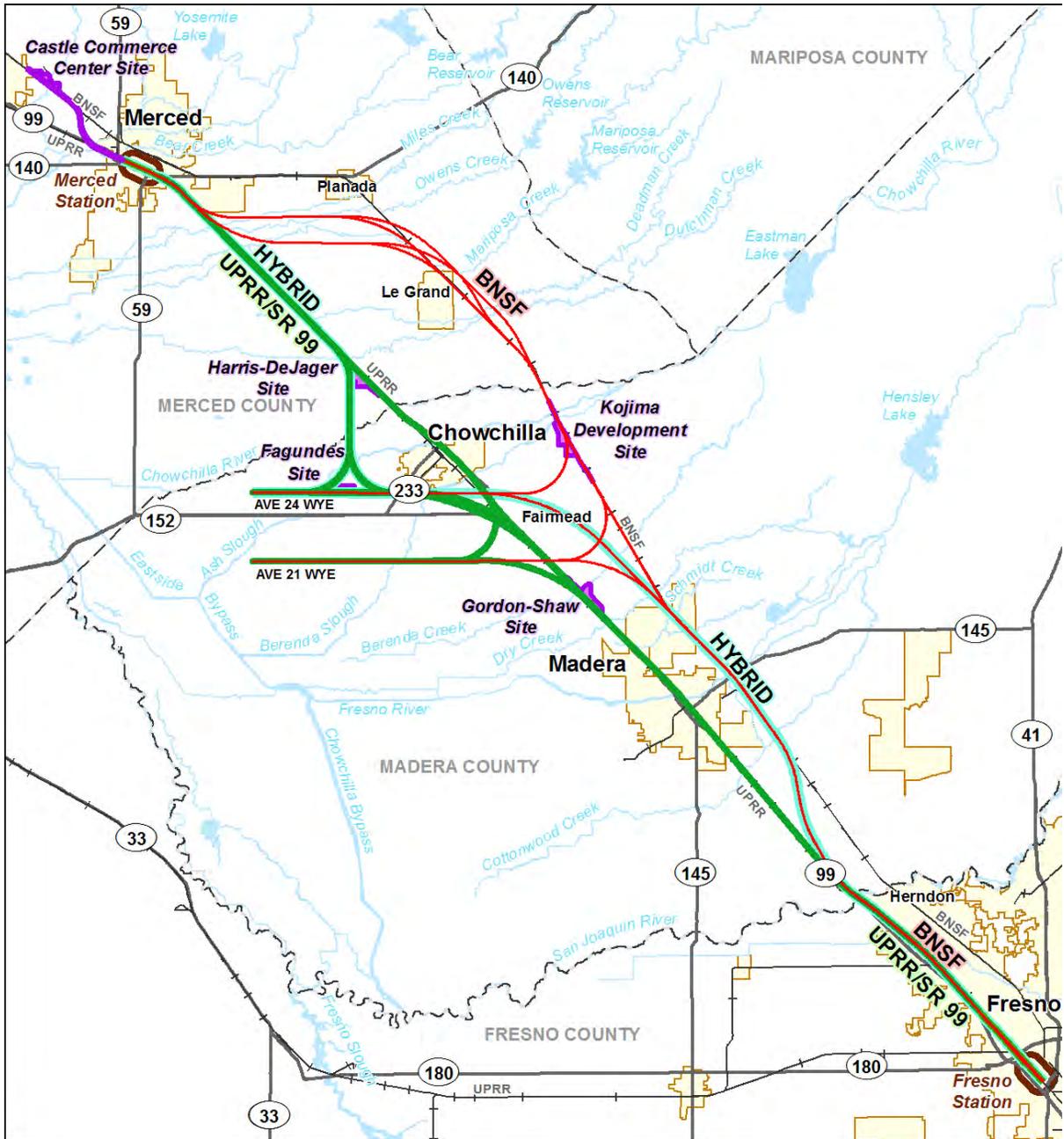
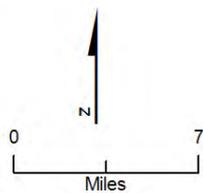


