

Exhibit A



DATE: December 2, 2010
TO: Chairman Pringle and Board Members
FROM: Roelof van Ark, Chief Executive Officer
RE: Agenda Item #3 – Corridor Selection: Initial Construction

Discussion:

In 2009 and 2010, the California High-Speed Rail Authority (Authority) applied for a total of \$5.73 billion from the Federal Railroad Administration (FRA) under the new High-Speed Intercity Passenger Rail Program (HSIPR) to initiate construction of Phase I of the California High-Speed Train Project (CHSTP). Federal funding, made available under the American Recovery and Reinvestment Act (ARRA) and the FY 2010 Transportation Appropriations Act, would be matched with California Proposition 1A bond proceeds to initiate construction in four of the seven sections of the Anaheim-San Francisco Phase 1 program: San Francisco-San Jose; Merced-Fresno; Fresno Bakersfield; and Los Angeles Anaheim (denoted as “sections” below).

With letter dated October 28th, 2010, the FRA informed the Authority that it had been awarded \$715M in response to its application for HSIPR FY10 funds, for application to either one of the Central Valley sections (Fresno to Bakersfield or Merced to Fresno) and on November 3rd the Authority was informed by the FRA that all allocated funding, namely the FY10 funding and the remaining unobligated FY09 ARRA funds must be applied to final design and construction of one of two Central Valley sections (Fresno to Bakersfield or Merced to Fresno) of the California High-Speed Train System. On October 28, 2010, the Authority was also selected to receive \$16M of FY10 funding toward specific improvements to the San Francisco to San Jose project section.

The FRA has informed the Authority that it intends to conclude Funding & Cooperative Agreements for these funds by December 31, 2010. Based on this revised grant execution schedule, it is clear that the Authority needs to make a determination of which of the two Central Valley sections it would choose to apply the ARRA and HSIPR FY10 funds. An agreement with the FRA must be based on a defined Scope of Work for one section, as also previously communicated by the FRA. As the Record of Decision/ Notice of Determination (ROD/NOD) and final selection of the alignment would not yet be completed for either Central Valley section by the time the Grant / Cooperative agreement is signed with the FRA, such Agreement would be conditioned upon the successful completion of the project-level environmental

impact studies, the selection of the final preferred alternative route within the selected section and the conclusion of the ROD/NOD for the section by the fall of 2011. The Authority would retain discretion over the outcome of the environmental process and would have the ability to seek adjustments to the grant agreement, if necessary, based on its final decisions.

At the November 4, 2010 meeting, the Board approved the selection criteria which are attached to this report as Appendix B. At the December 2, 2010, Board Meeting the Chief Executive Officer will present to the Board, the evaluation of the two Central Valley ARRA sections, done according to the final criteria (Refer to Appendix A). The Board will then determine the section and corridor to which the ARRA and HSIPR FY10 funds will be applied.

Throughout the process it should be remembered that the California High-Speed Rail System will be the backbone passenger rail system of the State, and needs to connect southern and northern California, including the metropolitan areas of Los Angeles/Anaheim, San Diego, San Francisco, San Jose and Sacramento. This first step in the process, to select and then build the first segment of the line, is only the beginning of a continuous process, which should logically lead to the continued construction of the alignment, until the whole network is interconnected.

Major factors that need to be considered in the selection process include impacts on the project schedule, logical sequencing of the work, mandated testing of high-speed trains, and the maximum impact the investment of present Federal and State dollars can have on the project. The Authority also must consider the specific requirements and guidance provided in ARRA and Proposition 1A (as codified in CA Streets and Highways Code §§2704-2704.21 and Public Utilities Code §§185033, 185035 and 185037). The “Independent Utility” / “Operational Independence” requirement associated with the ARRA respectively the FY10 HSIPR funding also needs to be met.

Recommendation:

That the Board discuss and decide upon the section and corridor which should be selected as being the first High-Speed corridor to be constructed. Staff recommends the corridor “Alternative 1” as described and evaluated in the attached Appendix A & B. Furthermore it is recommended the Board delegate to the Chief Executive Officer to conclude a Funding/ Cooperative Agreement with the FRA on behalf of the Authority by end December 2010 based on this Alternative 1.

Attachments:

- Appendix A: Evaluation of the two Central Valley ARRA sections
- Appendix B: “Criteria for selecting the Section/Usable Segment” as approved by the Board on November 4, 2010 and duly applied to the relevant sections.
- Resolution HSRA11-16

APPENDIX A

EVALUATION OF THE TWO CENTRAL VALLEY ARRA SECTIONS (TO DETERMINE THE OPTIMUM SECTION TO BEGIN CONSTRUCTION)

General Comment:

The environmental process is currently being conducted therefore in many instances more than one alignment alternative is being evaluated and will be available for eventual selection as the environmental process is concluded. In all instances typical alignment sections, including alternatives, have been used for costing reasons, however this should not be construed as a preference for one alignment over another, but rather a necessity for reason of fair costing.

A. Eligibility of Applications:

To date, the California High-Speed Rail Authority has been successful in securing an allocation of \$2.965 billion in total Federal HSIPR funding (plus an additional \$16M dedicated to the San Francisco to San Jose section) that can be applied to construction of the Phase 1 sections. With a planned state match of \$1.962 billion, a total of \$4.333 billion⁽¹⁾ is available to initiate construction work [referred to as “Available Funding” in this document]. All allocated funds need to be applied to one section of the alignment (except for the \$16M which has been specifically allocated by the FRA to the San Francisco to San Jose section). FRA is requiring the selection of an High-Speed Rail (HST) section to initiate a grant agreement to provide construction financing and this will be conditioned upon completion of environmental studies and selection of a final alignment and the issuance of a ROD/NOD by fall of 2011.⁽²⁾

Although the amount of HSIPR funding is substantial, and more than allocated to any other program in the nation, it is less than the amount which was requested from the FRA in the application submitted by the Authority on August 6, 2010, when the FY2010 funding application was submitted. The Authority has approached the FRA for additional funding, particularly as funding from other states may become available.

Footnote:

1) \$2.25 billion minus \$400M earmarked for TJPA’s Transbay Terminal = \$1.85 billion minus \$194M allocated to Phase 1 PE/NEPA/CEQA work = \$1.656 billion of Federal funds matched 50/50 with GO Bond funds = \$3.312 billion plus \$715 million new FY10 HSIPR application, matched 70/30 with GO Bond funds = a total of \$4.333 billion available for construction.

2) As the ROD/NOD for such selected alignment would not yet be completed by the time the Grant / Cooperative agreement is signed with the FRA, such Agreement would be conditioned on the successful conclusion of the environmental impact studies, the selection of the final alignment within the selected section and the conclusion of the ROD/NOD for the section by the fall of 2011.

The FRA requires that any rail project using ARRA funding be capable of demonstrating “Operational Independence”/ “Independent Utility” as defined in Sec. 3.5.2 of the Notice of Funding Availability (NOFA) upon completion. A project is considered to have Operational Independence “if, upon being implemented, it will provide tangible and measurable benefits, even if no additional investments in the same service are made.” Examples of these benefits include “operational reliability improvements, travel-time reductions, and additional service frequencies resulting in increased ridership.” In practice, this requirement means that the improvements can be used for existing or new intercity rail passenger operations, including Amtrak and other intercity service should no further High-Speed Rail funds be made available. Importantly, such service is clearly specified as being “intercity service” as opposed to enhanced commuter rail service. In both the Central Valley ARRA sections Amtrak’s San Joaquin’s would offer operational independence by connecting the new infrastructure to the existing BNSF network, on which the San Joaquin service presently operates.

The need to demonstrate “Operational Independence” and also to meet other FRA requirements determines that one portion of the two Central Valley sections will be initially constructed. Combined Federal and State funding is sufficient to provide only one operationally independent corridor. However, additional funding ultimately will be required to fully complete the work necessary to support high-speed train operations and to procure the trains. The Authority will be developing a new business/funding plan that will detail how additional funding will be secured from Federal, State, local and private sources to extend beyond the first segment and to finally complete the entire CHSTP system.

B. Evaluation of the ARRA-eligible Sections

The following chronology highlights events leading up to the Board’s selection of the ARRA Section for initial construction of the California High-Speed Train Project:

- On January 28, 2010, USDOT announced the selection of the four sections eligible to receive up to \$1.656 billion (see footnote 1), leaving the decision to the Authority as to which section would be built first.
- As part of its application for FY 2010 HSIPR funding the Authority redefined the four ARRA-eligible sections and submitted them to FRA as part of its applications for additional funding.
- On October 25, 2010, the USDOT announced an additional \$715 million in FY10 SDP funds for use by the Authority in the Central Valley. On November 4, 2010, the FRA clarified that both the FY09 ARRA funds and FY10 SDP funds must be applied to a single Central Valley project to be determined by the Authority.
- A total of \$4.33 billion of FY09 ARRA + FY10 HSIPR and Prop 1A matching funding is available for final design and construction of the initial Central Valley “ARRA Section.”

- At its November 4, 2010, meeting, the Authority Board adopted criteria for selecting the section/usable segment in which to initiate construction of the California High-Speed Train Project.
- Staff developed four Alternatives³ within the Central Valley sections that meet the FRA and Prop 1A requirements, which can be built within the available \$4.33 billion and which will be described below.

C. The Central Valley Alignment

Please refer to Figures 1 and 2 of the attached “Backup Information, Maps and Data.”

The sections which qualify for FRA Funding include the alignment beginning near Castle Commerce Center north of Merced, through Fresno, and down to Bakersfield. This alignment is made up of two sections which are separately being environmentally cleared, namely:

- The Merced to Fresno section which includes the Wye in the vicinity of Chowchilla, as well as the extension north of Merced to the Castle Commerce Center.
- The Fresno to Bakersfield section.

Although reference is often made to the application of the funds being made to either of these two sections, in fact the application by the Authority to the FRA included alternatives, which are combinations of the two sections, and due to their adjacency, this concept is acceptable to the FRA.

D. The Evaluated Sections

The “Best Fit” allocation of the Available Funding:

Since the amount of HSIPR funding is less than the amount which was requested from the FRA in the application submitted by the Authority on August 6, 2010, staff applied the Available Funding to possible sections and portions thereof, with the aim to optimize the use of the funds, but at the same time to ensure that “Operational Independence”/ “Independent Utility” is achieved with each of the selected alignments. This has been done within the overall alignment starting from the Castle Commerce Center all the way down to Bakersfield, thus investigating combinations of alignment which would meet these criteria. The Authority staff and its Consultants investigated permutations and combinations of possible alignments, starting from Bakersfield in the south and from Castle Commerce Center in the north as well as from other possible starting and ending points along the total alignment, to find viable possibilities and the best possible alignments which would make best use of the Available Funding.

Footnote:

3) The term “Alternative” is being used here to explain the various alternatives for best utilizing the Federal and State funding available for construction in the Central Valley. The term alternative should not be interpreted as identifying the range of alternatives being considered in the project-level NEPA/CEQA documents.

The Evaluated Alignment Sections that met the criteria and fit to the available funding are:

1. **Central Valley Alternative 1: for a total of \$4.15 Billion** (approx. 65 miles of alignment plus 2 stations).

Please refer to Figure 4 and 5 of the attached “Backup Information, Maps and Data”. This alternative incorporates:

- Civil infrastructure including trackwork from a point approximately 0.6 miles south of Nevada Avenue near Corcoran northwards through Fresno to a point approximately 0.8 miles northwest of W. Herndon Ave.
- A basic High-Speed Rail (HSR) station in Fresno (including 2 tracks into and out of the station) which can be used by Amtrak in case of Independent Utility.
- A basic HSR station at Kings/Tulare Regional Station (including 2 tracks into and out of the station) which can be used by Amtrak in case of Independent Utility.
- A signaling system (Positive Train Control / PTC) as required for Independent Utility.
- Interconnectors to the BNSF line to ensure Independent Utility:
 - 3 miles reserved for Interconnector in Corcoran
 - An 8 mile Interconnector to a point approximately 0.4 miles north of Avenue 13, north of Fresno.

2. **Central Valley Alternative 2: for a total of \$3.5 Billion** (approx. 90 miles of alignment plus 1 station).

Please refer to Figure 6 and 7 of the attached “Backup Information, Maps and Data”. This alternative incorporates:

- Civil infrastructure including trackwork from a point approximately 4 miles south of Shafter (adjacent to the BNSF) northwards through the Corcoran bypass (C2 alignment) to a point where the BNSF line intersects E. American Avenue south of Fresno.
- A signaling system (PTC) as required for Independent Utility.
- A basic HSR station at Kings/Tulare Regional Station (including 2 tracks into and out of the station) which can be used by Amtrak in case of Independent Utility.
- Interconnectors to the BNSF lines approximately 4 miles south of Shafter and at E. American Avenue south of Fresno to ensure Independent Utility.

- 2A. **Central Valley Alternative 2A: for a total of \$4.3Billion** (approx. 90 miles of alignment plus 1 station).

Please refer to Figure 6 and 8 of the attached “Backup Information, Maps and Data”. This alternative incorporates:

- Civil infrastructure including trackwork from a point approximately 4 miles south of Shafter (adjacent to the BNSF) northwards through Corcoran (C1 alignment) to a point where the BNSF line intersects E. American Avenue south of Fresno.
- A signaling system (PTC) as required for Independent Utility.
- A basic HSR station at Kings/Tulare Regional Station (including 2 tracks into and out of the station) which can be used by Amtrak in case of Independent Utility.
- Interconnectors to the BNSF lines approximately 4 miles south of Shafter and at E. America Avenue south of Fresno to ensure Independent Utility.

Please note: Alternatives 2 and 2A cover the same alignment, except for an optional alignment section (through or bypassing Corcoran) which will finally be determined by the CEQA/NEPA environmental process. These two alternatives would have to be chosen together, one being an alternative of the other.

3. **Central Valley Alternative 3: for a total of \$2.7 Billion** (approx. 44.5 miles of alignment plus 1 station).

Please refer to Figure 9 and 10 of the attached “Backup Information, Maps and Data”. This alternative incorporates:

- Civil infrastructure including trackwork from V Street in Merced through Merced continuing west of Chowchilla on the hybrid alignment to a point approximately 1.75 miles south of Avenue 15, south of Madera, where the line will be adjacent to the BNSF existing network.
- The basic HSR station in Merced (including 2 tracks into and out of the station) which can be used by Amtrak in case of Independent Utility.
- A signaling system (PTC) as required for Independent Utility.
- An approximately 4.5 mile Interconnector to the BNSF line near Castle Commerce Center to ensure Independent Utility.

This alternative has some limitations which the Board must be made aware. As a final route/alignment decision has not yet been made, it could occur that “Operational Independence/ Independent Utility” may not be possible under certain conditions, such as if the UPRR alignment (A2) is chosen, no connection to BNSF will be possible at a reasonable cost and within reasonable time.

E. Evaluation of the above Alternatives:

The following actions have been taken:

- Staff evaluated each of these aforementioned Alternatives against the Board approved selection criteria. The results of the evaluation are summarized in the attached Appendix B.
- ARRA Central Valley Alternative 1 scored the highest in the evaluation and is the alternative recommended by staff for selection.
- Following is a brief description of the rationale for the scores shown in Appendix B:

Note: Alternatives that fully meet a criterion are scored “10”; those not fully meeting the criteria are scored proportionately less than “10” depending on how well they meet each criterion.

1. Evaluation of Alternative 1:

Overall aggregate score (out of a possible 130 points): 110

Pass/Fail Criteria: Pass

Criterion I: This alternative fully meets this criterion. Overall score: All 10s.

Criterion II: Right-of-way may be more difficult to acquire through the City of Fresno than in Alternative 2. Construction of the aerial guideway through Fresno is more difficult than construction in Alternative 2. Impact to existing railroad facilities is higher than Alternative 3. Overall this alternative was scored “8” on all three sub-criteria.

Criterion III: Schedule risk of achieving the ROD/NOD by the fall of 2011 is slightly higher than for the other three alternatives because for this section two NOD/ROD documents must be approved (both for Merced-Fresno and Fresno-Bakersfield). All other alternatives will require a single NOD/ROD for construction. In addition, the Authority is working through a process with the USEPA and USACOE to obtain concurrence on the range of alternatives being evaluated in the two EIR/EIS documents. This process is underway, and could have a potential for delay regarding providing USEPA and USACOE requested information on the elimination of a UPRR/SR 99 corridor from detailed study in the Fresno to Bakersfield Section EIR/EIS. Construction of this section is more complex than in Alternative 2A which somewhat increases the risk of delay. The third sub-criterion is not applicable. Scored “7” on sub-criteria a) and scored a “9” on b).

Criterion IV: This alternative fully meets this criterion. It is the only section which has two HSR stations, Fresno and Kings/Tulare Regional Station. This alternative also offers the best opportunity for the Authority to accommodate further funds from the FRA, in case money from other states becomes available, as connectivity with the BNSF alignment can be done with relative ease, as HSR runs adjacent to BNSF. Overall score: All 10s.

2. Evaluation of Alternative 2:

Overall aggregate score (out of a possible 130 points): 102

Pass/Fail Criteria: Pass

Criterion I: This alternative fully meets sub-criteria b) and c). Expansion of this alternative is constrained by long and expensive aerial guideway structures at both ends of this route, which could limit the expansion until a substantial amount of additional funding is available. (This sub-criterion was rated “7”.)

Criterion II: This alternative fully meets sub-criteria a) and b). This alternative involves more BNSF track relocation than Alternatives 1 and 3. (This sub-criterion was rated “6”.)

Criterion III: The Authority is working through a process with the USEPA and USACOE to obtain concurrence on the range of alternatives being evaluated in the two EIR/EIS documents. This process is underway, and could have a potential for delay regarding providing USEPA and USACOE requested information on the elimination of a UPRR/SR 99 corridor from detailed study in the Fresno to Bakersfield Section EIR/EIS. Sub-criterion a) was rated “8”. Section through the Corcoran by-pass is greatly complicated by the Tulare Wetlands Mitigation Area. (Sub-criterion b) was rated as “5”.)

Criterion IV: This alternative fully meets sub-criteria a), c), and d). This alternative serves only the Kings/Tulare Regional Station and therefore offers fewer connections to other modes of transportation, including public transit. (Score: “6”.)

3. Evaluation of Alternative 2A:

Overall aggregate score (out of a possible 130 points): 105

Pass/Fail Criteria: Pass

Criterion I: This alternative fully meets sub-criteria b) and c). Expansion of this alternative is constrained by long and expensive aerial guideway structures at both ends of this route, which could limit the expansion until a substantial amount of additional funding is available. (This sub-criterion was rated “7”.)

Criterion II: Right-of-way may be more difficult to acquire through Corcoran than in Alternative 2. Construction of the aerial guideway through Corcoran is more difficult than construction in Alternative 2. (a) was rated a “9” and b) was rated an “8”) This alternative involves more BNSF track relocation than Alternatives 1 and 3. (This sub-criterion was rated “7”.)

Criterion III: The Authority is working through a process with the USEPA and USACOE to obtain concurrence on the range of alternatives being evaluated in the two EIR/EIS documents. This process is underway, and could have a potential for delay regarding providing USEPA and USACOE requested information on the elimination of a UPRR/SR 99 corridor from detailed study in the Fresno to Bakersfield Section EIR/EIS. Sub-criterion a) was rated “8”. This alternative fully meets sub-criteria b). The third sub-criterion is not applicable.

Criterion IV: This alternative fully meets sub-criteria a), c), and d). This alternative serves on the Kings/Tulare Regional Station and therefore offers fewer connections to other modes of transportation, including public transit. (Score: “6”.)

4. Evaluation of Alternative 3:

Overall aggregate score (out of a possible 130 points): 88

Pass/Fail Criteria: Pass

Criterion I: This alternative provides the least logical expansion and evolution opportunities of any of the alternatives because the investment in infrastructure north of the “Wye” would not be fully utilized until the Phase 2 line to Sacramento is built. To achieve an operable HSR system as quickly and efficiently as possible, connectivity to the Bay Area and / or the Los Angeles Basin need to receive priority (Overall score: 5).

Criterion II: This alternative has the least impact to railroad facilities because it does not require any existing railroad track relocation. (Score:10) Right-of-way availability in Merced is more difficult than in Alternative 2. (Score:8)

Criterion III: This alternative only requires one NOD/ROD for construction. This alternative therefore involves only one concurrence from USEPA and the USACOE on the range of alternatives being studied in the project-level EIR/EIS, and does not include the issue of screening out the UPRR/SR 99 alternative between Fresno and Bakersfield, making it somewhat less complex. Sub-criteria c) is not applicable to this alternative.

Criterion IV: This alternative fully meets sub-criterion a) – Score 10. It can be connected to future connections to other modes of transportation including public transit in Merced, but there is only one HST station included in this alternative, so it was scored “8”. Since the portion of infrastructure constructed north of the “Wye” is not pivotal to ensure connectivity of a first HSR operable segment, it is rated low (“5”) in sub-criteria c) and d).

Our inability to guarantee “Operational Independence/ Independent Utility” for all alignments for this alternative adds a risk to this section. Not all alternatives which today exist are in the proximity of the BNSF alignment (e.g. the UPRR –A2 alignment).