FIGURE B3 – San Jose to Merced WYE Section

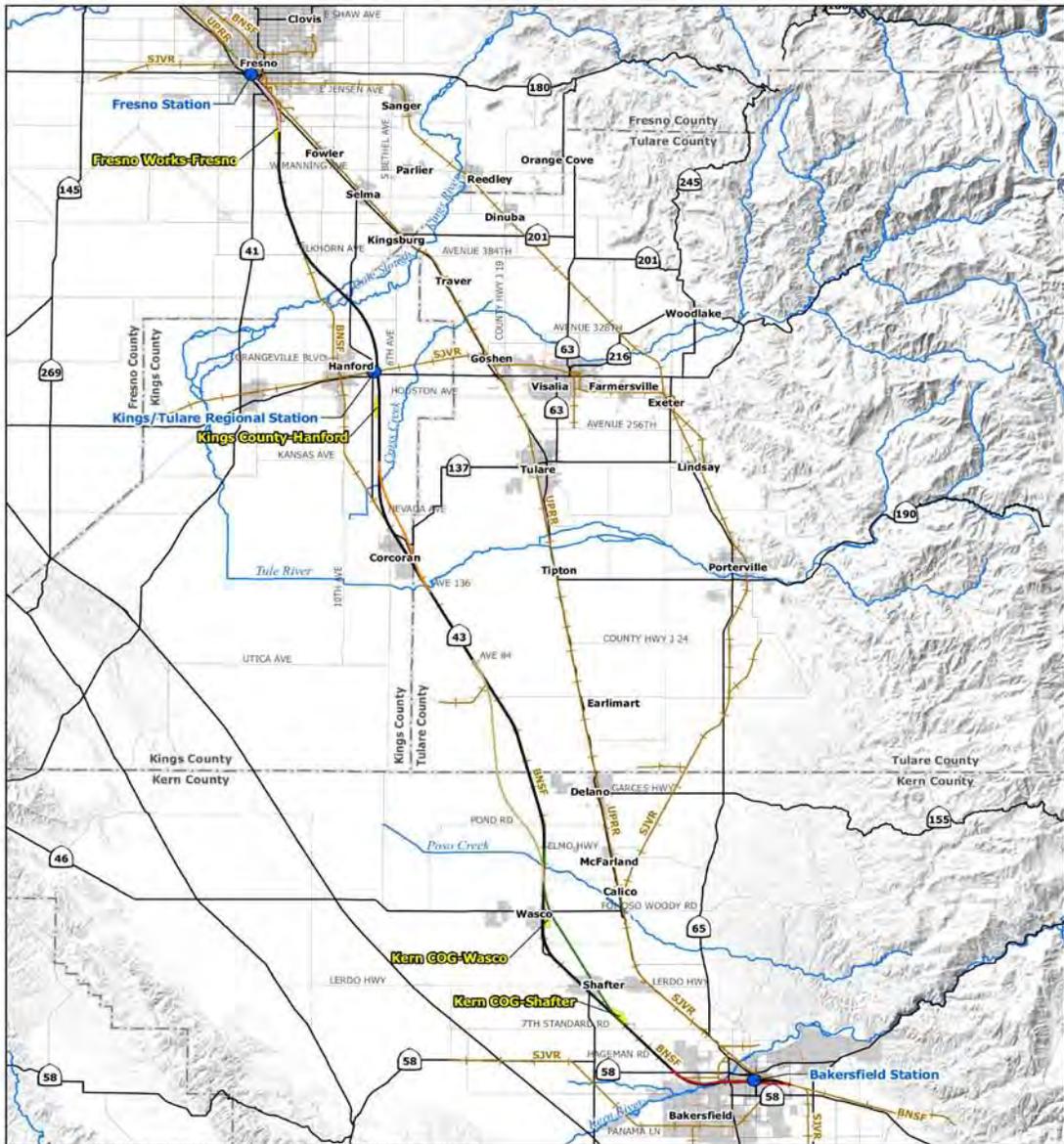


MF_MTG_MISC_14 Jan 12, 2011



- UPRR/SR 99 Alternative
- BNSF Alternative
- Hybrid Alternative
- Station Study Area
- Potential Heavy Maintenance Facility
- City Limit
- - - County Boundary
- + - Railroad