APPENDIX B

CRITERIA FOR SELECTING THE SECTION/USABLE SEGMENT IN WHICH TO INITIATE CONSTRUCTION OF THE CALIFORNIA HIGH-SPEED TRAIN PROJECT

American Recovery and Reinvestment Act/FRA Requirements (Pass / Fail Criteria)	ARRA Central Valley Alternative 1	ARRA Central Valley Alternative 2	ARRA Central Valley Alternative 2A	ARRA Central Valley Alternative 3
<i>a) Construction must be completed by fall of 2017⁽¹⁾</i>	Pass	Pass	Pass	Pass
<i>b) The project must have “Operational Independence”</i>	Pass	Pass	Pass	Pass

Note (1): This Pass/Fail evaluation addresses the ability to meet the Fall 2017 construction deadline based on today’s project status and knowledge, while Criterion III addresses the risks associated with meeting this date.

Program Defined Selection Criteria:

All sections must pass the Pass / Fail criteria above, to be considered for the Program Defined Selection Criteria evaluated in the following Table. Each of the 4 Criterion below (I through IV) carry an equal weighting of 10 points where:

- 0 equates to (a) not meeting the criteria, or (b) offering the lowest advantage or (c) resulting in the higher risk to the project
- 10 equates to (a) fully meeting the given criteria or (b) offering the highest advantage or (c) the lowest risk to the project

CRITERIA FOR SELECTING THE SECTION/USABLE SEGMENT IN WHICH TO INITIATE CONSTRUCTION OF THE CALIFORNIA HIGH-SPEED TRAIN PROJECT

PROGRAM DEFINED SELECTION CRITERIA	ARRA Central Valley Alternative 1	ARRA Central Valley Alternative 2	ARRA Central Valley Alternative 2A	ARRA Central Valley Alternative 3
I. Logical expansion and evolution of the alignment to an operational HSR system. a) Ensure the first investment forms the core of a state-wide 220 mph system that can be logically expanded and extended as additional funding becomes available b) Ensure the earliest startup of a high-speed rail service with the least funds required c) Consider connectivity of sections, availability of control centers and maintenance facilities, and phasing of future expansion	10 10 10	7 10 10	7 10 10	5 5 5
II. Minimized construction risk. a) Right of Way [ROW] availability and ability to reach agreement with stakeholders to acquire easements or operating rights b) Least construction complexity equating to lower cost volatility c) Least impacts to existing railroad facilities and operations	8 8 8	10 10 6	9 8 7	8 8 10

- 0 equates to (a) not meeting the criteria, or (b) offering the lowest advantage or (c) resulting in the higher risk to the project
- 10 equates to (a) fully meeting the given criteria or (b) offering the highest advantage or (c) the lowest risk to the project

CRITERIA FOR SELECTING THE SECTION/USABLE SEGMENT IN WHICH TO INITIATE CONSTRUCTION OF THE CALIFORNIA HIGH-SPEED TRAIN PROJECT

PROGRAM DEFINED SELECTION CRITERIA	ARRA Central Valley Alternative 1	ARRA Central Valley Alternative 2	ARRA Central Valley Alternative 2A	ARRA Central Valley Alternative 3
III. Minimized schedule risk, to meet the ARRA criteria of completion by the fall of 2017. a) Probability of achieving ROD/NOD by fall of 2011 b) Ease of construction, reduces probability of delay c) Future construction and equipment procurement sequencing	7 9 N/A	8 5 N/A	8 10 N/A	10 9 N/A
IV. Builds the most useful HST infrastructure for the least cost. a) Builds HST infrastructure that will not result in unreimbursed costs to the Authority b) Builds HST infrastructure that promotes current and future connections to other modes of transportation including public transit. c) Builds HST infrastructure that can be expanded to complete the entire CAHSR system in an efficient manner d) Builds the most useful segment of HST infrastructure that does not require additional federal or state funding	10 10 10 10	10 6 10 10	10 6 10 10	10 8 5 5
Total Aggregate Score	110	102	105	88

- 0 equates to (a) not meeting the criteria, or (b) offering the lowest advantage or (c) resulting in the higher risk to the project
- 10 equates to (a) fully meeting the given criteria or (b) offering the highest advantage or (c) the lowest risk to the project

BACKUP INFORMATION

MAPS AND DATA

Figure 1: Central Valley Alignment

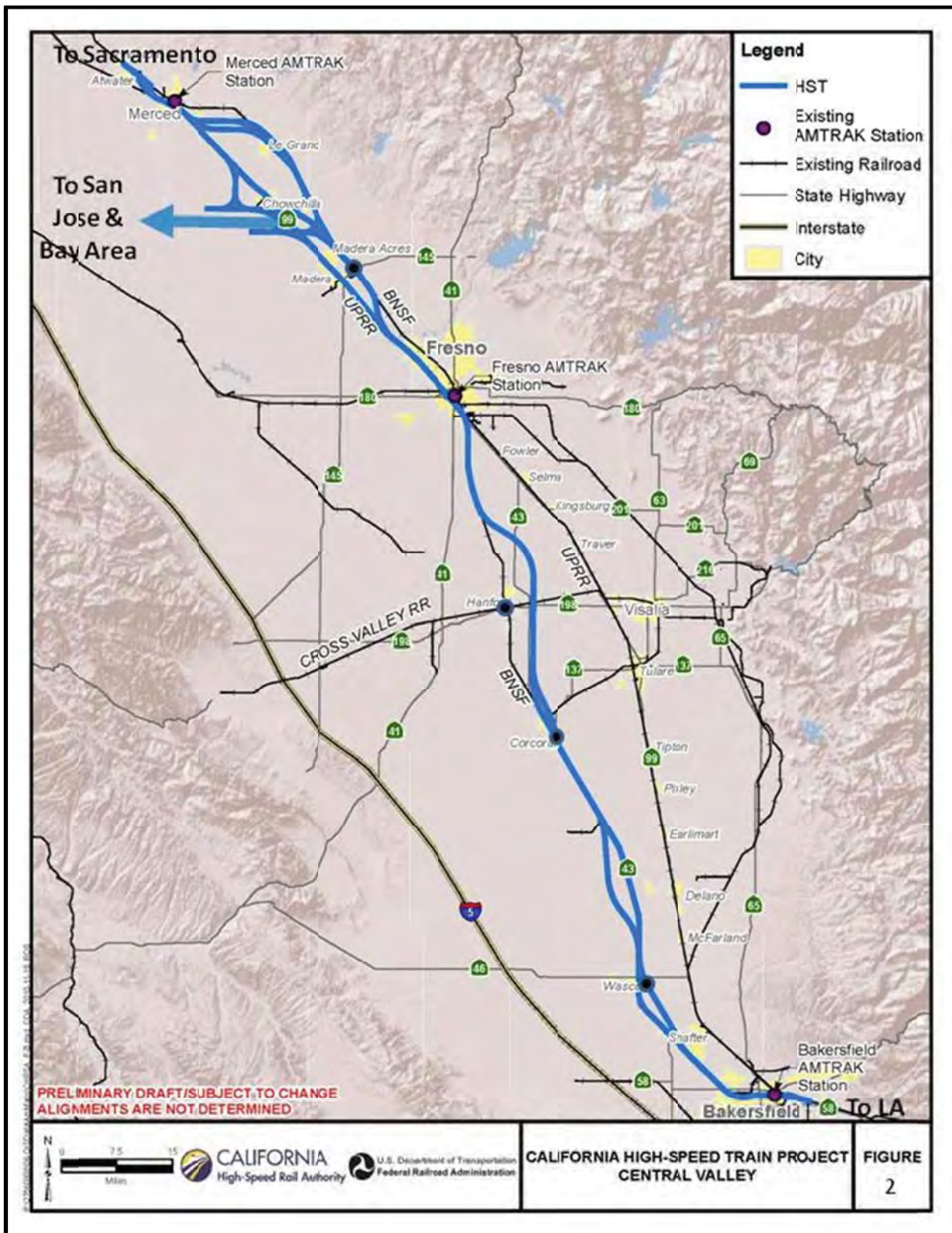
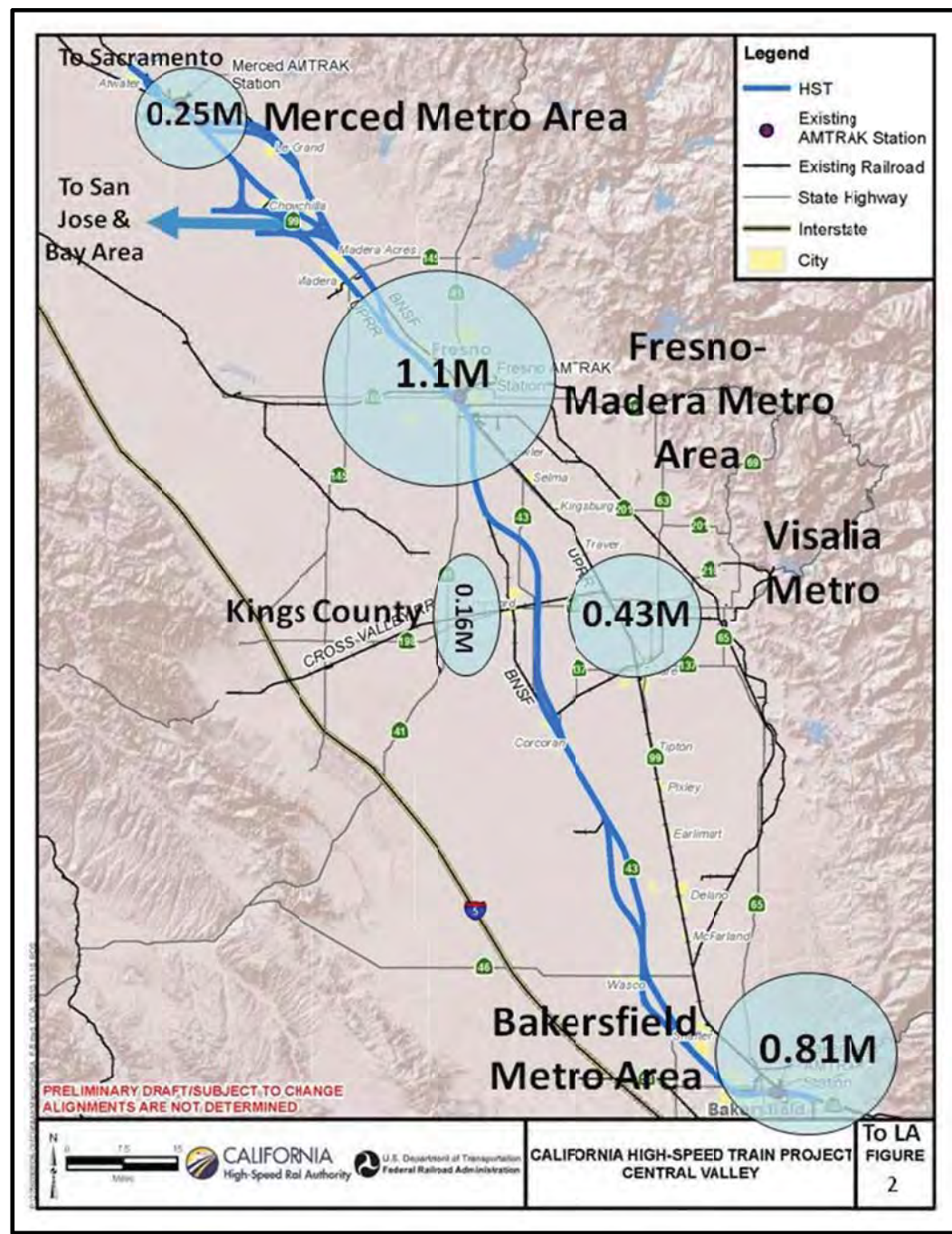


Figure 2 : Population Centers of the Central Valley ARRA Sections



The Central Valley population is expected to grow to 4.5 million in 2030, and 6 million in 2050.

Source: http://en.wikipedia.org/wiki/Table_of_United_States_Metropolitan_Statistical_Areas

Figure 3: Future Efficient Expansions of HST System



In direction of Bay Area:

From:	To:	Miles	Cumul.
North of Fresno	Gilroy	108	108
Gilroy	San Jose	30	138
San Jose	San Francisco	48	186

In direction of LA Basin:

From:	To:	Miles	Cumul.
Corcoran	Bakersfield	55	55
Bakersfield	Palmdale	84	139
Palmdale	San Fernando	27	166
San Fernando Valley	Los Angeles	31	197
Los Angeles	Anaheim	30	227

Figure 4: Alternative 1 : Alignment

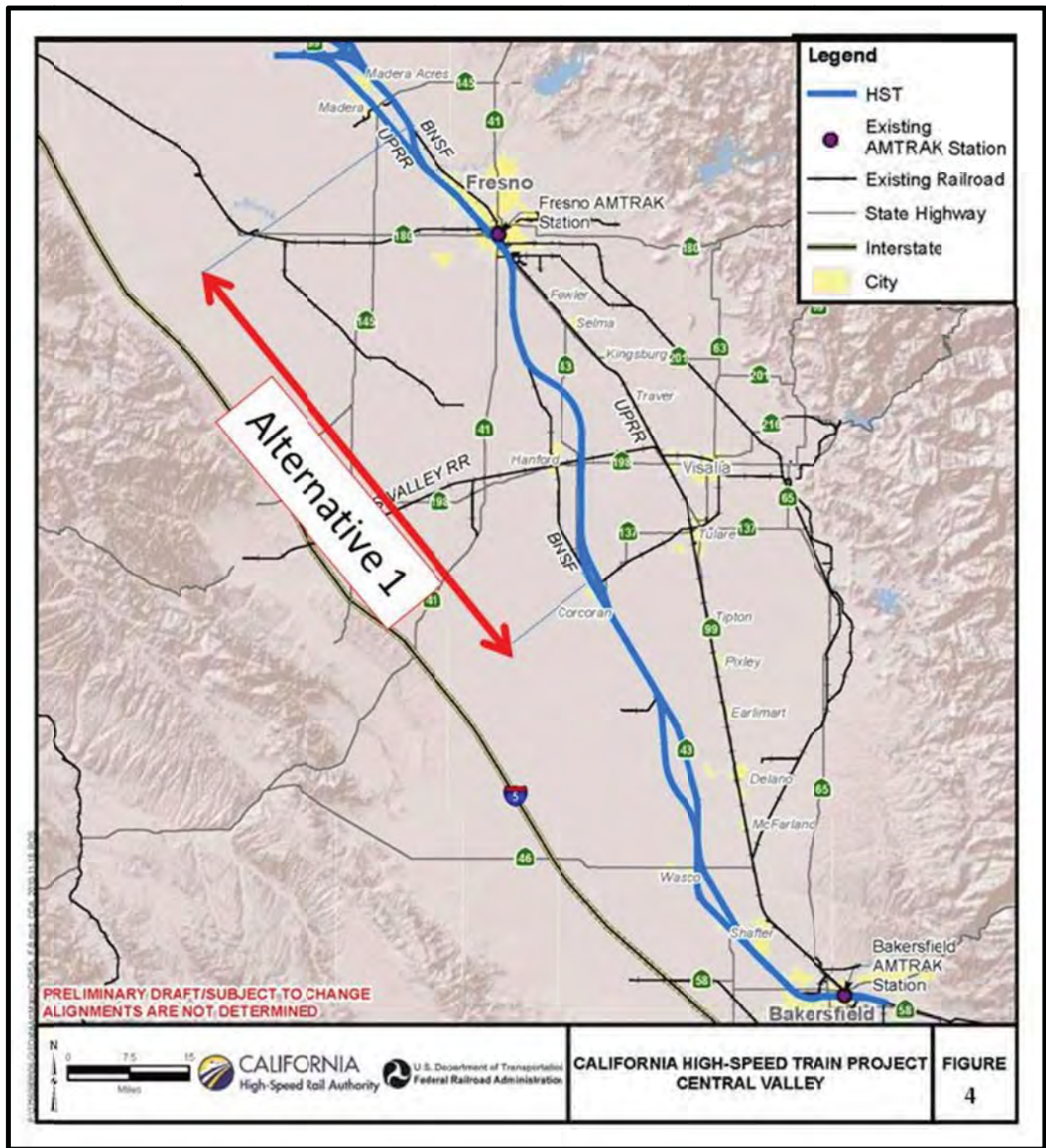


Figure 5: Alternative 1: Time Chainage Diagram

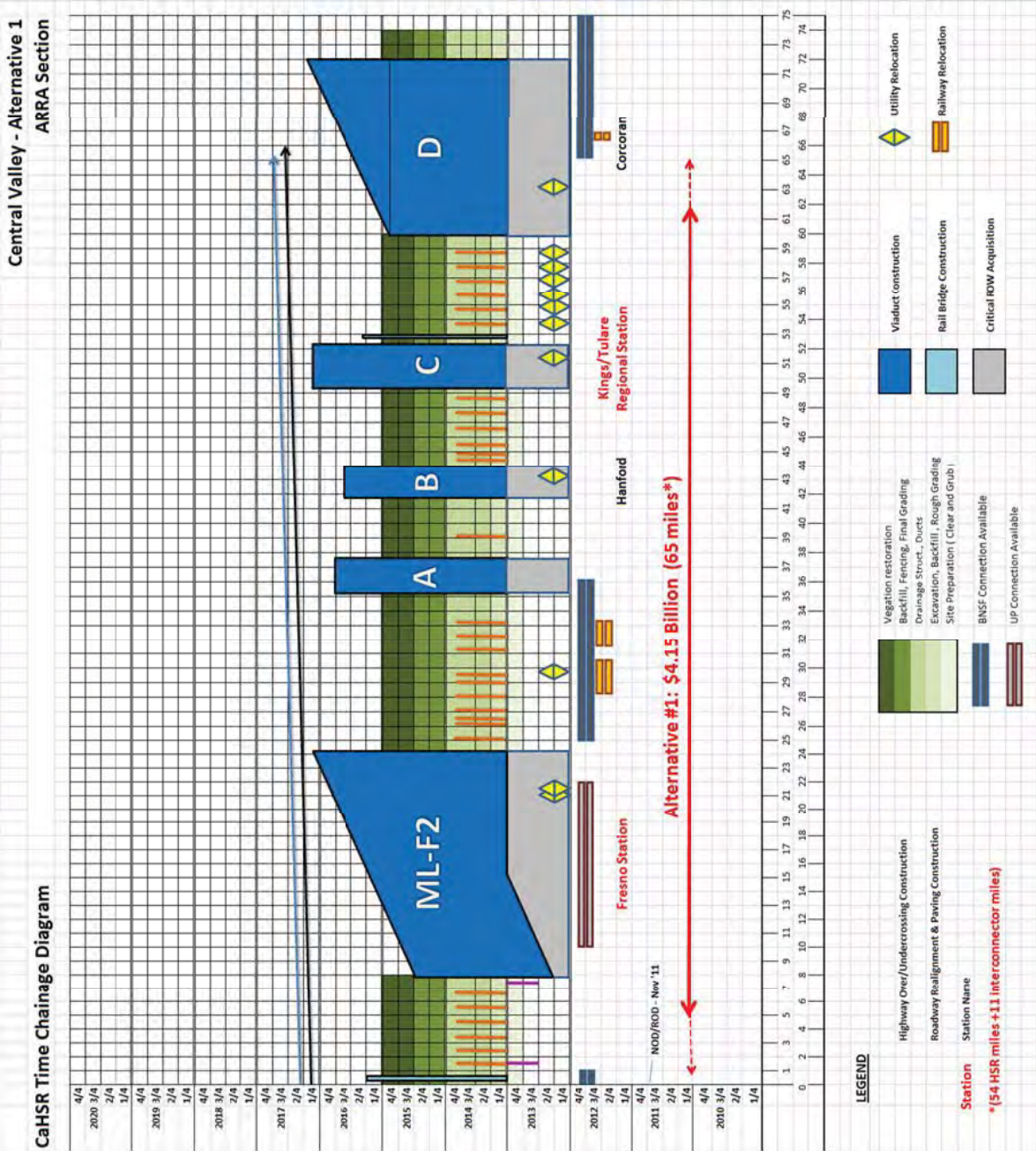


Figure 6: Alternative 2 & 2A: Alignment

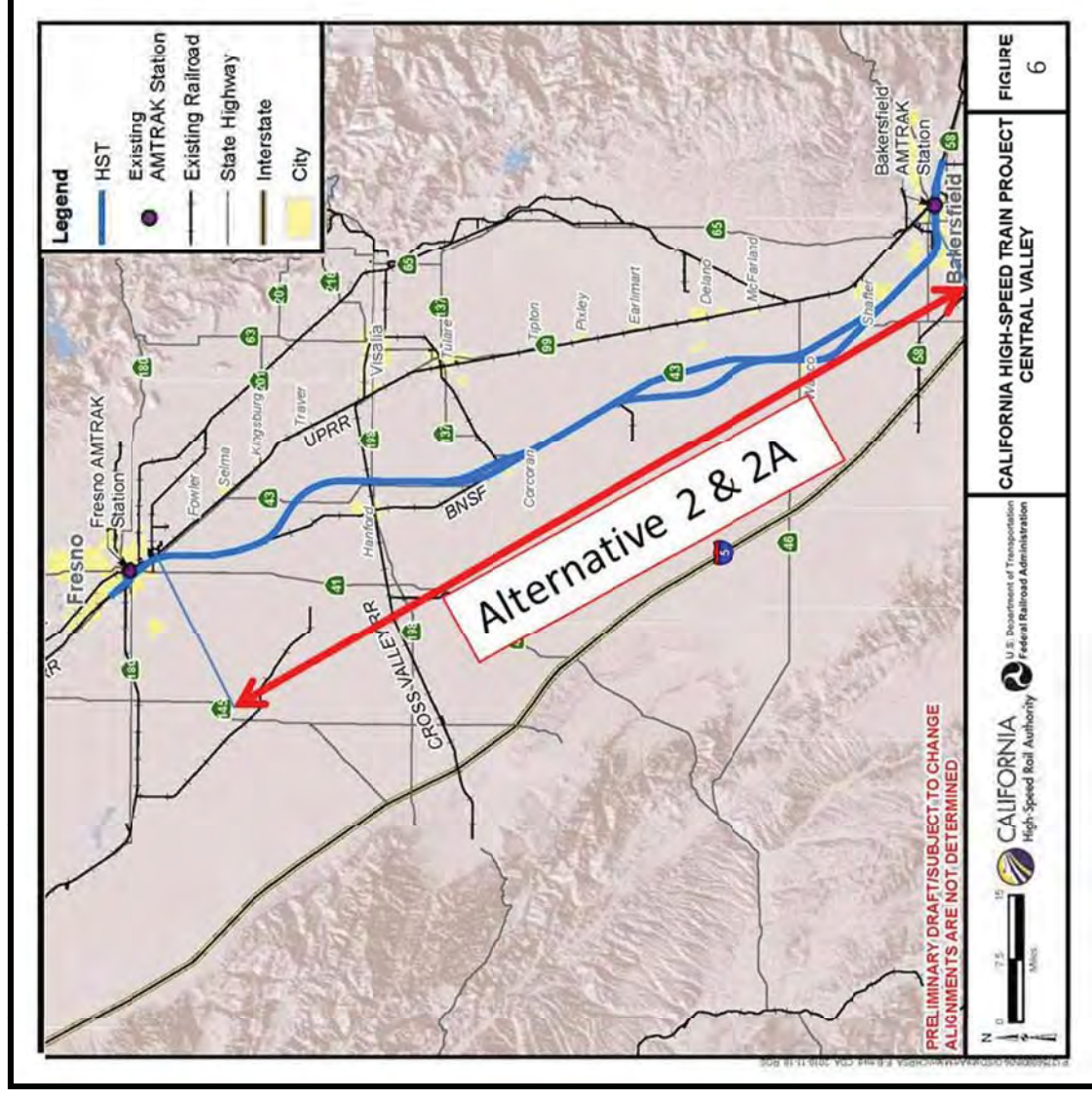


Figure 7: Alternative 2: Time Chainage Diagram

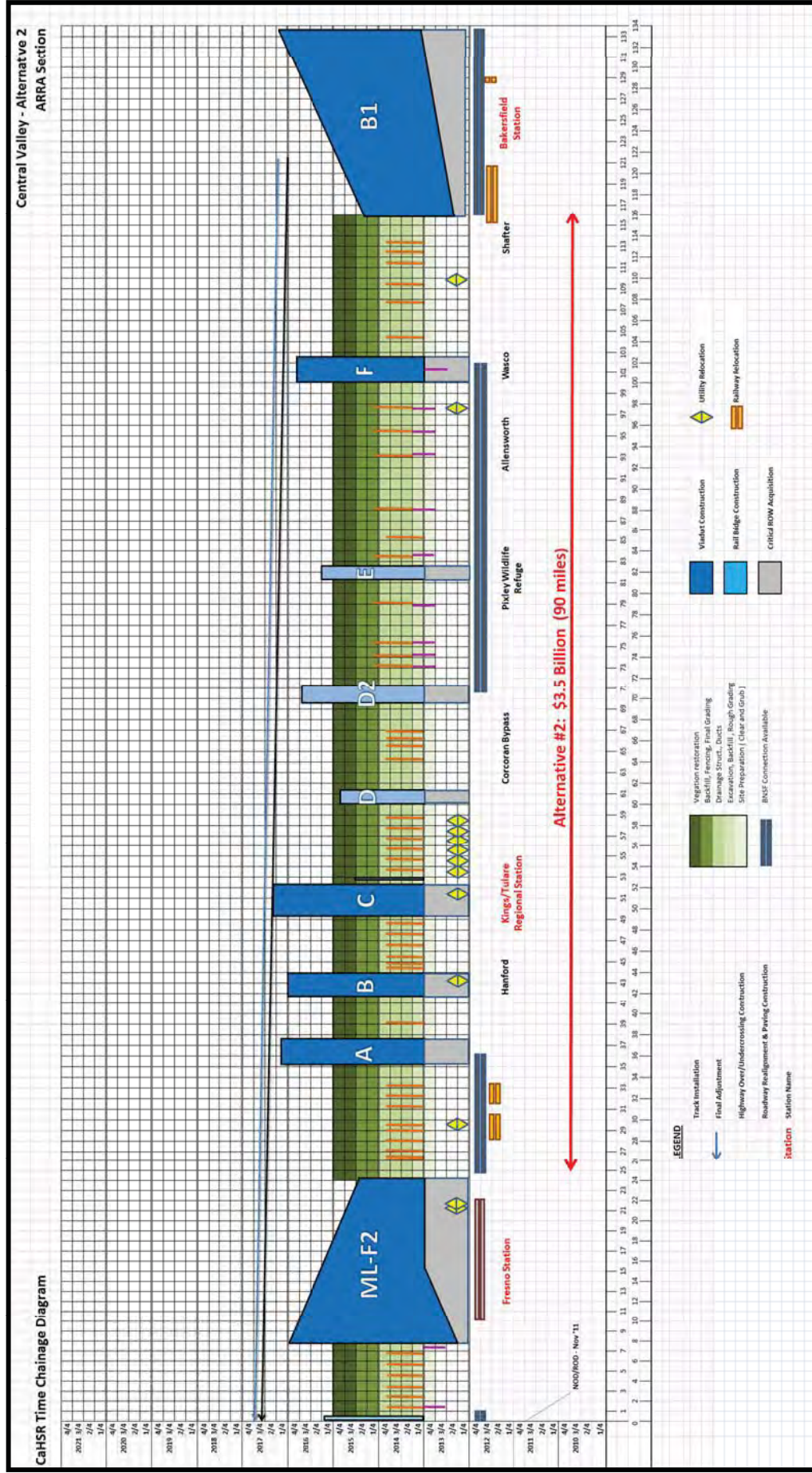




Figure 9: Alternative 3: Alignment

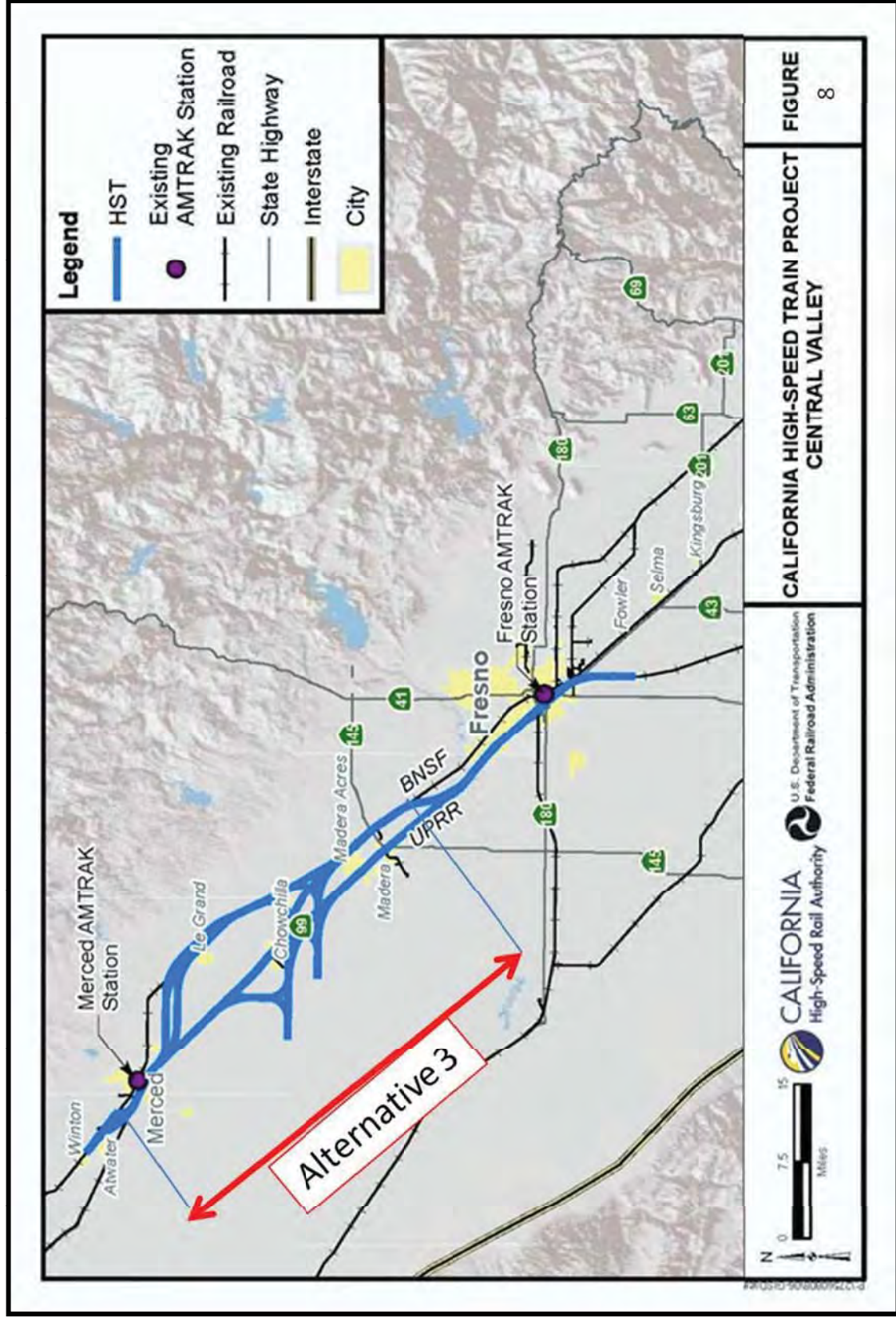


Figure 10: Alternative 3: Time Chainage Diagram
(Applies to BNSF or Hybrid alignment only)

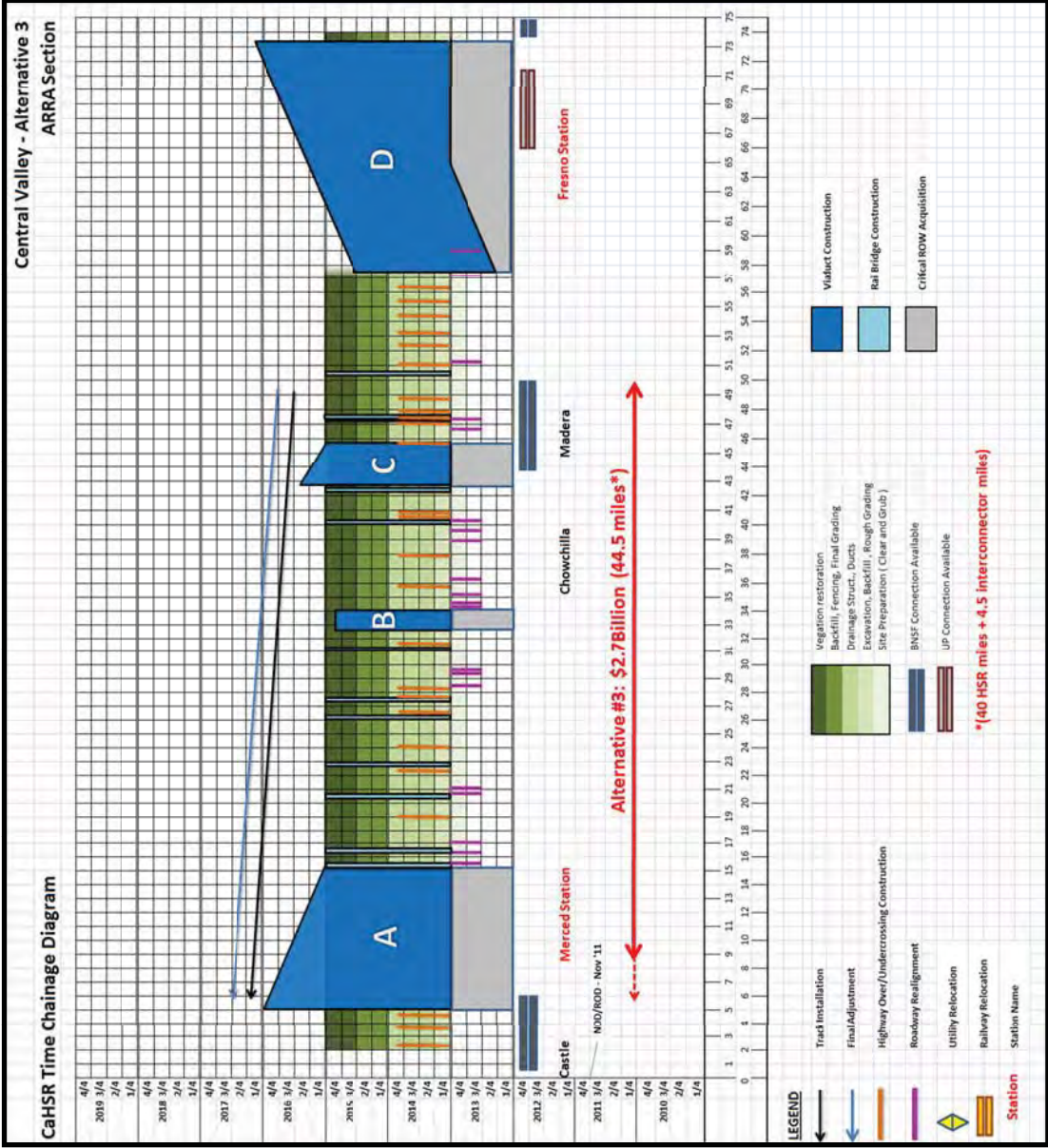


Exhibit B



DATE: December 20, 2010
TO: The Chairman and Board Members
FROM: Roelof van Ark, Chief Executive Officer
RE: Agenda Item #1 – Corridor Selection Modification

Discussion:

At the December 2, 2010 California High-Speed Rail Authority (Authority) public meeting, the board approved the selection of the initial construction section based on the presentation done by Authority staff. This selection, referred to as Alternative 1 in the board documentation for that meeting, was approved by the board unanimously (7:0).

The states of Wisconsin and Ohio decided not to proceed with their high-speed intercity rail projects, which means that approximately \$1.195 billion of American Recovery and Reinvestment Act (ARRA) funds, previously allocated to them, were made available to be reallocated to other states. On Thursday, December 9, 2010 the Federal Railroad Administration (FRA) informed the Authority that of these funds the Authority would be allocated an additional \$616M. As the total amount of ARRA funds now being made available to the Authority (\$2.87B excluding the \$715M HSIPR FY10 funds), is less than the original amount requested by the Authority, the FRA has requested (1) that the \$616M be incorporated into the Funding & Cooperative Agreements which are to be concluded by December 31, 2010, and (2) The \$616M be matched against 50% local Proposition 1A or equivalent funds.

As the Record of Decision/ Notice of Determination (ROD/NOD) and final selection of the alignment will not yet be completed for either Central Valley section by the time the Grant / Cooperative agreement is signed with the FRA, such Agreement would be conditioned upon the successful completion of the project-level environmental impact studies, the selection of the final preferred alternative route within the selected section and the conclusion of the ROD/NOD for the section by the fall of 2011, and consistent with all necessary federal, state and other approvals. The Authority would retain discretion over the outcome of the environmental process and would have the ability to seek adjustments to the grant agreement, if necessary, based on its final decisions.

Throughout the process it should be remembered that the California High-Speed Rail System will be the backbone passenger rail system of the State, and needs to connect southern and northern California, including the metropolitan areas of Los Angeles/Anaheim, San Diego, San Francisco, San Jose and Sacramento. This first step in the process, to select and then build the first segment of the line, is only the beginning of a continuous process, which should logically lead to the construction of the alignment, and completion of the whole interconnected network.

Appendix A: “Evaluation of the Application of the Additional ARRA Funding” describes the manner in which the additional \$616M in funds can be applied. Based on the assessment of risk, staff has concluded the “Initial Construction – Alternative 1” should be extended to the south to Bakersfield (Kern County).

Recommendation:

That the Board delegate to the Chief Executive Officer the authority to conclude the Funding/Cooperative Agreements with FRA on behalf of the Authority by the end of December 2010 incorporating the additional amount of \$616M for the continuation of the “Initial Construction” to the south to Bakersfield (Kern County).

Attachments:

- Appendix A: EVALUATION OF THE APPLICATION OF THE ADDITIONAL ARRA FUNDING

APPENDIX A

EVALUATION OF THE APPLICATION OF THE ADDITIONAL ARRA FUNDING

General Comment:

The environmental process is currently being conducted such that in many instances more than one alignment alternative is being evaluated and will be available for eventual selection as the environmental process is concluded. In all instances, typical alignment sections, including alternatives, have been used for costing reasons; however this should not be construed as a preference for one alignment over another. This is necessitated by the need to evaluate for costing. The extension of the Initial Construction Section of High-Speed Rail (HSR), through a grant agreement to provide construction funding, will be conditioned upon completion of environmental studies and selection of a final alignment and the issuance of a ROD/NOD by fall of 2011.¹

A. Eligibility of Applications:

The FRA requires that any rail project using ARRA funding be capable of demonstrating, upon completion “Operational Independence”/ “Independent Utility” as defined in Sec. 3.5.2 of the Notice of Funding Availability (NOFA). A project is considered to have Operational Independence “if, upon being implemented, it will provide tangible and measurable benefits, even if no additional investments in the same service are made.” Examples of these benefits include “operational reliability improvements, travel-time reductions, and additional service frequencies resulting in increased ridership.” In practice, this requirement means that the improvements can be used for existing or new intercity rail passenger operations, including Amtrak and other intercity service should no further High-Speed Rail funds be made available. Importantly, such service is clearly specified as being “intercity service” as opposed to enhanced commuter rail service. In the Central Valley the Amtrak’s San Joaquin’s would offer operational independence by connecting the new infrastructure to the existing BNSF network, on which the San Joaquin service presently operates.

B. Chronology of Events:

The following chronology highlights events leading up to the Board’s selection of the ARRA Section for initial construction of the California High-Speed Train Project:

¹ As the ROD/NOD for such selected alignment would not yet be completed by the time the Grant / Cooperative agreement is signed with the FRA, such Agreement would be conditioned on the successful conclusion of the environmental impact studies, the selection of the final alignment within the selected section and the conclusion of the ROD/NOD for the section by the fall of 2011 and consistent with all necessary federal, state and other permits and approvals.

- On January 28, 2010, USDOT announced the selection of the four sections eligible to receive up to \$1.656 billion², leaving the decision to the Authority as to which section would be built first.
- As part of its application for FY 2010 HSIPR funding the Authority redefined the four ARRA-eligible sections and submitted them to FRA as part of its applications for additional funding.
- On October 25, 2010, the USDOT announced an additional \$715 million in FY10 SDP funds for use by the Authority in the Central Valley. On November 4, 2010, the FRA clarified that both the FY09 ARRA funds and FY10 SDP funds must be applied to a single Central Valley project to be determined by the Authority.
- On December 2, 2010 the Authority Board adopted a resolution for allocation of the funding for Initial Build in the Central Valley consistent with the staff recommendation.
- On December 9, 2010 the FRA announced an additional \$616 million in ARRA funds for use by the Authority in the Central Valley.

C. Investigation of alternatives for the allocation of the \$616 million ARRA funding announced by the FRA on December 9, 2010.

As presented at the December 2nd meeting, the selected Initial Construction is well suited to utilize additional funding when available.

C-1: Construction to the North of the “Initial Construction”: Alternative 1

The environmental alternatives carried forward in the EIS/EIR analysis include three viable alternatives to the north of the Initial Build section. One of these alternatives follows the BNSF alignment, one is on the UPRR alignment and one is a hybrid which makes use of the BNSF immediately north of the Initial Build and then follows the UPRR. As the outcome of the environmental process, and the selection of the preferred alignment, can only take place in the Fall of 2011 after the issuance of the NOD/ROD, there is a possibility that an alternative with an element of UPRR alignment could become the preferred alignment. If this were to happen, the requirement for “Independent Utility” could not be guaranteed for the extension north of the Initial Construction, unless sufficient funds were to become available to ensure connectivity to the BNSF north of Merced, just south of the Castle Commercial Center. Thus it becomes “high risk” to apply the newly allocated ARRA funds north of the Initial Instruction because this funding could not be used if the UPRR becomes the preferred alignment.

² \$2.25 billion minus \$400M earmarked for TJPA’s Transbay Terminal = \$1.85 billion minus \$194M allocated to Phase 1 PE/NEPA/CEQA work = \$1.656 billion of Federal funds.

C-2: Construction to the South of the “Initial Construction”: Alternative 1

The alignments to the south (to Bakersfield) of the Initial Construction run mainly along the BNSF with a number of bypass loop alternatives. Accordingly connections to the BNSF tracks can be readily achieved, thereby meeting the “Operational Independence”/“Independent Utility” requirements for the ARRA funding.

The actual miles of construction which can be built with the \$616M, including Prop 1A funds, (total \$1.232 Billion) will depend on the final selection of the preferred alignment among the alternatives being evaluated, namely:

- a. Through Corcoran [C1] **OR** Corcoran Bypass [C2]
- b. West of Allensworth Park [A1] **OR** along BNSF east of Allensworth Park [A2]
- c. Through Wasco & Shafter [WS1] **OR** Wasco & Shafter Bypass [WS2]

These alternatives and the various iterations thereof offer numerous tie-ins to the BNSF tracks to offer “Operational Independence”. However, as the alternatives are numerous, staff have included the most expensive [1A] and least expensive [1B] combinations and shown these on Figure 4.