FIGURE – B4 Merced to Fresno Section



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2010

December 8, 2010



FIGURE – B5 Fresno to Bakersfield Section

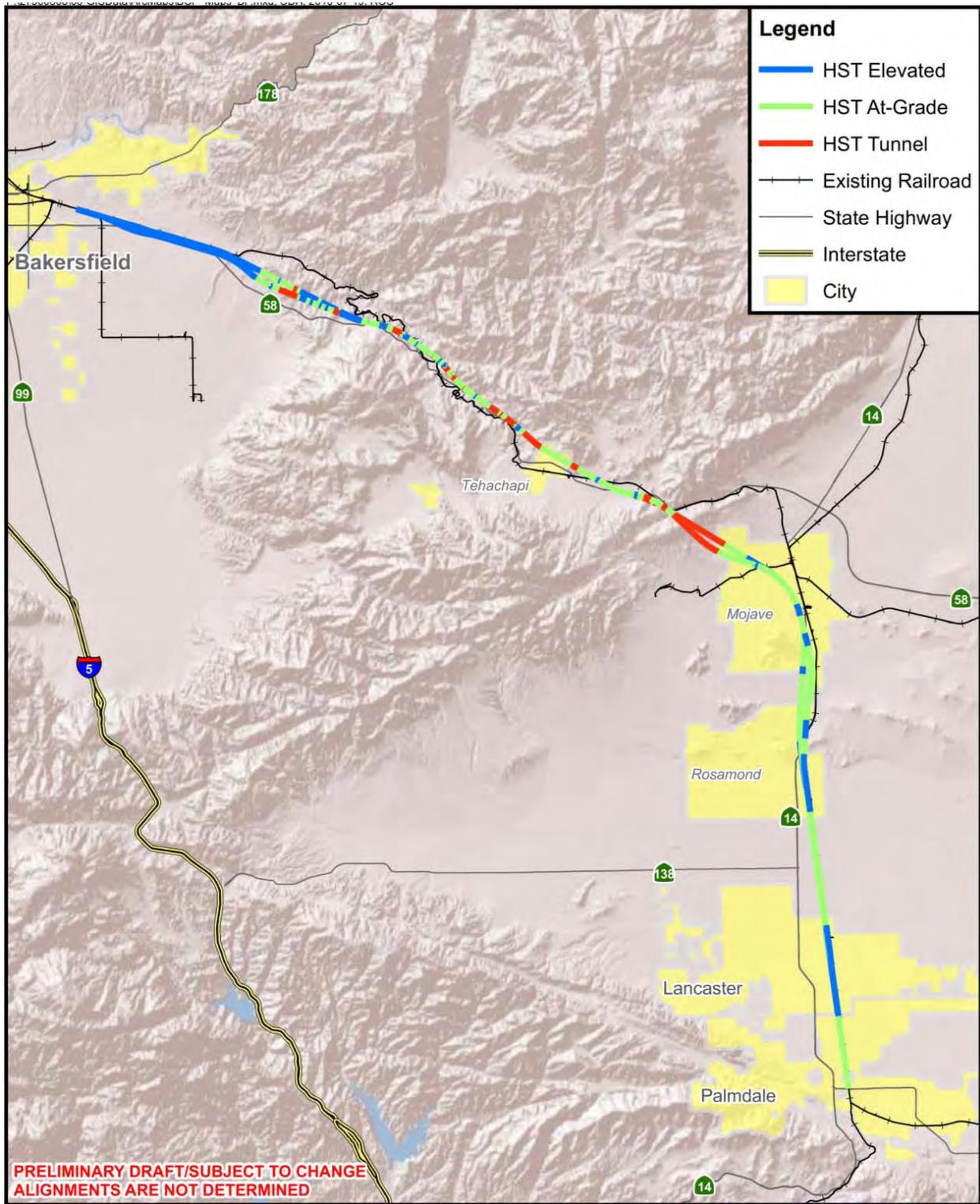


FIGURE – B6 Bakersfield to Palmdale Section

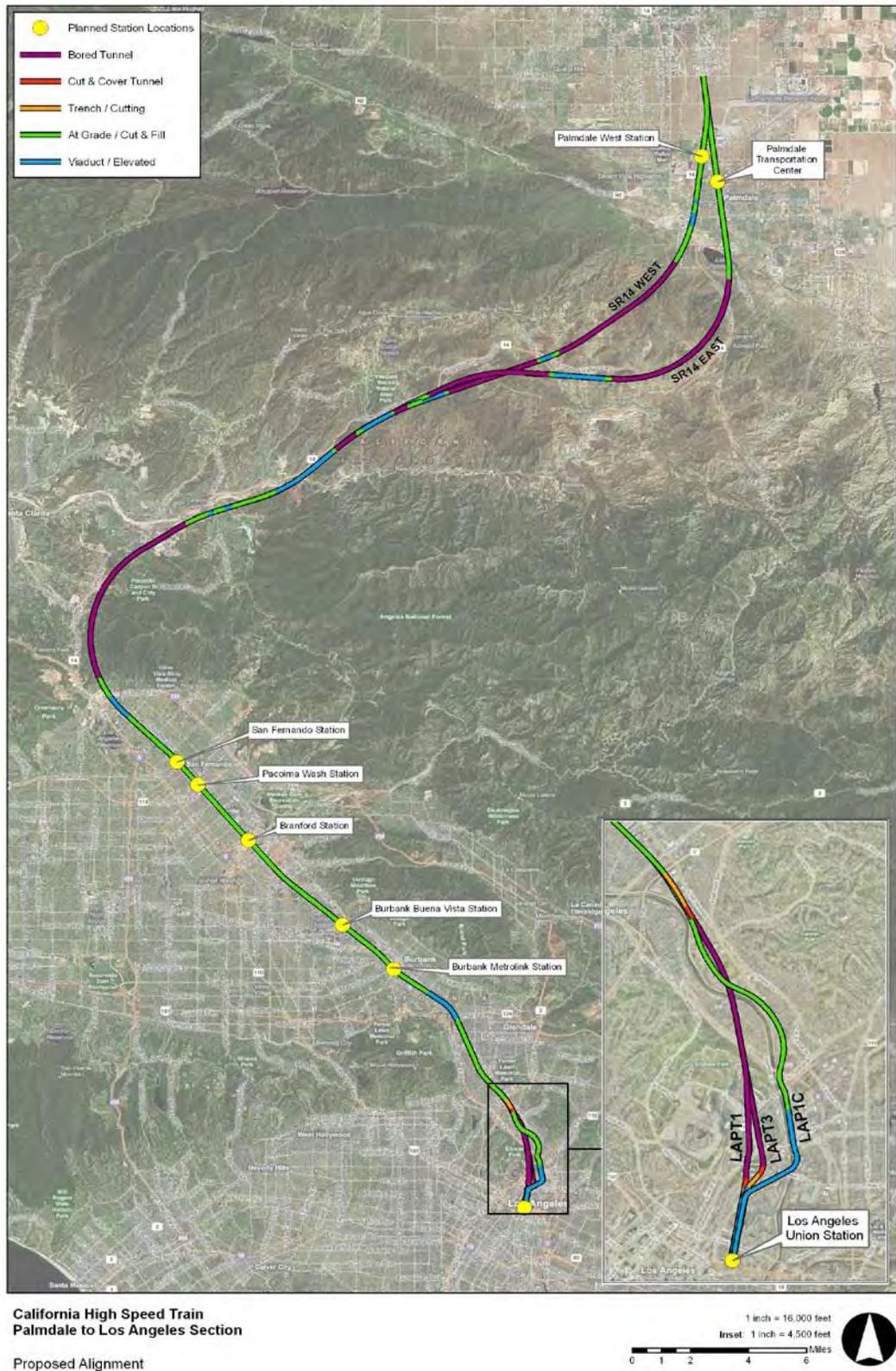


FIGURE – B7 Palmdale to Los Angeles Section

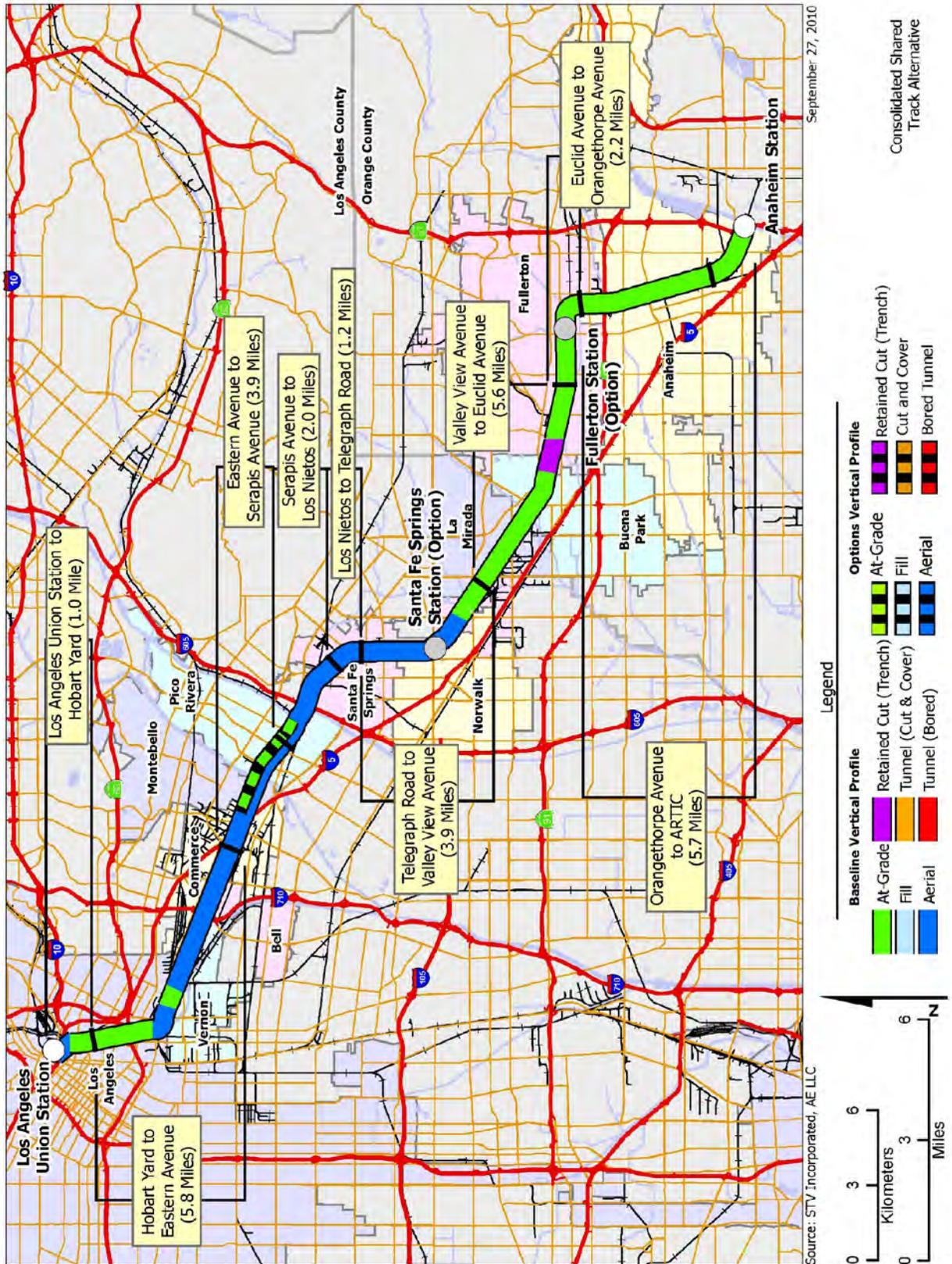


FIGURE – B8 Los Angeles to Anaheim Section

APPENDIX C
MATERIAL MATRIX

FRESNO TO BAKERSFIELD													
COST ELEMENTS													
	Ait. F1	Ait. F2	Ait. F3	Ait. H	Ait. C1	Ait. C2	Ait. P	Ait. A1	Ait. A2	Ait. WS1	Ait. WS2	Ait. B1	Ait. B2
	10.08 miles	10.08 miles	10.08 miles	32.88 miles	13.71 miles	13.71 miles	6.75 miles	19.05 miles	19.06 miles	23.84 miles	23.21 miles	11.73 miles	11.73 miles
	14.2	13.2	13.2	41.3	14.6	13.6	6.8	19.1	19.1	34.8	29.0	16.4	14.9
	route mile	route mile	route mile	route mile	route mile	route mile	route mile	route mile					
A. Track													
Isolated and Direct Fusion Track, Turnouts and Crossovers and Freight Track													
B. At-Grade Sections (Common Earthwork)													
At-Grade (in Fill) - 2 Trks (5' Avg. Fill Ht)	1.2	1.2	1.2	21.5	0.7	0.0	6.4	15.4	16.4	10.2	14.3		
C. Structures - Bridges	8.9	9.6	9.5	7.7	12.2	2.3		2.9	1.6	11.0	7.1	11.8	11.6
PC Sep Box Girder - 2 Trks (20' to 30' Avg. Pier Ht)													