BACKUP INFORMATION

MAPS AND DATA

Figure 1: Central Valley Alignment

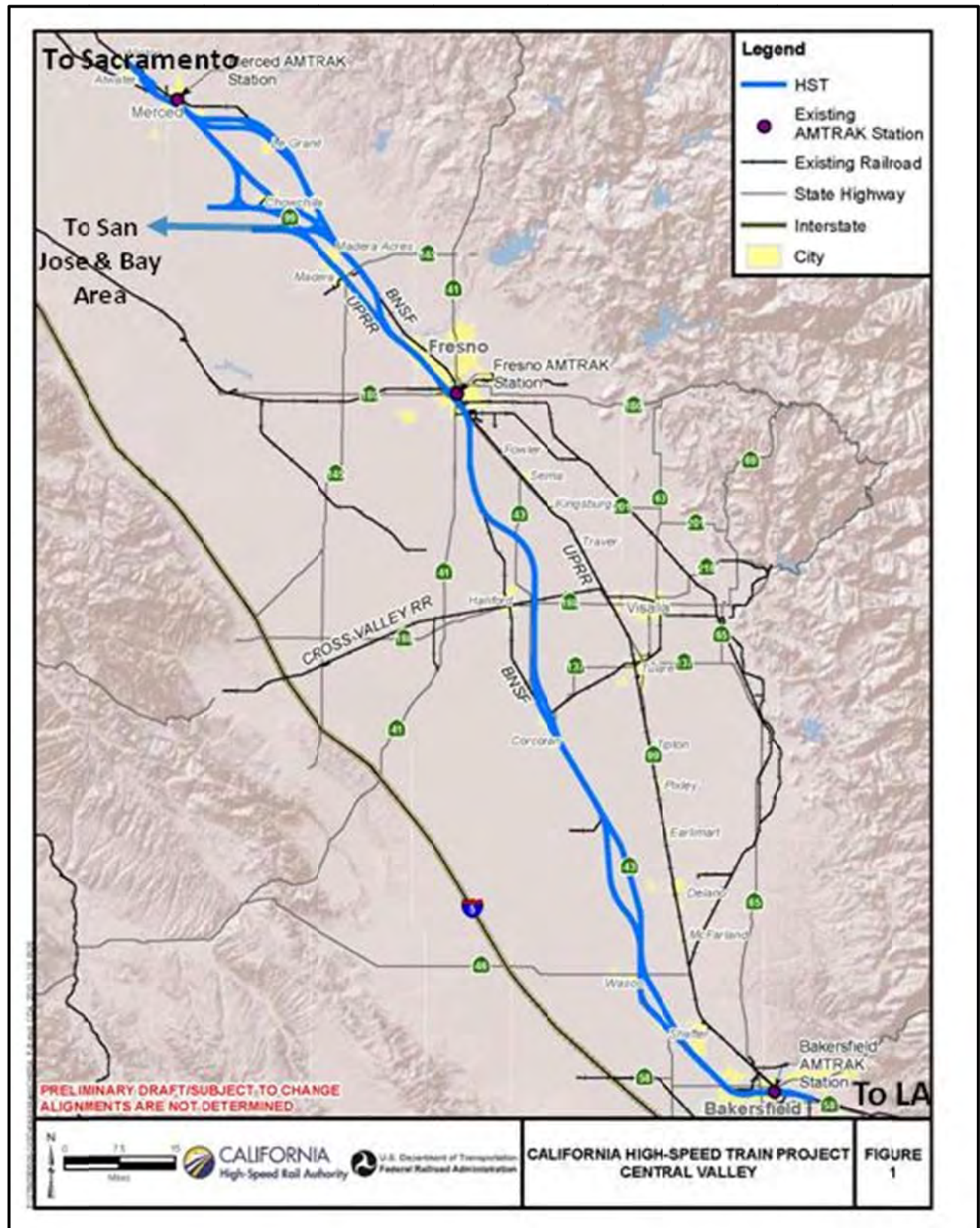


Figure 2: Central Valley Alignment
showing BNSF alignment in RED

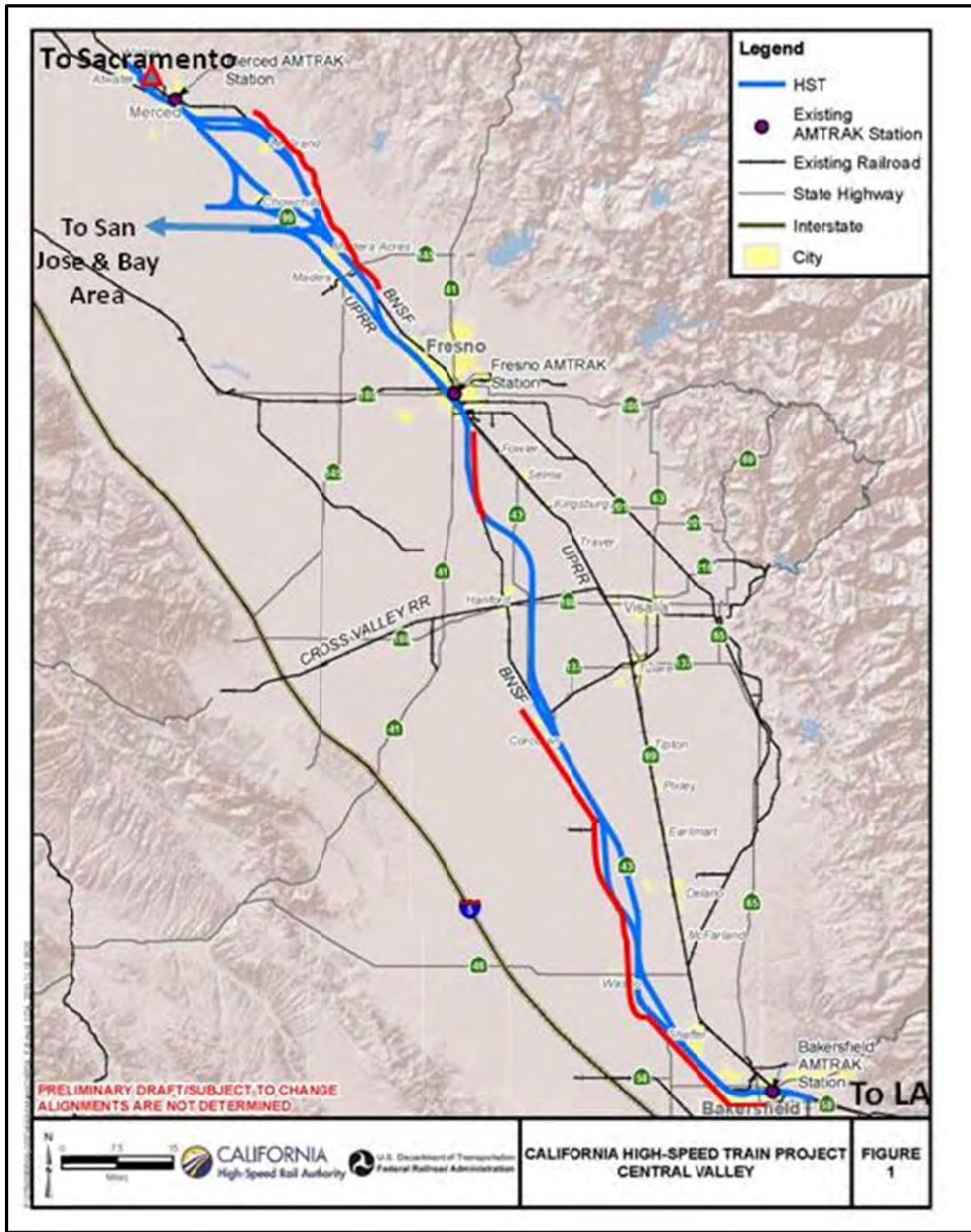


Figure 3: Alternative 1 : As Approved by Board

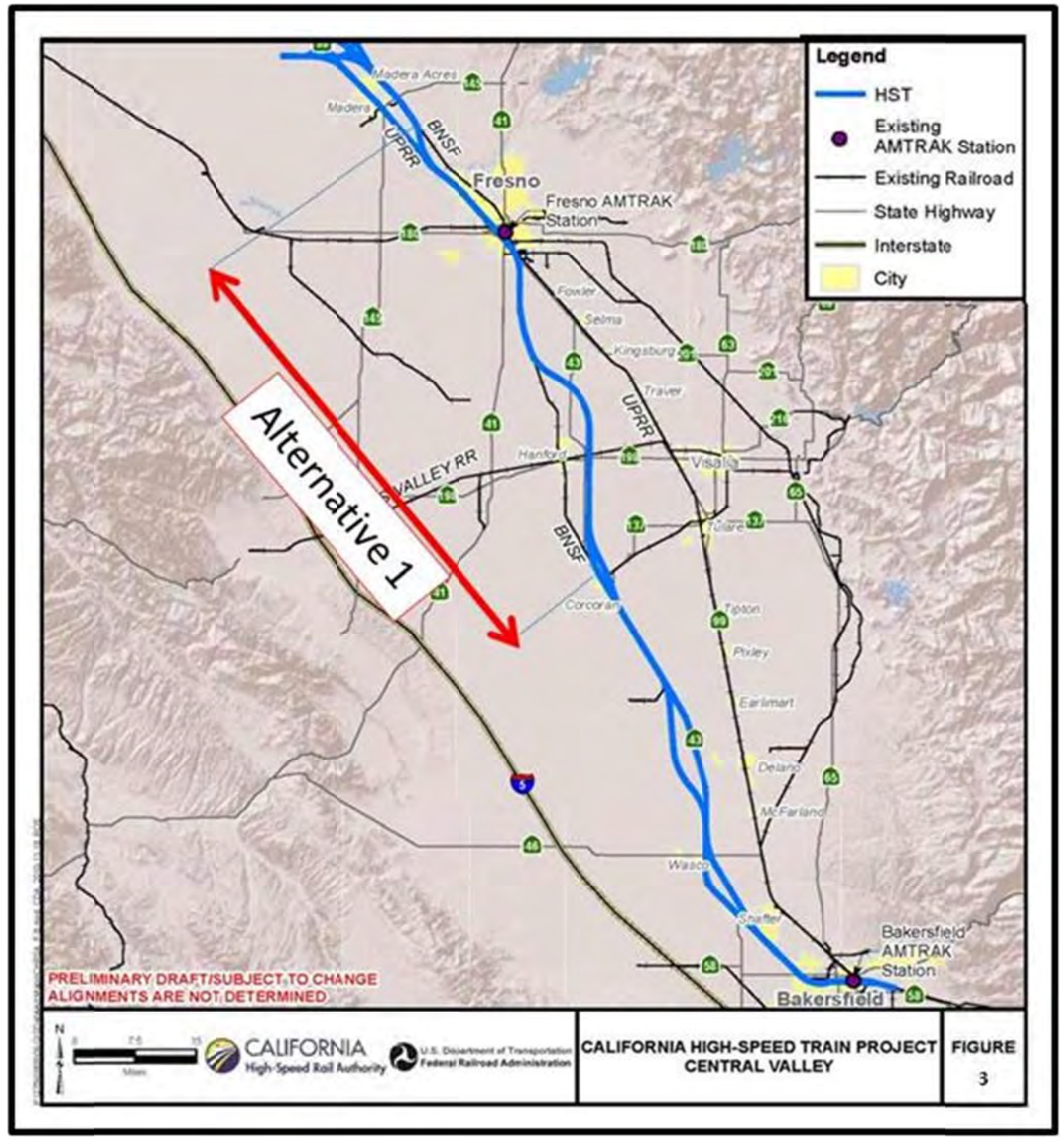


Figure 4: Allocation of Additional \$616M Funding

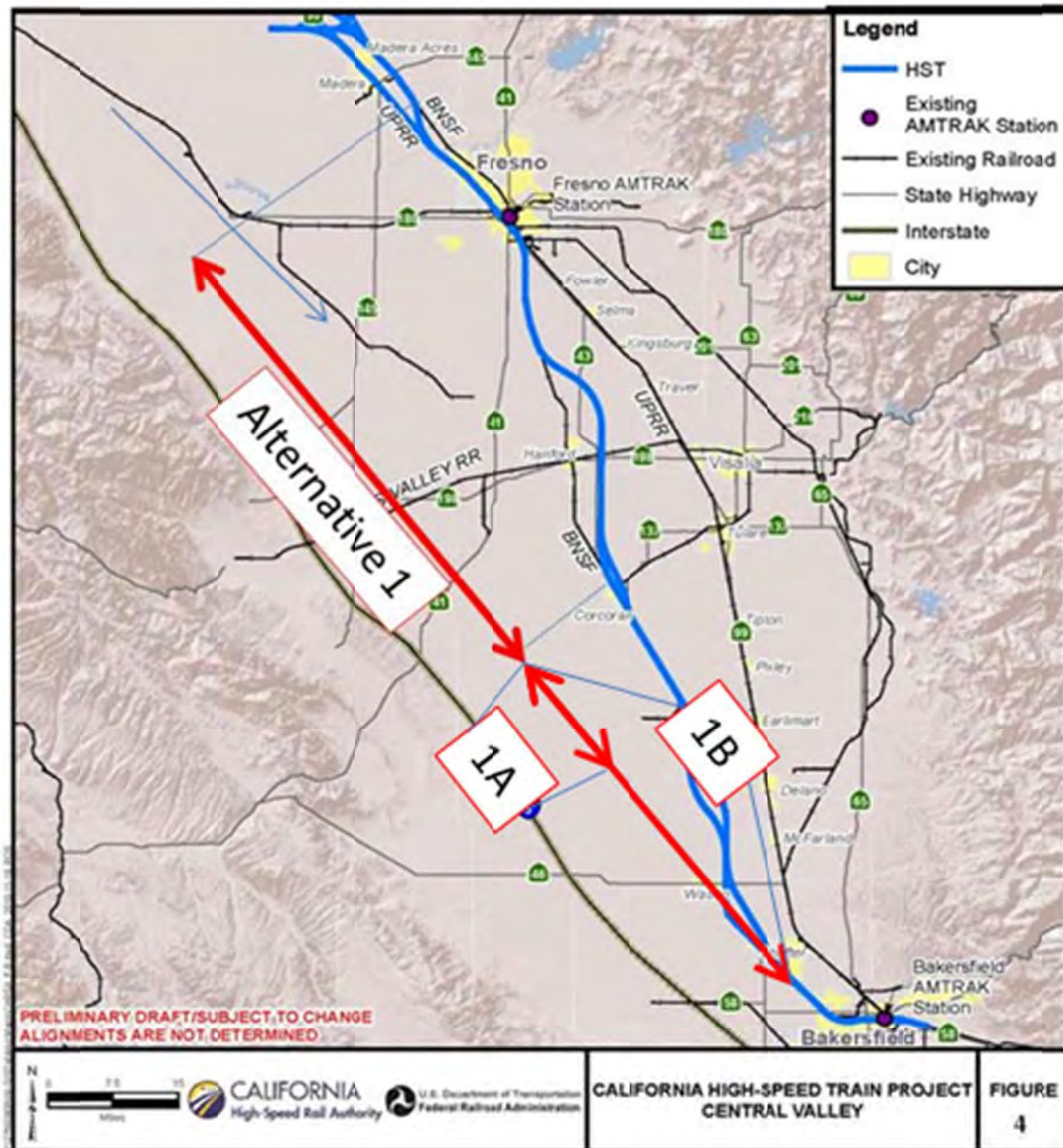


Exhibit C



**CALIFORNIA
HIGH-SPEED RAIL
AUTHORITY**

BOARD MEETING MINUTES

December 20, 2010

City Hall Council Chambers

Sacramento, CA

(Approved March 3, 2011)

The second public meeting of December, 2010 of the California High-Speed Rail Authority was called to order on December 20, 2010 at 10:03 am.

Members Present: Thomas Umberg, Vice-Chairman
Quentin Kopp
Fran Florez
Rod Diridon, Sr.
Lynn Schenk *via phone from San Diego Assoc. of Governments Board Room*
David Crane

Absent Members: Chairman Pringle
Russell Burns (Due to illness)

Pledge of Allegiance

Administered by Member Diridon

Vice Chair Umberg announced that this meeting was going to be changed in presentation of order; the meeting will begin with the presentation on the Corridor Selection Modification followed by public comment.

Agenda Item # 1 – Corridor Selection Modification

CEO van Ark gave a presentation stating the states of Wisconsin and Ohio decided not to proceed with their HSIPR projects making approximately \$1.915 Billion of ARRA funds available, which was previously allocated to them. On Thursday, December 9, 2010 the Federal Railroad Administration informed the Authority that they were allocated \$616M of these returned funds of which some funds will go toward station design, station area planning and ROW preservation applied to various Phase 1 sections.

Some clarity has been achieved as far as station design and station area planning is concerned: The Authority had been informed that a value of \$500,000 each for Merced and Bakersfield is included for station design, which needs to be matched with 50% local funding. Additional FRA funding of \$4.5M will be made available for station area planning, again to be matched with 50% local funding, for Phase 1 stations, which will include planning at Fresno, Visalia/Kings, Bakersfield, Merced, Palmdale, Gilroy and San Jose among others. It is envisaged that station area plans are prepared in partnership with local government, as needed.

Various details are still being worked on with the FRA, and as part of the recommendation made to the Board, Mr. van Ark requested the Board allow him the flexibility to conclude the

Funding/Cooperative Agreements with FRA on behalf of the Authority, incorporating any such additional details.

Mr. van Ark stated that he wanted to make one clarification, which was necessary after a discussion he had with Congressman Cardoza, namely; it is not correct that Merced, and the track leading to Merced, are now part of Phase 2 of our project. If this was the interpretation from our previous presentations, it was incorrect, as Merced remains part of Phase 1 of the HSR project.

Mr. van Ark also reminded everyone that throughout the process it should be remembered that the California High-Speed Rail System will be the backbone passenger rail system of the State, and needs to connect southern and northern California, including the metropolitan areas of Los Angeles/Anaheim, San Diego, San Francisco, San Jose and Sacramento. This first step in the process, to select and then build the first segment of the line, is only the beginning of a continuous process, which should logically lead to the continued construction of the alignment, until the whole network is interconnected.

Member Diridon asked to confirm that the extension will go towards Bakersfield not into Bakersfield due to funding at this time. CEO van Ark also confirmed for the record that this decision will have no effect on the Heavy Maintenance Facility selection process. That will still take many months, maybe some years for that decision to be made and that decision will not be effected by the outcome of today's board meeting.

Member Reports

Member Diridon reported that he had just returned from a 9 day trip to China which was paid for by the Research Department of the US transportation and the China academy of transportation sciences. It was an academically based trip, he spoke on academic issues and he rode the high speed train in which he was very impressed with.

Vice Chair Umberg had two comments; First one with respect to the mischaracterization of what was done with respect to selecting the first section for construction. Some reports, no matter how well communicated is going to be miscommunicated for a variety of reasons, but one thing the Board could benefit from is a "lessons learned" from the last 30 days or so on how one could do a better job communicating to the stakeholders, what was intended and what the effects will be, so that the people of CA understand what the project is about and that we are building a system from Northern California to Southern California, not building a section from 2 locations within the Central Valley. Secondly, there is some confusion with what the powers are of the High Speed Rail Authority with respect to acquisition of Real Estate.

Member Kopp stated that he had a discussion with Mr. van Ark in regards to questions of the number of takings in the already approved and recommended plus the extension of applications of \$616 Million dollars, that it is not currently available but will be available by our next meeting and would like that information included in that meeting.

Public Comment

An opportunity for public comment was provided in regards to the Corridor Selection Modification. Positive support was voiced, while concern was conveyed by some.

Staff Recommendation of Agenda Item 1 – Corridor Selection Modification:

That the Board delegate to the Chief Executive Officer the authority to conclude the Funding/Cooperative Agreements with FRA on behalf of the Authority by the end of December 2010 incorporating the major portion of the additional amount of \$616M for the continuation of the “Initial Construction” to the south to Bakersfield/Kings County.

Member Diridon moves. Member Kopp Seconds with the request of sending all board members copies of the agreement once it is signed.

Member Diridon requests that since the CEO’s presentation provided a lot of elaboration that was very strategically important, that particular portions be included in the minutes verbatim in order to refer back if needed, specifically the portion related to the use of 5.5 million dollars stationary planning and the reference of all the maintenance bases that continue to be under consideration.

Roll was called.

Vote: Passed Unanimously - 6-0

CEO Report

Mr. van Ark announces that a five person expert panel has been formed to act as a Peer Review Group for the ridership work and will be Chaired by Professor Frank Koppelman. This group will also include Professor Ken Small who has been allocated from the ITS Group.

Mr. van Ark updated the Board on meetings that have taken place between himself and Governor’s Legislative Staff, Elected Officials, Mayors, CEO’s of transportation agencies, area suppliers and Ag communities. Mr. van Ark thanked Assembly Member Galgiani for taking a leading role in ensuring that the Authority gets an open forum to discuss issues with the Ag community.

Mr. van Ark announced Mr. Darrell Cole; as the new program manager for Ogilvy commencing on January 3, 2011, Mr. Cole will be working full time on the implementation of the Authority’s Communications & Outreach strategy and plan.

Mr. van Ark also met with the FRA delegation in the Authority’s office. The FRA did a review of the program to make sure that we were on track to meet the obligations of the ARRA program.

Mr. van Ark discussed the issues with the FPPC re: Board Members and senior staff past travel reporting, the Authority is working with the FPPC to resolve these issues and have obtained the services of outside legal counsel.

Meeting Adjourned at 11:00 am

Exhibit D



CALIFORNIA HIGH-SPEED RAIL AUTHORITY

Resolution #HSRA11-16
Federal Railroad Administration Grant Agreement

Resolved, that the Board delegates to the Chief Executive Officer the authority to enter into a grant agreement substantially as proposed, and subsequent amendments of a non-material nature, with the Federal Railroad Administration to receive federal funds to support the final design and construction of portions of the HST system in the Central Valley corridor as selected or identified by the board on December 2, 2010, subject to the future decisions to be made by the HSRA to approve specific facilities and alignments in this portion of the system and provided, however, that the Final EIR/EIS(s) is (are) completed and any necessary permits and approvals are obtained before construction may begin.

Vote: 6-0

Date: December 20, 2010

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Exhibit E



DATE: March 25, 2011
TO: The Chairman and Board Members
FROM: Roelof van Ark, Chief Executive Officer
RE: Agenda Item #2 – Federal High Speed & Intercity Passenger Rail Funding Request

Discussion:

On March 16, 2011, the Federal Railroad Administration (FRA) issued a Notice of Funding Availability (NOFA) to solicit applications for eligible high speed and intercity passenger rail projects that could immediately proceed to award for \$2.43 billion. This funding is comprised of funds being made available as a result of the State of Florida deciding not to proceed with its high-speed rail project plus unallocated American Recovery and Reinvestment Act (ARRA) funding. Of the \$2.43 billion, \$1.63 billion is ARRA funds and \$800 million is from the FY 2010 Consolidated Appropriations Act.

Any projects receiving funding under ARRA must be able to be obligated by September 30, 2012, and completed by September 30, 2017. Conversely, any projects receiving FY 10 funds would not have these restrictions. FRA has signaled that it anticipates making multiple awards and has advised applicants to subdivide higher-cost undertakings into discrete project components or phases. The FRA has also indicated that applications offering substantial non-Federal financing options (local match) will be looked on more favorably during the project review and selection process. Applications for these funds must be submitted to the FRA by Monday, April 4, 2011.

Background:

In 2009 and 2010, the California High-Speed Rail Authority (CHSRA) applied for and received funding from the FRA under the new High-Speed Intercity Passenger Rail Program (HSIPR) which were made available under the American Recovery and Reinvestment Act (ARRA) and the FY 2010 Consolidated Appropriations Act to be matched with California Proposition 1A bond proceeds.

To date, the CHSRA has secured:

- \$194 million to be applied to the PE/NEPA/CEQA phase of the Phase 1 program
- \$37.5 million for station area planning and for LA Union Station right-of-way preservation

- \$16 million for the design/implementation of the first Positive Train Control/ERTMS interface implementation on the Peninsula
- \$2.95 billion to initiate final design and construction of Phase 1 of the California High-Speed Train Project (CHSTP).

In November 2010, the FRA clarified that the funds for final design and construction must be applied to a single Central Valley project. Subsequently, on December 2, 2010 and December 20, 2010, the CHSRA Board identified the Initial Construction Segment (ICS) as comprising portions of the Fresno to Bakersfield and Merced to Fresno sections of the California High-Speed Train (CHST) System as shown in Figure 2 of the attached Backup Information, Maps and Data. Together with Prop. 1A funds that were committed as project match, the CHSRA currently has \$5.5 billion to fund the final design and construction of the ICS. In the Central Valley the Amtrak's *San Joaquins* could offer operational independence by connecting the new infrastructure to the existing BNSF network, on which the *San Joaquin* service presently operates.

To date, the CHSRA and the FRA have concluded a Funding & Cooperative Agreement (Grant Agreement) for the ARRA portion of the funds secured for the ICS but have not yet done so for the remaining FY 2010 funds (\$715 million) that are associated with the ICS, although it is anticipated to be concluded in the second or third quarter of this year.

As the environmental Records of Decision/Notices of Determination (ROD/NOD) and final selection of the alignment have not yet been completed for the two sections that comprise the ICS, and for potential extensions to it (which are the subject of this action item), both the current Grant Agreement and any applicable future Agreements would be conditioned upon the successful completion of the project-level environmental impact studies, the selection of the final preferred alternative route within the selected section and the conclusion of the ROD/NOD for the relevant sections and consistent with all necessary federal, state and other approvals. The CHSRA would retain discretion over the outcome of the environmental process and would have the ability to seek adjustments to the Grant Agreement(s), if necessary, based on its final decisions.

Major factors that need to be considered in the selection process for identifying the project(s) for additional funding include impacts on the project schedule, logical sequencing of the work, and the maximum impact the investment of present Federal and State dollars can have on the project. The CHSRA also must consider the specific requirements and guidance provided in ARRA, in the FY 2010 Consolidated Appropriations Act, and Proposition 1A (as codified in CA Streets and Highways Code §§2704-2704.21 and Public Utilities Code §§185033, 185035 and 185037). The "Independent Utility"/"Operational Independence" requirements associated with the original HSIPR ARRA funding are still applicable.

Throughout the process it should be remembered that the CHST System will be the backbone passenger rail system of the State, and needs to connect southern and northern California, including the metropolitan areas of Los Angeles/Anaheim, with San Francisco, San Jose and thereafter also include

Sacramento and San Diego. This is the first step in the process, to identify, design and construct the first segments of the full system, is only the beginning of a longer-term continuous process, which should logically lead to the initiation of service on an initial operating segment followed by additional extensions of the system and ultimately leading to the completion of the entire interconnected network.

Appendix A: “Options for the Application for Additional HSIPR Funding” summarizes three options for the Board’s consideration and the manner in which the additional funds would be applied. Staff has concluded that there is a “Base Case” Option for which funds should be requested as a minimum request. Staff has developed two additional options which would augment the Base Case Option for the Board’s consideration.

Recommendation:

That the Board delegate to the Chief Executive Officer the authority to submit an application for HSIPR funds and, subsequent to receiving any additional funds, to conclude Funding/Cooperative Agreements with FRA on behalf of the CHSRA. Staff recommends that “Option 1. Base Case Option: Merced and Bakersfield Extensions,” as described in the attached Appendix A and shown in the attached Figure 3, be selected as a minimum HSIPR grant application request. Staff further recommend that the Board approve that the Authority also request additional funds for Option 2A and/or Option 2B as shown in the attached Figure 4.

Attachments:

- Appendix A: OPTIONS FOR THE APPLICATION FOR ADDITIONAL HSIPR FUNDS
- Draft Resolution HSRA #11-17

APPENDIX A

OPTIONS FOR THE APPLICATION FOR ADDITIONAL HSIPR FUNDING

General Comments:

Environmental Process Requirements:

The environmental process is currently being conducted such that, in many instances, more than one alignment alternative is being evaluated and will be available for eventual selection by the Board when the environmental process is concluded. In all instances, typical alignment sections, including alternatives, have been used for costing reasons; however this should not be construed as a preference for one alignment over another. The actual extent of the ICS – and of any of the extensions identified in these grant application options -- and potentially incorporated into additional Grant Agreements with the FRA to provide construction funding, will be conditioned upon completion of environmental studies and selection of a final alignment and the issuance of a ROD/NOD.

Capital Cost Estimates as the Basis for Developing Grant Projects:

For purposes of developing these grant options, the lowest cost estimates for the potential extensions have been used in order to show the maximum potential length of those extensions (as was done with the cost estimates prepared for prior grant applications).

The project scopes are still being evaluated and refined, “value engineering” work is being conducted, there are ongoing consultations with jurisdictions, communities and other stakeholders along the routes, and, as discussed above, the environmental process has not yet been concluded. Once the ROD/NOD’s have been issued, the Board will select the preferred alignment and the CHSRA will then have a more detailed definition of project scope and cost.

As with the ICS, the capital costs for these new grant options encompass final design and construction of track infrastructure only. That is, they do not include core systems costs (communications, signaling, high speed trains, maintenance facilities, electrification, etc.). These project elements will be incorporated as the project is further advanced and closer to the implementation of service.

The Merced-Fresno and Fresno-Bakersfield sections’ 15% designs have undergone a preliminary value engineering review to identify areas where overall reduced life cycle costs can be realized. These are presently being reviewed and verified. The results of these preliminary value engineering exercises have been included as an underlying assumption in the grant options presented below. Similar value engineering exercises will be conducted on the other sections once they achieve the 15% design completion status. It should be noted that value engineering is an ongoing process and will be conducted again at the 30% design completion stage.

Federal/State Match:

Staff has developed the grant options below assuming a 70% Federal contribution and a 30% State match. This is consistent with the guidance suggesting that projects with a significant local match would be considered to be more competitive, while simultaneously conserving Prop. 1A funding for future use as matching funds for future federal applications.

A. Eligibility of Applications:

The FRA has indicated that applicants may submit an application to augment a project that was selected under a previous grant solicitation, such as the ICS. In receiving funding for the ICS in the Central Valley, the CHSRA fulfilled the requirement that any rail project using HSIPR funding be capable of demonstrating, upon completion “Operational Independence” as defined in Sec. 3.5.2 of the Notice of Funding Availability (NOFA). For this latest funding application “Operational Independence” is defined differently to that which applied to earlier funding applications, as follows: “A project is considered to have operational independence if, upon implementation, it will have tangible and measureable benefits, either independently of other investments or cumulatively with projects selected to receive awards under previous HSIPR program solicitations.” For this grant application, staff has identified possible extensions to the ICS which received awards under previous solicitations.

B. Chronology of Events:

The following chronology highlights events leading up to the Board’s selection of a new FRA grant application for additional construction of the California High-Speed Train Project:

- On January 28, 2010, USDOT announced the selection of the four sections eligible to receive up to \$1.656 billion¹, leaving the decision to the CHSRA as to which section would be built first.
- As part of its application for FY 2010 HSIPR funding the CHSRA redefined the four ARRA-eligible sections and submitted them to FRA as part of its applications for additional funding.
- On October 25, 2010, the USDOT announced an additional \$715 million in FY10 SDP funds for use by the CHSRA in the Central Valley. On November 4, 2010, the FRA clarified that both the FY09 ARRA funds and FY10 SDP funds must be applied to a single Central Valley project to be determined by the CHSRA.
- On December 2, 2010, the CHSRA Board adopted a resolution for allocation of the funding for Initial Build in the Central Valley consistent with the staff recommendation.

¹\$2.25 billion minus \$400M earmarked for TJPA’s Transbay Terminal = \$1.85 billion minus \$194M allocated to Phase 1 PE/NEPA/CEQA work = \$1.656 billion of Federal funds.

- On December 9, 2010 the FRA announced an additional \$616 million in ARRA funds for use by the CHSRA in the Central Valley.
- On December 20, 2010, the CHSRA Board approved incorporating the additional \$616 million in ARRA funds into the ICS for the continuation of the project south to Bakersfield (Kern County), as shown in Figure 2 of the attached Backup Information, Maps and Data.

Options for Requesting Additional HSIPR Funding

The options presented below represent potential options for designing and constructing extensions to the currently-funded ICS with a portion of the HSIPR funding that is currently available (\$2.43 billion).

Option 1. Base Case Option: Merced and Bakersfield Extensions

Please refer to Figure 3 of the attached Backup Information, Maps and Data.

The Base Case Option would build on the current \$5.5 billion in funding for the ICS and would result in approximately 180 miles of total completed infrastructure.

The Base Case Option includes two new extensions, one to the north and one to the south.

- To Merced - The north extension would construct civil infrastructure, including trackwork, extending the Initial Construction Segment from just south of Madera, into Merced and would construct an at-grade Merced High Speed Train Station including platforms. This extension would include the Wye at Chowchilla, but no infrastructure or tracks towards San Jose.²
- To Bakersfield - The south extension would construct civil infrastructure, including trackwork, extending the Initial Construction Segment from north of Bakersfield into downtown Bakersfield and would construct an aerial Bakersfield High Speed Rail Station and platforms.

The Base Case Option is estimated to cost \$1.80 billion and assumes:

- \$1.26 billion – Federal funds
- \$0.54 billion – State match

If funded, and combined with the \$5.5 billion already committed, the CHSRA would have a total of \$7.3 billion available for final design and construction.

² Option 2A could be affected by the outcome of pending litigation over the Bay Area to Central Valley High-Speed Train Revised Final Program EIR, *Town of Atherton v. California High-Speed Rail Authority*, Sacramento Superior Court No. 34-2008-80000022 and *Town of Atherton v. California High-Speed Rail Authority*, Sacramento Superior Court No. 34-2010-800000679.

Option 2A. Chowchilla Wye – West Extension

Please refer to Figure 4 of the attached Backup Information, Maps and Data.

Option 2A is designed to build on the Base Case Option as described above. That is, it does not represent an alternative to the Base Case Option, but an extension to it.

Option 2A would add approximately 39 additional miles of civil infrastructure extending westward from the WYE toward San Jose up to the start of the first major tunnel entering the mountains near the San Luis Reservoir.³

Option 2A is estimated to cost \$1.2 billion and assumes:

- \$840 million Federal funds
- \$360 million State match

If Option 2A is combined with the Base Case Option, the grant request would total:

- \$2.10 billion - Federal funds
- \$0.90 billion - State match

Although the CHSRA could theoretically seek more Federal funds for Option 2A (and prepare a grant application request for the full \$2.4 billion in available funding), this is not possible from a practical standpoint because just beyond this 39 mile extension, there is a tunnel section that would require more funding than is available to complete it.

If funding were secured for Option 2A and combined with the Base Case Option and the \$5.5 billion currently available, the CHSRA would have approximately \$8.5 billion in funds available for final design and construction.

Option 2B. Bakersfield Station – South Extension

Please refer to Figure 4 of the attached Backup Information, Maps and Data.

Option 2B is designed to build on the Base Case Option 1 above. That is, it does not represent an alternative to the Base Case Option, but an extension to it.

³ Option 2A could be affected by the outcome of pending litigation over the Bay Area to Central Valley High-Speed Train Revised Final Program EIR, *Town of Atherton v. California High-Speed Rail Authority*, Sacramento Superior Court No. 34-2008-80000022 and *Town of Atherton v. California High-Speed Rail Authority*, Sacramento Superior Court No. 34-2010-800000679.

Option 2B would add approximately 15 miles of additional civil infrastructure and trackwork to the south of Bakersfield Station (towards Palmdale). Extension 2B would provide approximately 9 miles of at-grade infrastructure and 6 miles of viaduct south of Bakersfield and includes the major viaduct that rises from the Central Valley and enters into the Tehachapi Mountains.

Option 2B is estimated to cost \$1.67billion and assumes:

- \$1.17 billion – Federal funds
- \$0.50 billion – State match

Combining Option 2B with the Base Case Option the total grant request would be:

- \$2.43 – Federal funds
- \$1.04 – State match

If funding were secured for Option 2B and combined with the Base Case Option plus the \$5.5 billion currently available, the CHSRA would have approximately \$8.98 billion in funds available for final design and construction.

Factors to consider:

- It is important to note that, if the FRA were to fully fund the Base Case Option and only partially fund Option 2A or 2B, both 2A and 2B are “scalable” in that the amount of construction could be scaled back depending on the amount of the funds which are available.
- It is also important to note that FRA will determine which funding source to provide to projects selected for award, specifically whether it is ARRA or FY 10 funds. As previously noted, any project that receives ARRA funding must be able to be completed by September 30, 2017; however FY 10 funds are not subject to this restriction. The environmental clearance schedule for Option 2A is further advanced than the Option 2B schedule. Due to the ARRA funding limitations, it is apparent that Option 2B would be limited to FY 2010 funds. The FRA allows applicants to identify specific aspects of their projects that might favor one or the other (FY 10 or ARRA) but it will determine which funding to provide to projects selected for award at its own discretion.