D. Structures - Walls													
Concrete Retaining Wall - Both Sides - 3 Trks (10' to 30' Avg. Wall Ht)	0.3	0.2	0.3	3.5	1.1	3.4	0.3	0.7	1.2	2.9	1.7		
Concrete Retaining Wall - One Side - 3 Trks (10' to 30' Avg. Wall Ht)	15.3	15.0	15.3	61.3	16.0	16.0	7.0	20.0	13.0	41.0	30.0	35.0	35.0
Sound Wall - 1 Wall (8' Avg. Height)	3.0	3.0	3.0	23.0	4.0	4.0	3.0	7.0	6.0	3.0	7.0		
D-1. Grade Separations													
Roadway Overcrossing HSR - 2 lanes retained fill or embankment over 2 tracks													
D-2. Roadways	6.6	7.7	6.7	7.4	3.2	2.9	0.5	3.4	3.3	2.5	8.2		
2-Lane Roadway (road)	6.6	7.7	6.7	7.4	3.2	2.9	0.5	3.4	3.3	2.5	8.2		
E. Building Items													
Intermediate Passenger Station (PRESNO)	1.0	1.0	1.0										
Intermediate Passenger Station (BAKERSFIELD)													
Maintenance of Way Facility (MOW)													
F. Utility Relocation	0.3			4.0	3.0		1.0						
(6' Right-of-Way)													
(6' Right-of-Way)	329.6	339.0	340.0	1002.0	212.0	240.0	137.2	402.0	277.0	531.0	630.0	254.0	173.0
(acre)													
G. Environmental Mitigation													
Environmental Mitigation included in construction costs													
H. Systems	10.1	10.1	10.1	32.9	13.7	13.7	6.3	19.1	19.1	23.9	21.2	12.2	15.2
Physical Positive Train Control													
I. Electrification													