Figure 1: Central Valley Alignment



Figure 2: Initial Construction Section

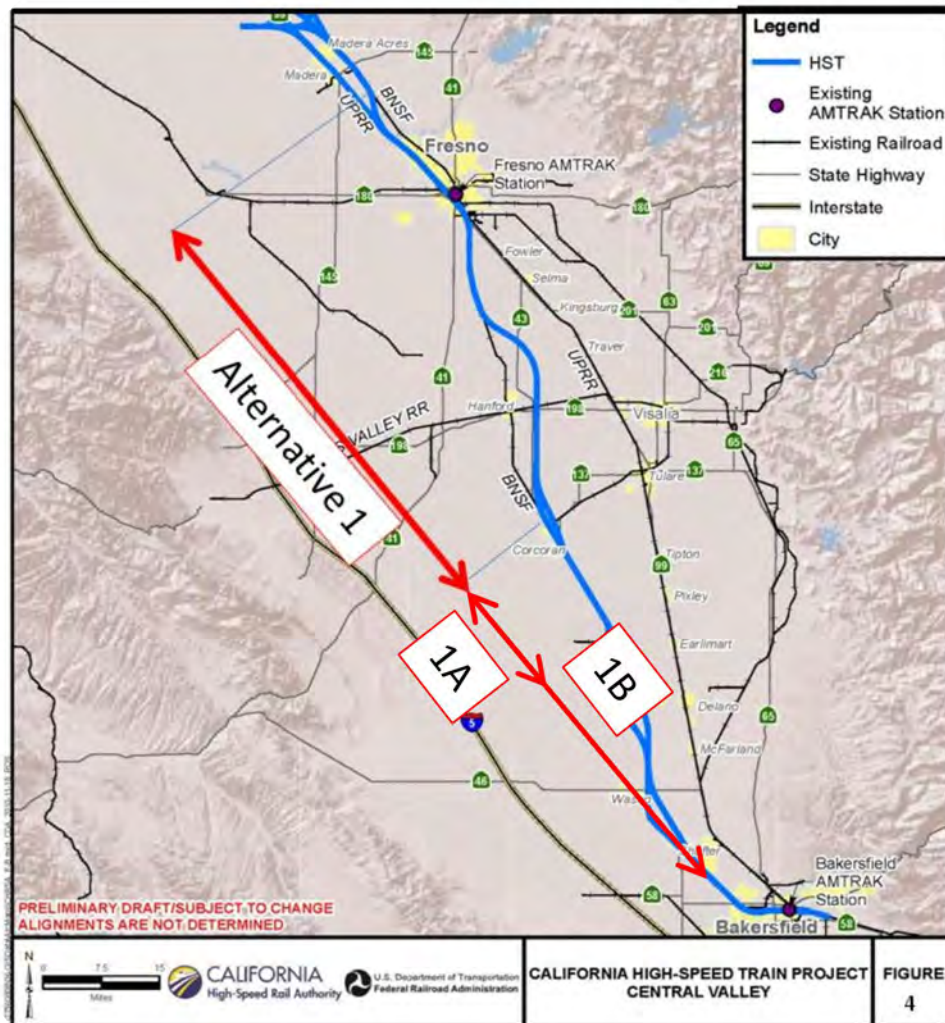


Figure 3: Option 1 Base Case

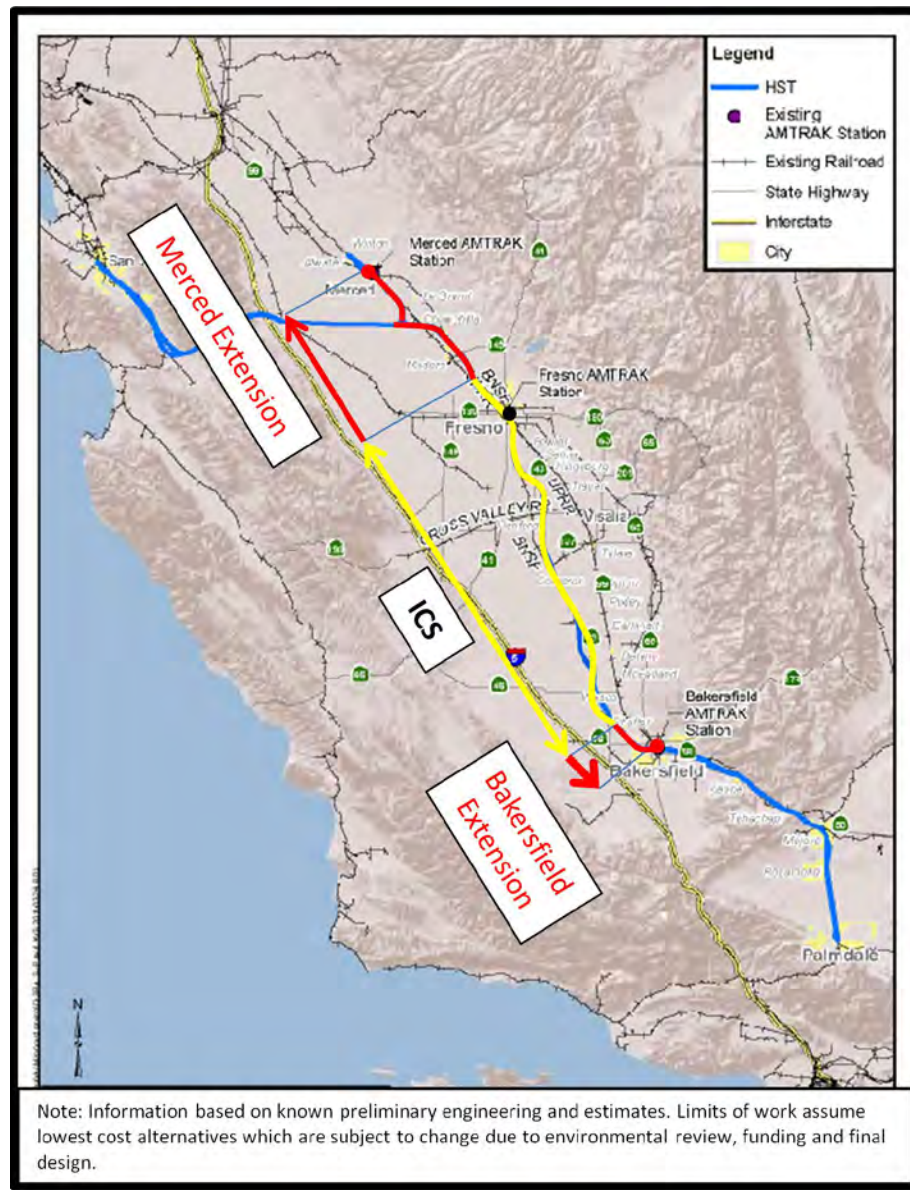


Figure 4: Options 2A & B – Additional Extensions

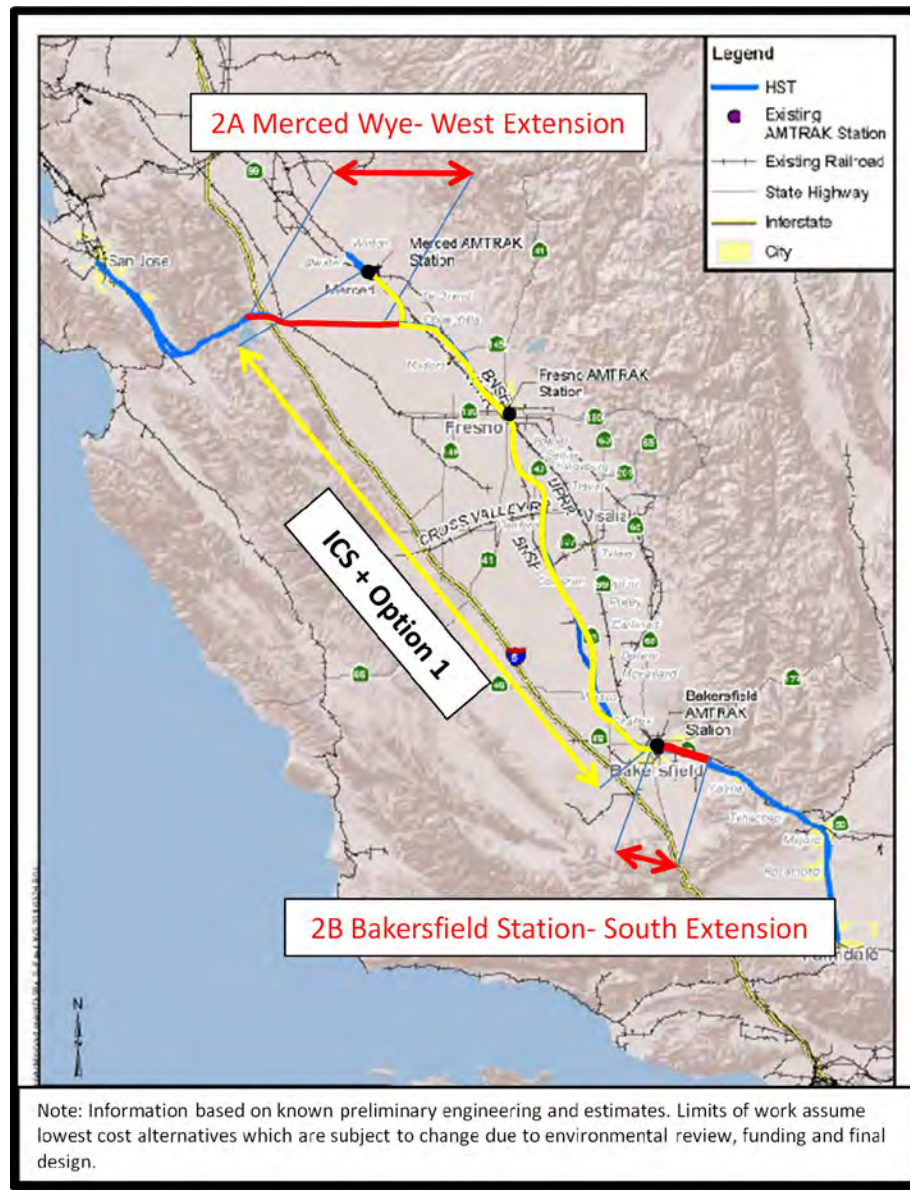


Exhibit F



Resolution #HSRA11-17
Delegation of Authority to Prepare and Apply for Federal Funds

Whereas, the Governor of the State of Florida rejected federal funding for high-speed intercity rail;

and whereas, the federal government, through the U.S. Department of Transportation, pledged to swiftly re-allocate the \$2.43 billion previously awarded to Florida;

and whereas, California's high-speed rail project has great need for additional federal funding;

and whereas, every \$1 billion invested in high-speed rail infrastructure in California creates, conservatively, 20,000 full-time job equivalents over the course of the investment;

Therefore, it is hereby resolved, that the Chief Executive Officer of the California High-Speed Rail Authority is delegated the responsibility to prepare and submit an application to the federal government for the funds rejected by Florida;

it is further resolved, that that application indicate a "base case" request for adequate funding which has the aim to complete the backbone of our statewide system, from Merced to Bakersfield, including stations at those cities, as described in the March 30 Board meeting staff briefing document;

it is further resolved, that that application indicate a request for the entire amount of funding available, of which any additional funds over the "base case" would be used to either extend the system south toward the Los Angeles Basin or northwesterly toward the Bay Area – the direction being subject to later Board action;

it is further resolved, that the Authority offer a 20 percent match to the federal funds, from Proposition 1A bond or other funds;

it is further resolved, that Authority staff be directed to send a letter in support of Caltrans projects from its list of those the department believes qualify for these re-allocated federal funds.

It is further resolved, that the Authority work with the Los Angeles Metropolitan Transportation Authority to see whether it is possible to add one grade separation for southern California to the funding application, and that the Chief Executive Officer would have the full discretion to decide whether such application should finally be submitted or not.

It is further resolved that the Chief Executive Officer has the authority to conclude a final funding/cooperative agreement with the Federal Railroad Administration, should the federal government grant additional funds to the Authority

Vote: 7-0 (Burns absent; one vacant seat)

Date: March 30, 2011

Exhibit G



**CALIFORNIA
HIGH-SPEED RAIL
AUTHORITY**

BRIEFING: MARCH 2012 BOARD MEETING AGENDA ITEM #3

TO: Chairman Richard and Board Members

FROM: Thomas Fellenz, Chief Counsel

DATE: March 1, 2012

RE: Terms and Conditions, Stipend and RFP Scoring criteria applicable to the Design Build [DB] construction for the Central Valley Initial Construction Section

Background/Discussion:

The initial operating segment (IOS) of the California High Speed Train System will run through the Central Valley and includes the initial construction section (ICS) from Fresno to Bakersfield. Construction of the ICS will involve four design build contracts for the final design and construction of all High Speed Rail (HSR) trackway civil infrastructure up to the top of the ballast. A fifth ICS design build contract will be entered into for the trackwork along the entire length of the ICS.

The Authority has started a two-phase best value procurement process for the first of the five ICS design build contracts, designated Construction Package #1. The first Request for Qualifications (RFQ) phase is complete, resulting in the shortlisting of five qualified design build teams which are now invited to participate in the second Request for Proposal (RFP) phase. The proposals submitted by the teams in response to the RFP will be evaluated and scored resulting in a recommendation to the Board to enter into a \$1.5 to \$2.0 billion design build contract with the selected team, expected to take place in early 2013.

To aid the HSR Authority in the final development of the Request for Proposals documents, a term sheet containing a summary of the major material terms and conditions for the Construction Package #1 design build contract was developed and is presented to the Board for approval.

To partially compensate for the cost of the preparation of the Proposals submitted, the HSR Authority can pay a stipend to those proposer teams not awarded the contract. HSR staff recommends a stipend be paid for each acceptable proposal submitted to the Authority by any shortlisted Offeror that is not awarded the contract or in case of termination of the RFP, proven costs not to exceed \$2 million.

In the evaluation of the proposals it is in the best interests of the HSR Authority to assure technically competent proposals and assure the best value is received. HSR staff is recommending a two-step RFP evaluation process that includes a technical evaluation resulting in the qualification of three of the five proposer teams followed by a combined technical/price evaluation of these top three proposer teams.

Recommendations:

Approve the term sheet, the RFP scoring criteria, and the stipend for Construction Package #1 per the terms in the attached Board resolution.

Attachments:

Construction Package #1 Term Sheet

Resolution # HSRA 12-04

DRAFT



RFP No. 11-016

**Construction Package #1
Initial Construction Section
of the
California High-Speed Train System

Design-Build Contract Term Sheet**

This document provides background information and summarizes certain terms anticipated to be in the Contract Documents for Construction Package #1 of the Initial Construction Section of the California High-Speed Train System. This document is not a restatement or interpretation of the contract requirements. There are numerous details, exceptions and qualifications associated with the provisions of the Contract Documents that can only be ascertained by reviewing the Contract Documents.

This document is subject to revision as Authority considers how best to allocate risk and responsibilities for the Project.

1. Contract Overview	
Project	Construction Package #1 of the Initial Construction Section of the California High-Speed Train System. The Project consists of Construction Package #1A (including Construction Package #1A Option 1) and options for Construction Packages #1B and #1C. Refer to the "Scope Options" provision under Section 4 (Payment) and the "Notice to Proceed" provision under Section 5 (Commencement of Work; Completion Deadlines) below.
Authority	California High-Speed Rail Authority
Contractor	Contractor will be determined through the procurement.
Contractor-Related Entity	1. Contractor; 2. If Contractor is a joint venture, partnership or limited liability company, any joint venture member, partner or member of the Contractor; 3. Any Subcontractors; 4. Their employees, agents and officers; and 5. All other Persons for whom Contractor may be legally or contractually responsible.
Contract Documents/ Order of Precedence	The Contract Documents consist of the following documents, in the following descending order of precedence: 1. Design-Build Contract (signature document) 2. Special Provisions (Book 2, Part A) 3. General Provisions (Book 2, Part B) 4. Scope of Work (Book 2, Part C) 5. Final Environmental Documents and Mitigation Monitoring Plan 6. Third Party Agreements and Permits 7. Approved Design Variances 8. HSR Design Criteria Manual 9. HSR Directive Drawings 10. HSR CADD Manual 11. HSR Plans Preparation Manual 12. Proposal (provided that if Authority determines that the Proposal contains a provision that is more restrictive/beneficial to Authority than is specified elsewhere in the Contract Documents, that Proposal provision shall take precedence) ATCs, amendments and Change Orders will have the priority just above the document that is being amended.
Federal Requirements	The Contract will comply with High-Speed Intercity Passenger Rail (HSIPR) Program requirements (including the American Recovery and Reinvestment Act of 2009 (ARRA) requirements).
DBE/SBE Requirements	The Contract will address DBE/SBE requirements. . Contractor shall comply with the Authority SBE Policy and Plan goal of 30% small business participation. Contractor shall also comply with 41 C.F.R Part 60, 49 C.F.R. Part 26, Executive Order 11246 and Title VI of the Civil Rights Act of 1964.

2. Work	
General Responsibility	Contractor will be solely responsible for all materials, services and efforts necessary to achieve Final Acceptance on or before the Final Acceptance Deadline, and such materials, services and efforts are included in the Contract Price, except as otherwise specifically provided in the Contract Documents.
Design Liability	Construction Packages #1A (not including Construction Package #1A Option 1) and #1B will include Preliminary Design to approximately 30% and Construction Packages #1A Option 1 and #1C will include Preliminary Design to approximately 15%. Contractor assumes full responsibility and liability with respect to design of the Project, including identifying and correcting any errors, omissions, inconsistencies or other defects in the Preliminary Design, if Contractor chooses to follow the Preliminary Design.
Standards	Contractor will design and construct the Project in conformity with the HSR Design Criteria Manual (subject to any variances requested by Contractor and approved by Authority during the procurement). The design will conform to all professional engineering principles generally accepted as standards of the industry in the State, will be suitable for its intended purpose and will be free of defects. Construction will be performed in a workmanlike manner and will conform to the standards of care and diligence normally practiced by recognized construction firms performing construction of a similar nature in the State.
Permits and Approvals	Authority has obtained or will obtain the following permits and governmental approvals (Authority-Provided Approvals): 1. Merced to Fresno EIR/EIS 2. Fresno to Bakersfield EIR/EIS Contractor will be responsible for obtaining all other permits and governmental approvals, including final versions of any draft approvals obtained by Authority. Contractor will comply with all conditions imposed by and undertake all actions required by and all actions necessary to maintain in full force and effect all permits and governmental approvals, except to the extent that such responsibility is expressly assigned in the Contract to another Person.
Right of Way (ROW)	Authority will obtain the ROW identified in the ROW acquisition plan incorporated in the Contract by the deadlines provided in the ROW acquisition plan. Contractor must agree to the ROW acquisition plan and must certify that the Contractor is able to construct the Project in accordance with the ROW acquisition plan. Contractor may be entitled to a Change Order for additional costs and a time extension, including overhead, profit and delay damages, due to failure of Authority to provide a parcel by the specified deadline. The Contractor will work proactively with the Authority's representative to resolve right-of-way acquisition plan changes and to adjust its construction schedule to accommodate these changes. 1. Contractor may request additional ROW and temporary construction interests in its Proposal. To the extent Authority concurs, Authority will acquire such additional property. The additional property will be

	factored in Authority's evaluation of the Proposal. - Contractor may request additional ROW during the term of the Contract. If Authority determines that such additional ROW is necessary to build the Project, then Authority will acquire such additional property. - Contractor may request additional ROW as part of a Value Engineering Change Proposal (VECP), in which case the additional ROW costs will be addressed as part of the VECP. In this case, Contractor will be required to provide surveys, appraisals and other documentation to allow Authority to proceed with the acquisition. - If additional ROW is necessary as a result of an Authority-directed change, the additional ROW costs will be addressed in the Change Order for the Authority-directed change. Contractor is responsible for acquiring, at its cost, any temporary construction interests not requested in its Proposal. Authority will require up to 24 months to acquire any ROW not identified on the ROW acquisition plan.
Utilities	Contractor is responsible for removing, relocating or otherwise adjusting all Utilities as needed for the Project, except where the applicable master agreement assigns such work to the Utility Owner. Contractor is also responsible for reimbursing relocation work by Utility Owners having "prior rights" (i.e., the legal right to reimbursement for relocation work) and collecting payments owing from Utility Owners. It is anticipated that master agreements will be in place with all impacted Utility Owners before the Proposal due date. Contractor's costs for certain relocations will be chargeable against the Utility/Third Party Provisional Sum (whether incurred for work performed by Contractor or for reimbursing a Utility Owner for its work). All other such costs are included in the Contract Price, except where the Utility Owner does not have prior rights (in which case Contractor will collect reimbursement directly from the Utility Owner). If Contractor's allowable costs exceed the Utility/Third Party Provisional Sum, Authority will reimburse Contractor for 50% of the excess. Authority will retain any positive balance remaining in the Utility/Third Party Provisional Sum after Project completion. The Utility/Third Party Provisional Sum is subject to increase as provided in the "Utilities" provision under Section 3 (Change Orders) below. A draft Task Order will be included in the RFP for each identified Relocation. Cost liability for each Relocation will be determined by Authority and the Utility Owner and indicated in the draft Task Orders. Contractor will also be able to rely on certain other information in the draft Task Orders. See the "Utilities" provision under Section 3 (Change Orders) below for information regarding Change Orders.
Third Party Agreements	Authority anticipates executing agreements with public agencies regarding non-utility facilities by June 2012. The Contract will address Contractor's obligations regarding those agreements. Generally, the Contractor will be responsible for fulfilling the Authorities obligations under the agreements with the Authority continued participation.

Railroad Agreements	Authority anticipates executing agreements with railroads by June 2012. The Contract will address Contractor's obligations regarding those agreements. Generally, the Contractor will be responsible for fulfilling the Authorities obligations under the agreements with the Authority continued participation.
Hazardous Materials	Contractor is responsible for remediating any hazardous materials discovered on the Site. See the "Hazardous Materials" provision under Section 3 (Change Orders) below for information regarding Change Orders. As between Contractor and Authority, Authority will be considered the generator and arranger for hazardous materials other than hazardous materials brought onto the Site by any Contractor-Related Entity or hazardous materials where the removal or handling involved negligence, willful misconduct or breach of contract by any Contractor-Related Entity. Whenever Authority has such arranger liability, Contractor's remediation plans will be subject to the prior written approval of Authority and Authority will have exclusive decision-making authority regarding selection of the destination facility to which such hazardous materials will be transported. Authority will comply with the applicable standards for generators and arrangers with regard to such hazardous materials, including the responsibility to sign manifests for the transport of hazardous wastes. Authority will indemnify, save, protect and defend Contractor from third party claims, causes of action and losses arising out of or related to generator or arranger liability for such hazardous materials. As between Contractor and Authority, Contractor will be considered the generator and arranger for hazardous materials brought onto the Site by any Contractor-Related Entity or hazardous materials where the removal or handling involved negligence, willful misconduct or breach of contract by any Contractor-Related Entity.
Nonconforming Work	Authority may require nonconforming Work to be remedied, removed or replaced. Contractor is responsible for taking all necessary actions to close out any non-conformances to the satisfaction of Authority. Authority may, but is not obligated to, accept nonconforming Work without requiring it to be fully corrected, in which case the Contract Price will be decreased accordingly.
Verification and validation	Contractor is required to implement a verification and validation management plan following the principals of EN50126. As part of self-certification the Contractor shall engage a qualified Independent Checking and Site Engineer to verify and validate each of the Contractor's submissions to the Authority. The ICSE will report to the Authority.
Quality	Contractor is required to establish and implement an Authority-approved Quality Management Plan following the principals of ISO 9001, including quality assurance and quality control. Authority may: 1. Audit Contractor, at any time, to verify and validate compliance with Contractor's Quality Management Plan; 2. Witness any quality control or quality assurance test, acceptance test or inspection; and 3. Conduct independent tests and/or assessments of any material or equipment to be incorporated in the Work.

3. Change Orders	
Change Orders	An Authority signed Change Order or directive order is required for any Contract Price increase or time extension. Authority may issue a unilateral directive order and Contractor will proceed immediately with the Work as directed in the order, pending the execution of a formal Change Order (or, if the order states that the Work is within the original scope of the Work, Contractor will proceed with the Work as directed but will have the right pursuant to the disputes provision to request that Authority issue a Change Order with respect to the order). Contractor may request a Change Order only for those events and situations that the Contract Documents expressly contemplate that a Change Order is permitted. Contractor is required to provide prompt notice of the event or situation followed by a Change Order proposal including the anticipated price impacts, time impacts, scope of work and any changes to the Contract Documents. Each Change Order proposal must contain a sworn certification by Contractor (and Subcontractor(s), for any Subcontractor involved in the Work or event contemplated by the Change Order) including that the Change Order is made in good faith and in accordance with the terms of the Contract, the amount of time and/or compensation requested accurately reflects the appropriate adjustments and includes all known and anticipated impacts that may be incurred as a result of the event giving rise to such proposed change. Each Change Order proposal involving Subcontractor Work must include a sworn certification including that Contractor has investigated the basis for the Subcontractor's claims and has determined that all such claims are justified as to entitlement and amount of money and/or time requested. Change Orders are subject to strict procedural requirements, including requirements regarding timely notice of the event or situation giving rise to a Change Order.
Authority-Directed Changes	Authority may at any time require Contractor to make changes to the Work or its schedule. Contractor may be entitled to a Change Order for additional costs and a time extension, including delay damages, overhead and profit, resulting from the changes.
Differing Site Conditions	Contractor may be entitled to a Change Order for additional costs and a time extension, excluding delay damages but including overhead and profit, due to Differing Site Conditions. Differing Site Conditions are defined as: 1. Subsurface or latent physical conditions encountered at the exact boring locations included in the Contract that differ materially from those indicated for such locations in the Contract; or 2. Unknown physical conditions at the Site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract. Differing Site Conditions exclude: 1. Conditions which Contractor had, or should have had, actual or constructive knowledge as of the Proposal due date.

	2. Utility facilities, hazardous materials, non-contaminated water and any conditions which constitute or are caused by Force Majeure. 3. Conditions that could have been discovered by reasonable Site investigation or review of other available information prior to the Proposal due date. 4. Variations in soil moisture content or groundwater levels from that represented in reports, borings or tests included in the Contract.
Force Majeure	Contractor may be entitled to a Change Order for additional costs directly attributable to changes in the Work and a time extension, including overhead and profit on any actual damages but excluding delay damages, due to Force Majeure. Force Majeure is defined as any of the following events, provided it is beyond the control and not due to an act or omission of Contractor or Authority and could not have been avoided by due diligence or use of reasonable efforts by Contractor: 1. Earthquake exceeding 3.5 on the Richter scale; 2. Tidal wave; 3. Epidemic, blockade, rebellion, war, riot, act of terrorism or civil commotion; 4. Discovery at, near or on the Site of any archaeological, paleontological, cultural, biological or other protected resources, provided that the existence of such resources was not disclosed in the Contract; 5. Lawsuit seeking to restrain, enjoin, challenge or delay construction of the Project or the granting or renewal of any governmental approval of the Project; and 6. Strike, labor dispute, work slowdown, work stoppage, secondary boycott, walkout or other similar occurrence occurring within the vicinity of the Project where each participant in such occurrence is not a Contractor-Related Entity. Force Majeure excludes: a. Fire or other physical destruction or damage, including lightning, explosion, drought, rain, flood, earthquakes equal to or under 3.5 on the Richter scale, hurricane, storm or action of the elements or other acts of God; b. Except as provided in subparagraph 3 above, explosion or malicious or other acts intended to cause loss or damage or other similar occurrence; c. Strike, labor dispute, work slowdown, work stoppage, secondary boycott, walkout or other similar occurrence (unless all participants in such occurrence are not a Contractor-Related Entity); and d. All other matters not caused by or beyond the control of Authority or a Contractor-Related Entity and not listed in subparagraphs 1 through 6 above. Refer to the Builder's Risk Policy described in the "Insurance" provision under Section 6 (Security, Indemnities, Insurance, Maintenance, Risk of Loss, Warranties) below.