C1 FY 10SDP/ARRA Funded Project FRESNO to SHAFER Section

SAN FRANCISCO TO SAN JOSE OPTION -A		Subsection 0	Subsection 1	Subsection 2	Subsection 3	Subsection 4	Subsection 5	Subsection 6	Subsection 7	Subsection 8	Subsection 9
COST ELEMENTS											
A. Track	UNITS										
Balasted and Direct Fixation Track and Turnouts and Crossovers	route mile		10.0	0.0	5.8	7.6	3.8	3.9	5.7	7.8	6.4
B. Track Structures (at-grade & cut & fill section >4' height/depth)	route mile										
At-Grade Ballasted	route mile		5.1	8.6	1.2	0.6	1.4	2.6	4.3	2.3	
C. Structures - Bridges	route mile										
PC Sag Box Girder - (20' to 50' Avg. Pier Ht)	route mile				3.5	4.8	1.9	0.7	0.9	2.6	3.2
C2. Structures - Tunnels	route mile		5.1	2.5							
TBM Single Track Twin Tunnels 30 ft ID in hard rock and soft ground	route mile										
C-3. Structures - Walls	route mile			3.3	1.0	2.2	0.6	0.6	0.6	0.4	
Retained Cut or Fill (10' to 30' Avg. Ht.)	route mile										
D-1. Grade Separations	each		6.0	3.0	1.0	4.0					
Roadway Undercrossing HSR - 4 lane roadway under 4 tracks	each										
D-2. Roadways	mile					0.5					
4-Lane Roadway (urban/suburban)	mile					0.5					
E. Building Items	each										
HSR Passenger Stations and Caltrain Passenger Stations	each	1.0	1.0	4.0	4.0	5.0	2.0	2.0	3.0	1.0	
Maintenance Facility (Level 1-3)	each	1.0	1.0								
F. Utility Relocation	mile		2.2	3.9	1.2	2.2	1.6	2.8	4.7	0.5	0.3
Major Utility Relocation, Underground	mile										
G. Right-of-Way	acre		100.0								
Urban	acre										
H. Environmental Mitigation											
Environmental Mitigation included in construction costs											
I. Systems	route mile		10.0	8.6	4.9	7.6	3.8	3.9	5.7	5.7	3.2
Train Controls (ATC), Communication (with Fiber optic Backbone) and Wayside Protection Systems	route mile										
J. Electrification	route mile		10.0	8.6	4.9	7.6	3.8	3.9	5.7	5.7	3.2
Traction Power Supply and Distribution (OCS)	route mile										

C2 San Francisco to San Jose Preliminary Section

C3 2 San Jose to Merced WYE Section

SAN JOSE TO MERCED WYE SECTION		San Jose Station Approach	Morgan Hill / Gilroy	Monte Rey Highway	Pacheco Pass	San Joaquin Valley
COST ELEMENTS		SR-87/ I-280	East of UPRR to Downtown Gilroy trench	Refined Program Alignment	Close to SR 152	Henry Miller to Ave. 34
	UNITS					
A. Track	Ballasted and Direct Fixation Track and Turnouts and Crossovers	1.8	32.4	8.8	23.6	33.2
B. At-Grade Sections						
	At-Grade in Cut or Fill - 2 Track (5' to 60' Avg. Depth/Height)		14.9	7.8	8.7	28.3
C1. Structures - Bridges	PC Sag Box Girder - 2 Track (20' to 70' Avg. Pier Ht)	2.2	12.7	0.9	7.4	4.4
C2. Structures - Tunnels	TBM Single Track Twin Tunnels 30 ft ID in rock competent ground		9.6		10.6	
C-3. Structures - Walls	Retained Fill Walls Both Sides - 2 Tracks (20' to 30' Avg. Wall Ht)		18.8	13.4	0.1	0.5
D-1. Grade Separations	Roadway Overcrossing HSR - 2 lanes retained on retained fill or embankment over 2 tracks		7.0	4.0		12.0
D-2. Roadways	2- Lane Roadway		11.0	6.0	3.4	3.3
E. Building Items	Intermediate Passenger Station (Gilroy) Maintenance Facility (MOW)	1.8	32.4	8.8	23.6	33.2
F. Utility Relocation	Major Utility Relocation, Underground and Aerial	1.3	2.9	10.9	6.0	1.1
G. Right-of-Way	Urban, Suburban and Range Land	17.0	508.0	62.0	780.0	403.0
H. Environmental Mitigation	Environmental Mitigation included in construction costs					
I. Systems	Train Controls (ATC), Communications (with Fiber Optics Backbone) and Wayside Protection system	1.8	32.4	8.8	23.6	33.2
J. Electrification	Traction Power Supply and Distribution (OCS)	1.8	32.4	8.8	23.6	33.2

MERCED TO FRESNO SECTION							Seg A1-5	Seg A1-1	Seg A1-3	Seg A1-3N	Seg A2-4	Seg A1-3W	Seg A2-4N	
COST ELEMENTS							UNIT							
A. Track	Balasted and Direct Fixation Track and, Turnouts and Crossovers	route mile	7.0	15.3	13.0	35.9	12.0	6.4					5.4	
B. At-Grade Sections (Formerly Earthwork)	At-Grade-bed with closed Drainage	route mile	7.0	11.8	30.5	21.8	6.9	6.4					1.4	
C1. Structures - Bridges	PC Seg Box Girder - 2 Track (20' to 60' Avg. Pier Ht)	route mile	7.0	3.7	2.6	2.5	5.8	4.0					4.4	
C-3. Structures - Walk	Retained Fill, Walls Both Sides - 1 and 2 Tracks (10' Avg. Wall Ht)	route mile		0.5	1.1	0.9	0.4							
	Sound Wall - 1 Wall (8' Avg. Height)	route mile	14.0	2.8	0.9		4.0						4.0	
D-1. Grade Separations	Roadway Overcrossing HSR - 2 lane, retained fill or embankment over 2 tracks	each		9.0	6.0	3.0	2.0	5.0						
D-2. Roadways	2 and 4-Lane Roadway & SR 99 re-alignment	miles	13.0		2.0		9.5							
E. Building Items	Intermediate Passenger Station - Merced Station	each	7.0	15.3	13.0	35.9	12.0	6.4					5.4	
	Maintenance Facility	each						1.0						
F. Utility Relocation	Major Utility Relocation, Underground	miles	2.2	1.5	13.0	14.6	12.0	6.4					3.7	
G. Right-of-Way	Urban/Suburban / Undeveloped	acre	112.0	192.0	145.0	177.0	95.0	78.0					90.0	
H. Environmental Mitigation	Environmental Mitigation included in construction costs													
I. Systems	Train Controls (ATC), Communications (with Fiber Optics Backbone), Wayside Protection System	route mile	7.0	15.3	13.0	35.9	12.0	6.4					5.4	
J. Electrification	Traction Power Supply	route mile	7.0	15.3	13.0	35.9	12.0	6.4					5.4	

C4 Merced to Fresno Section

C5 Fresno to Bakersfield Section

FRESNO TO BAKERSFIELD SECTION		Alt. F1	Alt. F2	Alt. F3	Alt. H	Alt. C1	Alt. C2	Alt. P	Alt. A1	Alt. A2	Alt. WS1	Alt. WS2	Alt. B1	Alt. B2
COST ELEMENTS		10.08 miles	10.09 miles	10.08 miles	32.88 miles	13.71 miles	13.6	5.75 miles	19.05 miles	18.06 miles	23.84 miles	23.21 miles	11.73 miles	11.73 miles
UNITS														
A. Track	Ballasted and Direct Paved Track, Turnouts and Crossovers and Freight Track	13.2	13.2	13.2	41.3	24.6	13.6	6.8	19.1	19.1	34.8	29.9	18.4	14.8
B. At Grade Sections (Concrete Earthworks)	Ballasted and Direct Paved Track, Turnouts and Crossovers and Freight Track	1.2	1.2	1.2	21.5	8.7	6.0	6.4	15.4	16.3	10.1	14.3		
C. Structures - Bridges	PC Box Girder - 2 Trk (20' to 30' Avg. Span Ht)	8.9	9.6	9.3	7.7	12.2	2.3		2.9	1.6	11.8	7.1	13.8	11.6
C-1. Structures - Walls	Retained Fly Walls Both Sides - 2 Trk (10' to 30' Avg. Wall Ht)	0.3	0.2	0.2	3.5	1.1	1.4	0.3	0.7	1.2	2.9	1.7		
	Second Wall - 1 Rail (8' Avg. Height)	15.8	15.0	15.0	6.5	16.0	16.0	7.0	20.0	13.0	42.0	39.0	15.0	15.0
D-1. Grade Separations	roadway crossing 1 SR - 2 lanes retained fill or embankment over 2 tracks	1.8	1.0	1.0	24.0		4.0	4.0	7.8	6.8	3.8	7.0		
D-2. Roadways	2-Lane Roadway (total)	6.6	5.7	6.2	2.0	3.2	2.0	0.5	3.4	3.3	2.5	8.3		
E. Building Items	Intermodal Passenger Station (RIVERCO)	1.0	1.0	1.0										
	Intermodal Passenger Station (BACSFIELD)				1.0								1.0	1.0
	Maintenance of Way Facility (MOW)	0.3			4.0	3.0		1.0		1.0	1.8	3.0		3.0
G. Right-of-Way	Right-of-Way Relocation, Underground or Bored	329.0	350.0	340.0	1102.0	212.0	248.0	137.0	482.0	277.0	531.0	634.0	254.0	373.0
H. Environmental Mitigation	Environmental Mitigation included in construction costs													
I. Systems	Train Control (ATC), Communication (with Fiber Optic Backbone) and Wireless Protection System	10.1	10.1	10.1	32.0	13.7	15.7	6.9	19.1	19.1	23.8	23.2	12.2	12.2
J. Electrification	Traction Power Supply and Distribution (PCS)	10.1	10.1	10.1	32.0	13.7	15.7	6.9	19.1	19.1	23.8	23.2	12.2	12.2