Permits and Approvals	Contractor may be entitled to a Change Order for additional costs and a time extension, excluding delay damages but including overhead and profit, due to: 1. Changes in the final Authority-Provided Approvals from the draft requirements included in the RFP. 2. Suspension, termination, interruption, nonrenewal, denial, or failure to obtain any Authority-Provided Approval (except for modifications to such approvals or any new such approvals required to allow Contractor's design concepts to be incorporated into the Project).
Change in Law	Contractor may be entitled to a Change Order for additional costs and a time extension, excluding delay damages but including overhead and profit on actual damages, due to a change in one or more applicable laws or the adoption of a new law after the date 30 days prior to the Proposal due date, excluding the following: 1. Changes in law proposed or otherwise reasonably foreseeable 30 days prior to the Proposal due date. 2. Changes in law relating to taxes. 3. Changes in law that do not require a material modification in the Work or do not require Contractor to obtain a new major environmental approval (unless the Project or Contractor is specifically targeted by the change in law).
Utilities	Contractor may be entitled to a Change Order for additional costs resulting from certain inaccuracies in the RFP regarding existing utilities, provided that if Contractor fails to discover the inaccuracy during the first 180 days following NTP-1 (for the Base Work), NTP-SO1 (for Scope Option 1 Work) or NTP-SO2 (for Scope Option 2 Work), Contractor is entitled to receive only 50% of its increased costs. To the extent Contractor discovers inaccuracies within such 180-day period regarding utilities addressed by the Utility/Third Party Provisional Sum, the Utility/Third Party Provisional Sum will be increased by mutual agreement to reflect any resulting additional costs. (See the "Notice to Proceed" provision under Section 5 (Commencement of Work; Completion Deadlines) below.) Contractor is entitled to overhead and profit but is not entitled to delay damages and disruption damages other than damages for idle time of undepreciated or rented equipment. Contractor may be entitled to a time extension for delays resulting from: 1. Inaccuracies regarding Utilities which entitle Contractor to additional compensation. 2. A Utility Owner's failure to complete any relocation task by the applicable deadline to the extent there is no executed task order, in which case the Contract will provide that the parties share the risk 50/50. To the extent there is an executed task order, Contractor will not be entitled to a time extension under the Contract (although Contractor may be entitled to relief under the executed task order). There will be no change in compensation, nor any time extension, for any of the following: a. Reallocation of responsibility for relocation work between Contractor and a Utility Owner. b. Any Betterments (provided that Contractor will be entitled to collect

	compensation for any added Betterments directly from the Utility Owner). c. Contractor's increased relocation costs for performing work or reimbursing Utility Owners for their work resulting from a Contractor-initiated change in the Project design.
Hazardous Materials	Contractor may be entitled to a Change Order for its direct remediation costs, excluding overhead, delay damages and profit, and a time extension, in the event Contractor encounters any hazardous materials. To the extent the hazardous materials are within a category for which unit prices were provided in the Proposal, if any, compensation will be based on the unit prices. The following are excluded: 1. Investigation or characterization of hazardous materials or preparation of a remediation plan. 2. Hazardous materials brought onto the Site by any Contractor-Related Entity or hazardous materials where the removal or handling involved negligence, willful misconduct or breach of contract by any Contractor-Related Entity. 3. Hazardous materials that could have been avoided by reasonable design modifications or construction techniques. 4. Hazardous materials on additional properties requested by Contractor. 5. Hazardous materials (including lead and asbestos) encountered during the demolition of buildings, fixtures or other improvements on the Site.
Profit and Overhead	Profit and overhead will be paid at 10% of the direct costs plus, if the Work is subcontracted, 5% of the direct costs, regardless of the number of lower-tier subcontractors involved in any and all changed Work. This amount will fully compensate Contractor (and all subcontractors) for administration, general superintendence, overhead, profit and all other expenses not otherwise directly recoverable with respect to a Change Order.
Limitation on Contract Price Increases	Any increase in the Contract Price will exclude: 1. Costs caused by breach of contract or fault or negligence, or act or failure to act of any Contractor-Related Entity. 2. Costs which could reasonably have been avoided by Contractor, including by resequencing, reallocating, or redeploying its forces to other portions of the Work or to other activities unrelated to the Work (including any additional costs reasonably incurred in connection with such reallocation or redeployment). 3. Costs for (a) any rejected Work that failed to meet the requirements of the Contract Documents and (b) any necessary remedial Work.
Limitation on Time Extensions	Any extension of a Completion Deadline will exclude any delay to the extent that it: 1. Did not impact the Critical Path affecting a Completion Deadline. 2. Was due to the fault or negligence, or act or failure to act of any Contractor-Related Entity. 3. Could reasonably have been avoided by Contractor, including by resequencing, reallocating or redeploying its forces to other portions of the Work (provided that if the request for extension involves an

	Authority-caused delay, Authority shall have agreed, if requested to do so, to reimburse Contractor for its costs incurred, if any, in resequencing, reallocating, or redeploying its forces). 4. Was concurrent with any other delay for which Contractor is not entitled to an extension. Contractor will be required to demonstrate to Authority's satisfaction that the change in the Work or other event or situation which is the subject of a Change Order seeking a change in a Completion Deadline has caused or will result in an identifiable and measurable delay of the Work which has impacted the Critical Path activity affecting a Completion Deadline. Before March 1, 2017, only those events and situations that the Contract Documents expressly contemplate that a time extension is permitted are eligible for extension of the Completion Deadlines. On or after March 1, 2017, only Authority-caused delays are eligible for extension of the Completion Deadlines.
Delay Damages and Disruption Damages	Contractor is entitled to reimbursement of delay damages only for those events and situations that the Contract Documents expressly contemplate that delay damages are permitted, generally consisting of those events and situations caused by Authority. Delay damages are limited to direct costs actually and reasonably incurred by Contractor directly attributable to the delay of the Completion Deadline. Home office overhead is excluded from delay damages and not compensable under the Contract. Before Contractor may obtain any increase in the Contract Price to compensate for any delay damages, Contractor must demonstrate to Authority's satisfaction that: 1. The Project Schedule in fact sets forth a reasonable method for completion of the Work. 2. The change in the Work or other event or situation that is the subject of the requested Change Order has caused or will result in an identifiable and measurable delay of the Work and impact the Critical Path affecting the Completion Deadline. 3. The Delay Damage was not due to any breach of contract or fault or negligence, or act or failure to act of any Contractor-Related Entity, and could not reasonably have been avoided by Contractor, including by resequencing, reallocating or redeploying its forces to other portions of the Work or other activities unrelated to the Work (subject to reimbursement for additional costs reasonably incurred in connection with such reallocation or redeployment). 4. The delay for which compensation is sought is not concurrent with any other delay for which Contractor is not entitled to delay damages. 5. Contractor has suffered or will suffer actual costs due to such delay, each of which costs shall be documented in a manner satisfactory to Authority. Disruption Damages, whether from a single event or continual, multiple or repetitive events, are not allowed or recoverable under the Contract (except as stated above for certain utility-related delays). Disruption Damages include costs of (i) rearranging Contractor's Work plan not associated with an extension of a Completion Deadline and (ii) loss of efficiency, momentum or productivity.

	Contractor may also be entitled to compensation for idle time of certain equipment as described in the “Utilities” provision of this Section 3 (Change Orders) above.
Alternative Technical Concepts	Contractor will be solely responsible for obtaining third party approvals required to implement approved Alternative Technical Concepts. If Contractor fails to obtain such approval or if it fails in any other way to implement the approved Alternative Technical Concepts, Contractor will comply with the corresponding baseline requirements without any increase in the Contract Price or extension of Completion Deadlines.
Value Engineering	Contractor may submit, for approval by Authority, Value Engineering Change Proposals (VECPs) that would reduce the cost of the Project without impairing essential functions or characteristics of the Project as determined by Authority. VECPs cannot be based solely on a change in quantities. Authority and Contractor will share any cost savings on a 50/50 basis. Note: if additional ROW is required by a VECP, or ROW requirements are reduced, that will be factored into the savings sharing.
4. Payment	
Contract Price	The lump sum firm fixed Contract Price will be determined through the procurement.
Provisional Sums	The Utility/Third Party Provisional Sum is the amount of \$_____ [to be provided]. Refer to the “Utilities” provision under Section 2 (Work) above. The Community Betterments Provisional Sum is the amount of \$_____ [to be provided]. Authority will have the option to use the Community Betterments Provisional Sum through Authority-directed changes.
Warranty Options	Refer to the “Warranties” provision under Section 6 (Security, Indemnities, Insurance, Maintenance, Risk of Loss, Warranties) below.
Scope Options	Authority may exercise two options to include the corresponding scope in the Project by issuing a notice to proceed for each option (see the “Notice to Proceed” provision under Section 5 (Commencement of Work; Completion Deadlines) below): 1. Scope Option 1: Construction Package #1B. 2. Scope Option 2: Construction Package #1C. The option prices will be determined through the procurement.
Retainage	Retainage will be withheld under the Contract at the rate of 5% of all invoices paid up to a cap of \$10,000,000.00.
Cash Flow Curve	The Cash Flow Curve established by the Proposal constitutes a cap on cumulative milestone payments. Payment of any amounts included in an invoice which exceed the maximum aggregate amount payable under the Cash Flow Curve will be deferred (without interest) until funds are available under the Cash Flow Curve. The Contract will provide a process for the Contractor to propose changes annually to the Cash Flow Curve for Authority approval.
Payment Milestones	Payment will be made monthly based on 100% completed milestones. Contractor shall determine and describe the payment milestones in its proposal.

5. Commencement of Work; Completion Deadlines	
Notice to Proceed	Contractor will not proceed with any Work under the Contract without a written notice to proceed for such Work from Authority. Any Work performed or expenses incurred by Contractor prior to Contractor's receipt of a written notice to proceed for such Work is Contractor's risk. 1. NTP-1 authorizes Work on Construction Package #1A (including Construction Package #1A Option 1) (Base Work). 2. NTP-SO1 authorizes Work on Construction Package #1B (Scope Option 1 Work). 3. NTP-SO2 authorizes Work on Construction Package #1C (Scope Option 2 Work). Authority may issue NTP-1 within 180 days after the Proposal due date without escalation and Authority may issue NTP-1 between 180 days and 360 days after the Proposal due date upon application of a prescribed escalation that will be set forth in the RFP (except to the extent that such failure is caused by Contractor). Either party may terminate the Contract if NTP-1 has not been issued within 360 days after the Proposal due date. The Contract will contain deadlines by which Authority must issue NTP-SO1 and NTP-SO2 if it desires to exercise those scope options for the prices set forth in the Proposal.
Prerequisites for Start of Construction	Contractor will not start construction of any portion of the Project until all the following prerequisites have been fully satisfied with respect to the Work proposed to be constructed: 1. Authority has issued NTP-1 (for Base Work), NTP-SO1 (for Scope Option 1 Work) or NTP-SO2 (for Scope Option 2 Work). 2. All governmental approvals necessary for construction of such portion of the Project have been obtained and all conditions of such governmental approvals that are a prerequisite to commencement of such construction have been performed. 3. All insurance policies, OCIP enrollments and payment and performance bonds required to be delivered to Authority under the Contract have been submitted to Authority and remain in full force and effect. 4. All necessary rights of access for such portion of the Project have been obtained. 5. Released for construction documents have been issued for that portion of the Work. 6. Any additional conditions for construction set forth in the Contract have been fully satisfied.
Completion Deadlines	Substantial Completion generally consists of completion of all physical Work other than punch list items and that the Project can be used without damage to the Project or any other property on or off the Site, and without injury to any Person. The Substantial Completion Deadline is 36 months after NTP-1. Final Acceptance consists of completion of all Work including all punch list items and documentation. The Final Acceptance Deadline is 38 months after NTP-1.

Liquidated Damages	Liquidated damages will be assessed if Contractor fails to achieve Final Acceptance by the Final Acceptance Deadline as follows: 1. Before March 1, 2017: \$20,000/day 2. On or after March 1, 2017: \$1 million/day Liquidated damages will be subject to a cap equal to 10% of the initial Contract Price. Assessment of liquidated damages for delay will not preclude Authority from exercising its other rights and remedies set forth in the Contract other than the right to collect damages associated with such delay.
Float	Float belongs to the Contractor.
6. Security, Indemnities, Insurance, Maintenance, Risk of Loss, Warranties	
Surety Bonds	A payment bond in the amount of 100% of the sum of the Contract Price and all Provisional Sums and a performance bond in the amount of 50% of the sum of the Contract Price and all Provisional Sums are required upon execution of the Contract.
Guaranty	If Contractor is a limited liability company, each limited liability company member will be required to provide a guaranty of Contractor's obligations. If Contractor or its members submitted parent company financial statements in response to the RFQ or RFP, each such parent company will be required to provide a guaranty of Contractor's obligations. Authority may also require an additional performance guaranty based on the financial information provided in response to the RFQ or RFP. The guaranty will require the guarantor to financially support, unconditionally, all obligations of Contractor under the Contract during the Contract term, including the warranty period(s).
Indemnities	Contractor will fully defend, indemnify and hold harmless Authority and all of its directors, officers, employees, and agents and their respective successors and assigns ("Indemnified Persons") from any and all claims, demands, causes of action, damages, losses, and expenses (including attorney's fees) of whatsoever nature, character, or description that any person or entity has or may have arising out of or related to: 1. The breach of, alleged breach of, failure to perform or alleged failure to perform the Contract, including without limitation breach of warranty, by any Contractor-Related Entity; 2. The failure or alleged failure by any Contractor-Related Entity to comply with any applicable laws; 3. The negligent act, omission, misconduct, or fault, or the alleged negligent act, omission, misconduct, or fault of any Contractor-Related Entity; 4. Any service or design, or product called for in any service or design, provided by any Contractor-Related Entity that infringes or allegedly infringes any patent, copyright, trademark, service mark, trade dress, utility model, industrial design, mask work, trade secret or other proprietary right of a third party; 5. Any and all claims by any governmental or taxing authority claiming taxes based on gross receipts, purchases or sales, the use of any

	property or income of any Contractor-Related Entity with respect to any payment for the Work made to or earned by such Contractor-Related Entity under the Contract Documents; 6. Any and all stop notices and/or liens filed in connection with the Work, including all expenses and attorneys' fees incurred in discharging any stop notice or lien, provided that Authority is not in default in payments owing to Contractor with respect to such Work; 7. Any release or threatened release of hazardous materials (a) brought onto the Site by any Contractor-Related Entity or (b) where the removal or handling involved negligence, willful misconduct or breach of contract by any Contractor-Related Entity; or 8. The claim or assertion by any contractor of inconvenience, disruption, delay or loss caused by interference by any Contractor-Related Entity with or hindering the progress or completion of work being performed by other contractors or failure of any Contractor-Related Entity to cooperate reasonably with other contractors. Contractor will fully defend, indemnify and hold harmless the Indemnified Persons from any and all claims, demands, causes of action, damages, losses, and expenses (including attorney's fees) of whatsoever nature, character, or description that any person or entity has or may have arising out of or related to errors, omissions, inconsistencies, inaccuracies, deficiencies or other defects in the design documents, regardless of whether such errors, omissions, inconsistencies, inaccuracies, deficiencies or other defects were also included in the Preliminary Design. Contractor will acknowledge that the Preliminary Design does not constitute "design furnished" by Authority for purposes of anti-indemnity laws.
Insurance	Authority will procure a project professional liability insurance policy in the amount of \$25,000,000 that covers the professional duties, services and activities required under the Contract. Participation in this program is mandatory for Contractors and Subcontractors at all tiers who are performing professional duties, services or activities, or who have a pollution legal liability exposure that is covered by this policy. Authority will provide an Owner Controlled Insurance Program (OCIP) for Work performed on the project site: 1. General Liability Policy. Limits of \$2,000,000 per occurrence and \$4,000,000 annual aggregate. Contractor or Subcontractor of any tier making a claim under the General Liability Policy will be responsible for the deductible of \$10,000 per occurrence. 2. Workers' Compensation and Employer's Liability Insurance. Statutory limits on Workers' Compensation Insurance and Employer Liability Limits of: - \$1,000,000 Bodily Injury with Accident – Each Accident - \$1,000,000 Bodily Injury by Disease – Policy Limit - \$1,000,000 Bodily Injury by Disease – Each Employee Authority will provide a Builder's Risk Policy with limits of the replacement cost. Contractor or Subcontractor at any tier making a claim under the Builders' Risk Policy will be responsible for the deductible of \$100,000 per occurrence per location (or pro rata share thereof). Authority reserves the right to terminate or modify any insurance provided

	upon providing 45 days advance written notice to Contractor and each Subcontractor. Upon any termination or modification, Contractor and each Subcontractor will be required to obtain replacement insurance coverage acceptable to Authority. In such event, Contractor will be entitled to a Change Order for the reasonable cost of the replacement insurance. Contractor is required to provide the following insurance: 1. Automobile Liability Insurance. Limits of: - \$1,000,000 Bodily Injury – Per Person - \$2,000,000 Bodily Injury – Per Accident - \$1,000,000 Property Damage – Per Accident - \$2,000,000 Combined Single Limit 2. Workers' Compensation and Employer's Liability Insurance for non-OCIP workers. Statutory limits on Workers' Compensation Insurance and Employer Liability Limits of: - \$1,000,000 Bodily Injury with Accident – Each Accident - \$1,000,000 Bodily Injury by Disease – Policy Limit - \$1,000,000 Bodily Injury by Disease – Each Employee 3. Commercial General Liability Insurance for occurrences outside of OCIP. Combined Bodily Injury and Property Damage Limit of \$1,000,000 per occurrence, \$2,000,000 General Aggregate. 4. Excess/Umbrella Liability Insurance of not less than \$100,000,000 per occurrence in excess of the underlying coverage.
Maintenance / Risk of Loss During Construction	Contractor is responsible for maintenance and risk of loss of the Project. Refer to the Builder's Risk Policy described in the "Insurance" provision above.
Warranties	Contractor warrants that: 1. The Work conforms to the requirements of the Contract. 2. All design Work conforms to all professional engineering principles generally accepted as standards of the industry in the State, is suitable for its intended purpose and is free of errors, omissions, inconsistencies, inaccuracies, deficiencies or other defects. 3. The construction Work is performed in a workmanlike manner and conforms to the standards of care and diligence normally practiced by recognized construction firms performing construction of a similar nature in the State. 4. Materials and equipment furnished under the Contract, except Authority-furnished property, are of good quality and, except if otherwise set forth in the Contract, when installed, is new. 5. The Project is fit for the purposes intended. 6. The Project remains in the same condition as it is in at Final Acceptance excluding normal wear and tear and any damage caused by other contractors working at the Site. The initial warranty period commences upon Substantial Completion and continues for a period of two years from Final Acceptance. Authority has five options to extend the warranty period by one year for each option. The warranty option prices will be determined through the

	procurement. Authority will exercise its warranty options, if at all, prior to the expiration of the initial two year warranty. The warranties on any repair or replacement will extend beyond the original warranty period if necessary to provide at least a one-year warranty period from the date of acceptance of the repairs or replacement. Upon Final Acceptance, the Contractor will have the right to replace the performance bond with a replacement bond in the amount of 10% of the sum of the Contract Price and all Provisional Sums in a form satisfactory to the Authority in its sole discretion guaranteeing due and punctual performance of Contractor's obligations under the Contract that survive Final Acceptance, or with such other security as is approved by Authority in its sole discretion. Contractor's and Subcontractors' warranties are assignable by Authority immediately upon providing written notice to Contractor.
7. Defaults, Remedies, Suspensions, Terminations	
Contractor Defaults	1. Contractor refuses or fails to commence the Work within the time required by the Contract. 2. Contractor refuses or fails to prosecute the Work or any separable part in accordance with the Contract Documents and with the diligence that will ensure its completion within the time specified in the Contract. 3. Contractor refuses or fails to provide sufficient resources to complete the Work in an acceptable manner and without delay or promptly pay its Subcontractors. 4. Contractor refuses or fails to complete the Work within the time specified in the Contract. 5. Contractor assigns or transfers the Contract Documents or any right or interest therein, except as expressly permitted in the Contract. 6. Contractor or any guarantor becomes insolvent, generally does not pay its debts as they become due, admits in writing its inability to pay its debts, or makes an assignment for the benefit of creditors. 7. Insolvency, receivership, reorganization or bankruptcy proceedings shall have been commenced by or against Contractor or any guarantor and not dismissed within 60 days. 8. Contractor fails to provide and maintain the performance and payment bonds, any guaranty and the insurance as required hereunder. 9. Any material representation or warranty made by Contractor or any guarantor in the Contract Documents or in any certificate, schedule, instrument or other document delivered pursuant to the Contract Documents is false or materially misleading when made. 10. Contractor violates any law in performance of the Work. 11. Any guarantor revokes or attempts to revoke its obligations under its guaranty, or otherwise takes the position that such instrument is no longer in full force and effect. 12. Contractor breaches any other agreement, representation or warranty contained in the Contract Documents, or Contractor fails to perform any other obligation under the Contract Documents.
Cure Periods	Contractor and its surety under the performance bond is entitled to the

	following notice and cure periods: 1. No notice or cure period with respect to a breach described under paragraphs 9, 10 and 11 of the “Contractor Defaults” provision above. 2. 30-day cure period with respect to a breach described under paragraphs 1 through 8 and 12 of the “Contractor Defaults” provision above. If Contractor is unable to cure the applicable default within the time period specified, but in Authority’s reasonable determination (i) Contractor has diligently and continuously undertaken efforts to cure such default and (ii) such failure to cure is beyond the control of Contractor, Authority may extend the cure period in accordance with its discretion up to 60 days.
Authority Remedies	Upon an event of default, Authority may terminate Contractor’s right to proceed with the Work or Authority may take over the Work and complete it by contract or otherwise. The rights and remedies of Authority provided for under the Contract are in addition to any other rights and remedies provided by law.
Consequential Damages	Contractor and Authority will not be liable for punitive damages or special, indirect or incidental consequential damages, whether arising out of breach of the Contract, tort (including negligence) or any other theory of liability, and each party releases the other party from any such liability. The foregoing limitation on liability for consequential damages will not apply to or limit any right of recovery respecting the following: 1. Losses (including defense costs) to the extent covered by (a) the proceeds of insurance required to be carried under the Contract or (b) the proceeds of insurance actually carried by or insuring Contractor under policies solely with respect to the Project and the Work; 2. Losses arising out of fraud, criminal conduct, intentional misconduct, recklessness, bad faith or gross negligence; 3. Contractor’s or Authority’s indemnities under the Contract; 4. Contractor’s obligation to pay liquidated damages in accordance with the Contract; 5. Specific amounts owing under the express provisions of the Contract; and 6. Losses arising out of releases of hazardous materials by Contractor or Authority.
Suspension	Authority may order Contractor to suspend all or any part of the Work for the period of time that Authority deems appropriate. 1. Suspension for cause. No adjustment will be made for suspensions: - required to correct conditions unsafe for Project personnel or the general public; - required to comply with any governmental approval, law or otherwise carry out the requirements of the Contract; or - to the extent that performance would have been suspended or delayed by any other cause, including the fault or negligence of Contractor for which an equitable adjustment is provided for or excluded under any other provision of the Contract.