BAKERSFIELD TO PALMDALE SECTION									
	E2-A	E2-B	E4	AIT T3-B	AIT T3-1	AIT T3-2	AIT T3-2B	AIT AV3B	AIT AV4
	11.15miles	11.15miles	11.15miles	40.42miles	40.43miles	40.37miles	40.22miles	25.57miles	25.45miles
	11.2	11.2	11.2	0.0	44.8	44.8	40.2	25.6	5.7
	11.2	11.2	11.2	5.5	7.5	9.6	6.3	8.9	0.6
	11.2	11.2	11.2	14.0	12.8	10.8	15.3	4.4	8.8
	0.8	0.8	6.1	5.4	5.4	5.4	5.4	5.9	1.8
	6.1	6.1	6.1	5.0	5.0	5.0	5.0	11.0	7.0
	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0
	0.5	0.5	0.5	0.5	2.0	2.0	3.0	3.0	1.8
	106.0	106.0	106.0	679.0	679.0	679.0	679.0	310.0	60.0
	11.2	11.2	11.2	40.4	40.4	40.4	40.2	25.6	25.5
	11.2	11.2	11.2	40.4	40.4	40.4	40.2	25.6	25.5
A. Track	route mile	route mile	route mile						
Balanced and Direct Election Track and Turnout Crossovers									
B. At-Grade Sections (Formerly Earthwork)	route mile	route mile	route mile						
At-Grade in Fill - 2 Track (5' to 10' Avg. Fill Ht)									
C. Structures - Bridges	route mile	route mile	route mile						
PC Span Box Girders - 2 Track (20' to 100' Avg. Pier Ht)									
C2. Structures - Tunnels	route mile	route mile	route mile						
TBM Single Track Twin Tunnels 30 ft ID in rock									
C-3. Structures - Walls	route mile	route mile	route mile						
Retained Fill, Walls Both Sides - 2 Tracks (10' to 30' Avg. Wall Ht)									
Sound Wall - 1 Wall (8' Avg. Height)									
D-1. Grade Separations	each	each	each						
Roadway Overcrossing HSR - 2 lane retained fill roadway over 2 tracks									
D-2. Roadways	miles	miles	miles						
2-Lane Roadway (rural)									
E. Building Items	each	each	each						
Maintenance Facility (PMO)									
F. Utility Relocation	miles	miles	miles						
Major Utility Relocation, Underground - Dense Suburban									
G. Right-of-Way	acres	acres	acres						
Undeveloped									
H. Environmental Mitigation									
Environmental Mitigation included in construction costs									
I. Systems	route mile	route mile	route mile						
Train Control (ATC), Communications (with Fiber Optic Backbone), Wayside Protection System									
J. Electrification	route mile	route mile	route mile						
Traction Power Supply and Distribution (CCS)									

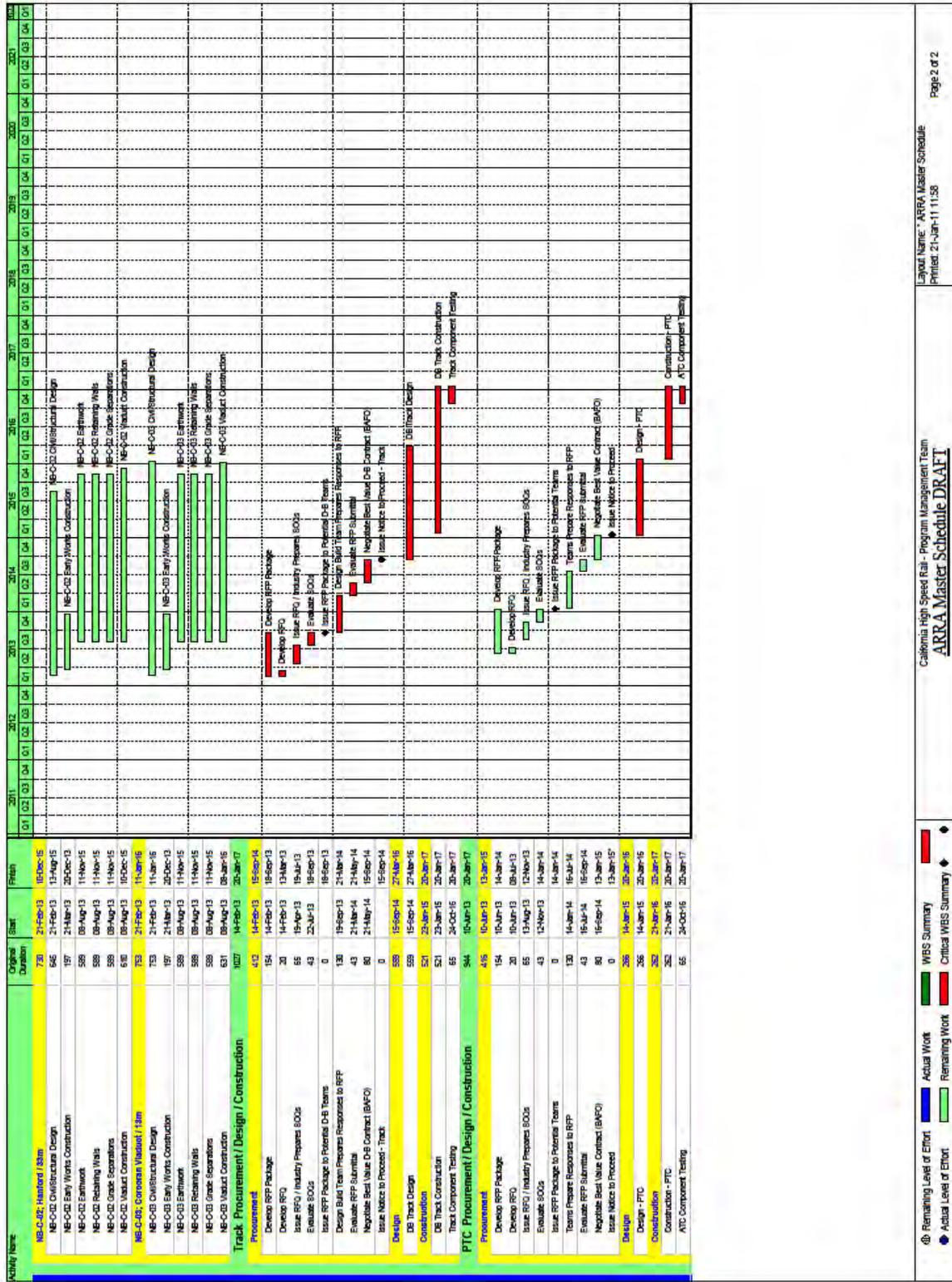
C6 Bakersfield to Palmdale Section

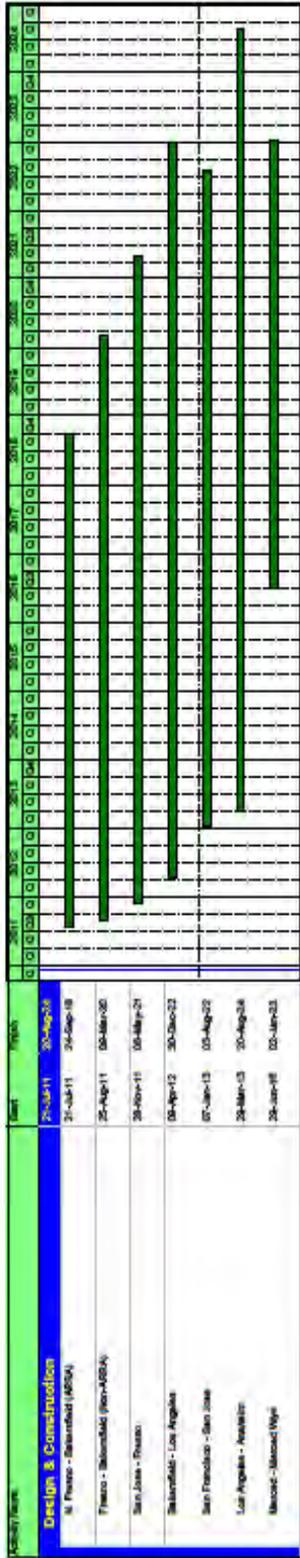
PALMDALE TO LOS ANGELES SECTION									
	SR14-EAST to Rooford St.	SR14-WEST to Rooford St.	Rooford St. to San Fernando	Rooford St. to Brandford	Rooford St. to Buena Vista	SR2 to LAUS At Grade/LAFC	SR2 to LAUS Long Tunnel / LAFT1	SR2 to LAUS Long Tunnel / LAFT2	SR2 to LAUS Long Tunnel / LAFT3
UNITS	39.4 miles	36.3 miles	15.6 miles	18.8 miles	11.6 miles	5.2 miles	6.1 miles	6.1 miles	6.1 miles
A. Track	70.2	59.0	36.9	39.0	39.9	8.8	11.5	11.5	10.6
B. At Grade Sections (Formerly Earthwork)	26.4	18.3	26.9	27.0	28.6	0.0	5.3	5.3	2.8
C. Structures - Bridges	11.0	14.3	3.9	5.1	3.9	2.2	0.1	0.1	0.3
D. Structures - Walls	19.8	17.9					3.0	3.0	3.0
E. Structures - Retention Walls	7.6	2.3	16.6	15.2	16.6	0.1	0.8	0.8	0.5
F. Earth Retention	7.0	9.0	12.0	13.0	13.0	1.0	1.0	1.0	1.0
G. Roadway Overcrossing		0.2	13.4	12.2	10.8		0.3	0.3	0.3
H. Building Items									
I. Intermediate Passenger Station (Palmdale)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
J. Terminal Passenger Station (LAES)									
K. Maintenance of Way Facility									
L. Utility Relocation	29.6	2-30.4	32.0	32.0	32.0	11.9	4.4	4.4	4.4
M. Right of Way									
N. Environmental Mitigation									
O. Environmental Mitigation									
P. Systems	39.4	36.3	16.6	18.6	16.6	5.8	0.8	0.8	0.8
Q. Electrification	39.4	36.3	16.6	18.6	16.6	5.8	0.8	0.8	0.8
R. Traction Power Supply and Traction Power Distribution (TPDS)									

C7 Palmdale to Los Angeles Section

APPENDIX D
SCHEDULE

D1 FY10SDP / ARRA Funded ICS Schedule (Part 2 of 2)





D2 Phase 1 Unrestricted Schedule

California High Speed Rail - Program Management Team
Summary Schedule

Layout Name: * CalHSR Summary 0
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