	2. Suspension for convenience. Contractor is entitled to a Change Order for additional costs (including overhead and delay damages but excluding profit) and a time extension for suspensions beyond a 240-hour cumulative period.
Termination for Convenience	Authority may, whenever the interests of Authority so require, terminate the Contract, in whole or in part, for the convenience of Authority. Contractor and all Subcontractors will not be entitled to anticipatory or unearned profit or consequential or other damages as a result of a termination or partial termination for convenience.
8. Other Contract Provisions	
Dispute Resolution	Any disputes will be required to go through a formal partnering process and be adjudicated by a dispute resolution board before a party can bring the dispute to binding arbitration. The standing dispute resolution board will consist of one member selected by Authority and approved by Contractor, one member selected by Contractor and approved by Authority, and a third member who will be the chairperson will be selected by the first two members subject to the approval of the parties. Decisions of the dispute resolution board will be binding up to \$1,000,000.00. Disputes not resolved through this process may be submitted to binding arbitration.
Coordination	Contractor will coordinate with Authority and other contractors performing work on or near the Site. Contractor will conduct its Work without interfering with the work being performed by other contractors. If Contractor asserts that any of Authority's other contractors have interfered with the Work, then Contractor's sole remedy will be to seek recourse against such other contractors.
Escrowed Proposal Documents (EPDs)	Contractor's detailed Proposal pricing information will be kept by Authority in a locked cabinet with Contractor controlling the key. The EPDs are available for joint review by Contractor, Authority and the DRB or other dispute resolvers in connection with approval of the schedule of values, negotiation of Change Orders, resolution of disputes and to determine whether the EPDs are complete. Concurrently with submission of quotations or revisions to quotations provided in connection with proposed amendments to the Contract and concurrently with approval of each Change Order, if appropriate, one copy of all documentary information used in preparation of the quotation or Change Order will be added to the cabinet to be held with the other EPDs. Contractor will require each Subcontractor whose Subcontract price equals or exceeds \$5,000,000 to submit to Contractor a copy of all documentary information used in determining its subcontract price, immediately prior to executing the subcontract or change orders or amendments thereto, to be held in the same manner as the EPDs and which shall be accessible by Contractor, Authority, the DRB and other dispute resolvers, on terms substantially similar to those that apply to Contractor. The EPDs will be maintained until: (a) expiration of Contractor's warranties or termination of the Work; (b) all disputes regarding the Contract have been settled; and (c) final payment on the Contract has been made by Authority and accepted by Contractor.

Assignment	Contractor may not assign the Contract, any part of the Contract or any monies due or to become due under the Contract without the prior written approval of Authority. Authority may assign without Contractor's consent all or any portion of the Contract, payment and performance bonds and guaranties to any entity that succeeds to the governmental powers and authority of Authority.
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Resolution # HSRA 12-04

Approval of the Term Sheet, Stipend and RFP scoring criteria for Construction Package # 1

Whereas, the California High-Speed Rail Authority (Authority) may enter into design build contracts with private and public entities pursuant the Public Utilities Code §185036;

Whereas, the Authority is engaged in a procurement process leading to the award of a Design Build contract along the Initial Construction section in the Central Valley from north of the San Joaquin River and south to approximately East American Way through the City of Fresno (Construction Package #1).

Whereas, a Request for Qualifications was issued by the Authority and a shortlist of the most highly qualified Offerors has been established, who may submit proposals for the Construction Package #1.

Whereas, to aid the HSR Authority in the final development of the Request for Proposals (RFP) documents, a term sheet containing a summary of the major material terms and conditions for the Construction Package #1 contract was developed and presented to the Board for approval.

Whereas, the HSR Authority is requesting approval to pay a stipend in the amount up to \$2 million for each acceptable proposal submitted to the Authority by any shortlisted Offeror that is not awarded the contract or in case of termination of the RFP, proven costs not to exceed \$2 million.

Whereas, the HSR Authority is requesting approval of a two-step RFP evaluation criteria to include a technical evaluation resulting in the qualification of three of the five proposer teams followed by a combined technical/price evaluation of these top three proposer teams.

Therefore it is resolved,

The Executive Director/Chief Executive Officer or a designee of the Executive Director/Chief Executive Officer is hereby authorized and directed to proceed with the RFP using the term sheet presented for Construction Package #1, a Design Build Project along the Initial Construction section in the Central Valley which begins north of the San Joaquin River and continues south to approximately East American Way through the City of Fresno.

The Executive Director/Chief Executive Officer is hereby authorized and directed to make appropriate non-substantive changes to the Construction Package #1 RFP terms contained on the term sheet in consultation with the Board Chair as part of the RFP evaluation and contract negotiation process.

The Executive Director/Chief Executive Officer is hereby authorized to include a stipend in the amount of up to \$2 million per proposal as part of the procurement for Construction Package #1 subject to the appropriate conditions set forth in terms of the RFP and above.

The Executive Director/Chief Executive Officer is hereby authorized to use a two-step RFP evaluation process that includes a technical evaluation resulting in the qualification of three of the five proposer teams followed by a combined technical/price evaluation of these top three proposer teams.

Vote:

Date:

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Exhibit H

REQUEST FOR PROPOSALS CONSTRUCTION PACKAGE #1

**March 2012
CHSRA
Board Meeting**

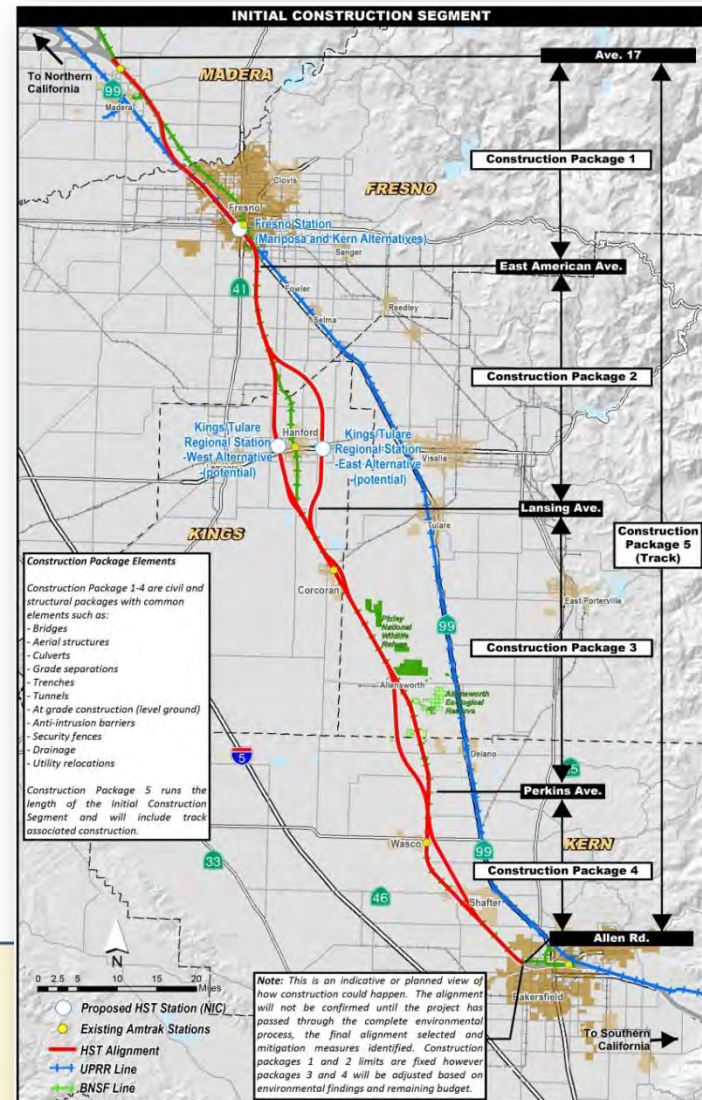


INTRODUCTION

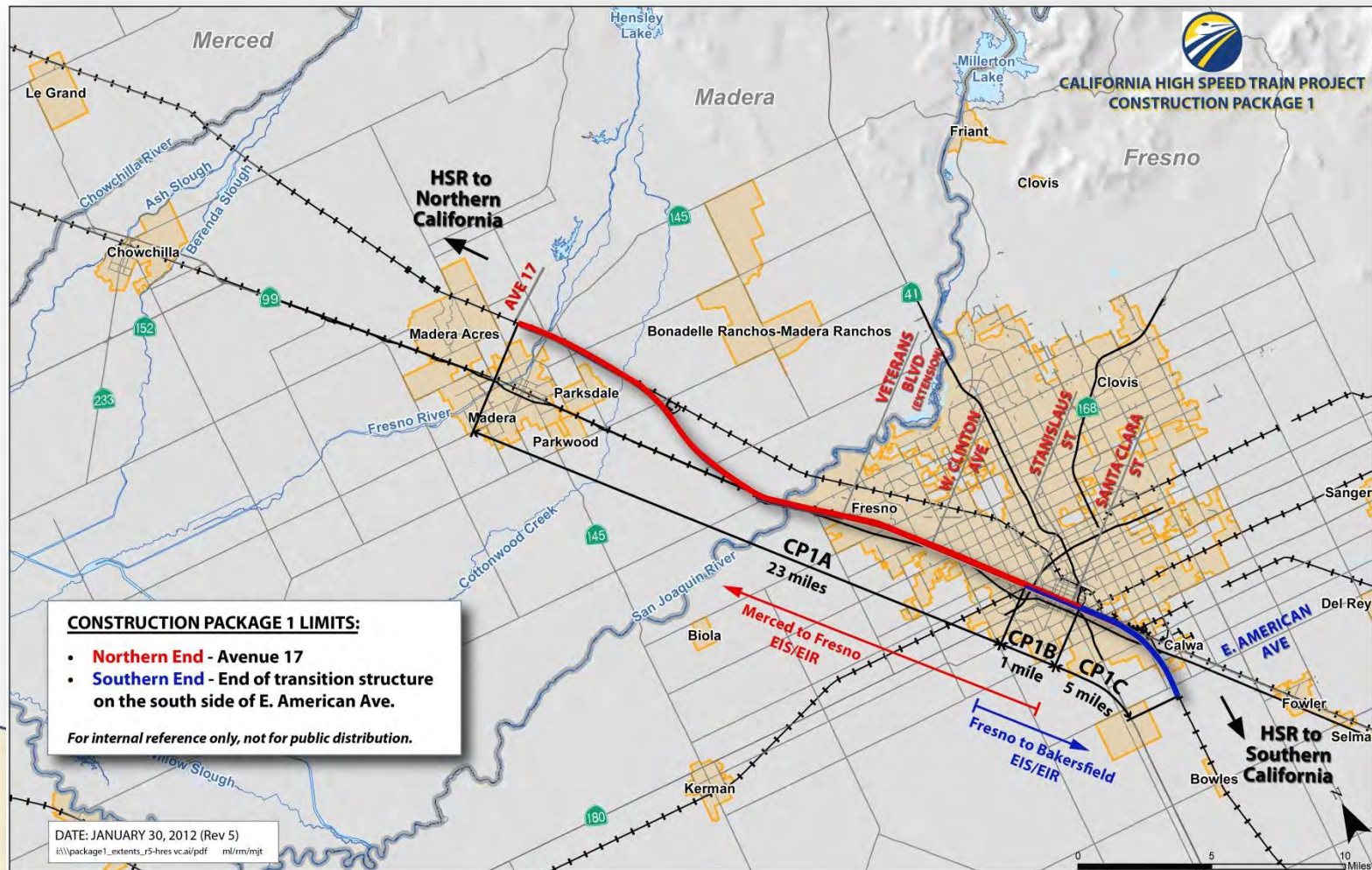
- Design / Build Contract – Construction Package #1
- Legal Authority
- Reasons to Select Design / Build (DB)
- ICS – 5 Construction Packages
- Scope of Construction Package #1 (CP#1)
- Timeline – RFP / Project

INITIAL CONSTRUCTION SEGMENT (ICS)

- Total Miles
 - High: approximately 130
 - Low: approximately 80
- Stations (planned)
 - Fresno
 - Kings Tulare (tentative)

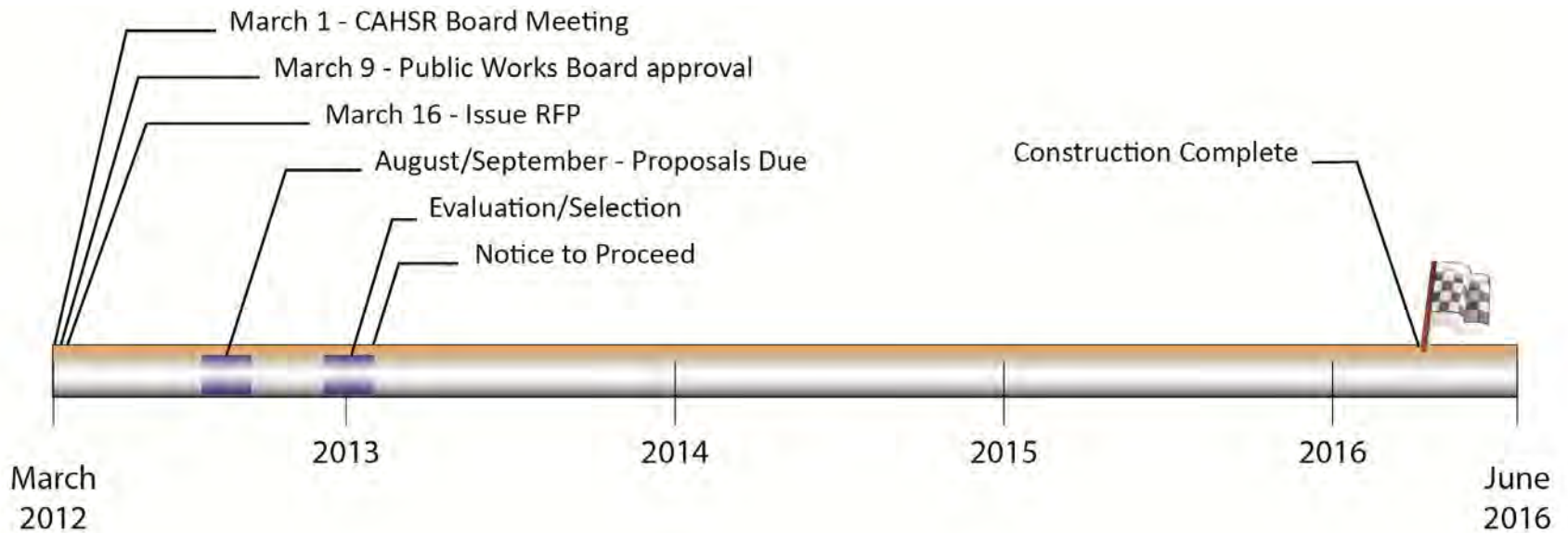


CONSTRUCTION PACKAGE #1*



*Dependent on ROD/NOD

TIMELINE – CONSTRUCTION PACKAGE #1



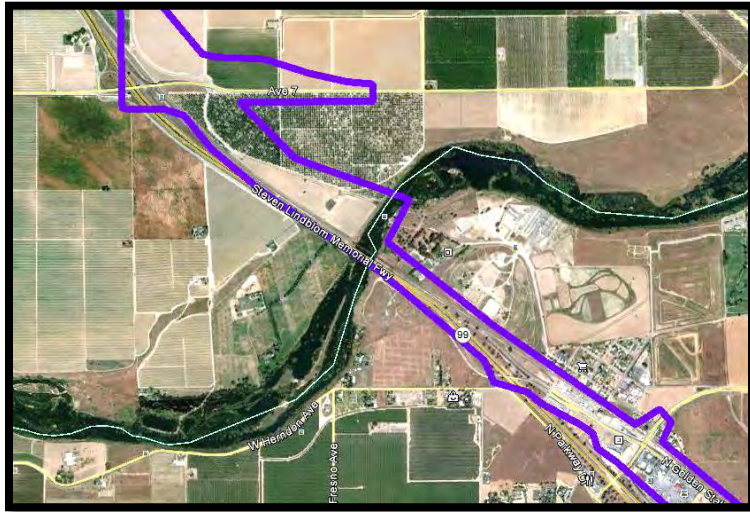
FOLLOWING PRESENTATIONS

- Small Business Enterprise (SBE) Policy / Goal
- Right-of-Way (ROW)
- Engineering
- Legal/Contractual Conditions
- Best-value Selection Technical / Price Weighting Justification
- Stipends
- Board Recommendation

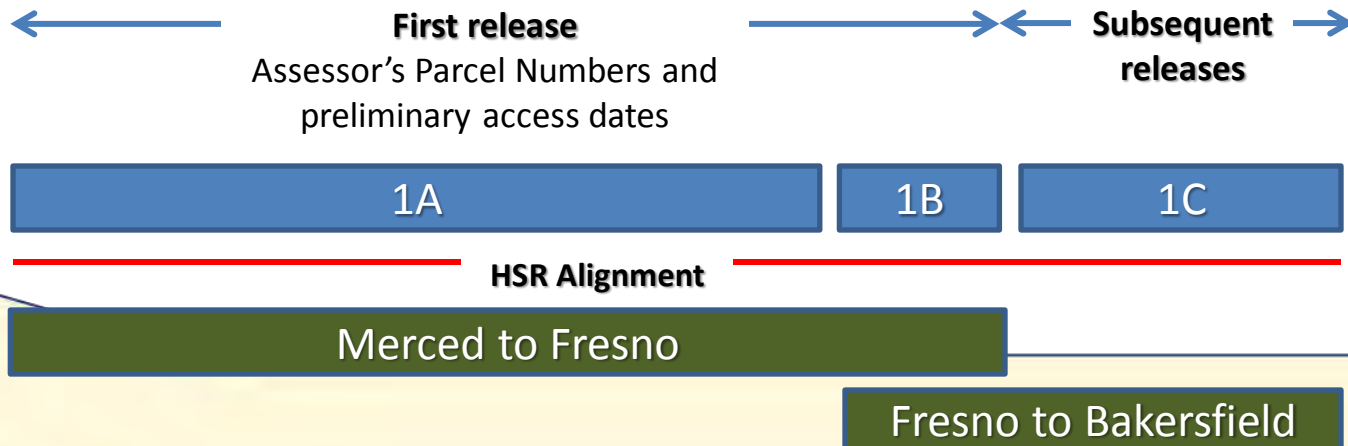
SMALL BUSINESS ENTERPRISE (SBE) POLICY/GOAL

- Small Business Program Plan highlights are:
 - 30% SBE goal; inclusive of DBE, DVBE, and Micro-Businesses
 - Mandatory outreach by primes competing for design build contracts
 - Design Builder (DB) must develop and implement a Small Business Performance Plan to achieve the goal
 - Provides SB with technical assistance to retain SB on project
 - Small Business participation data gathering that captures participation at all tier levels
 - Monthly oversight and monitoring for prompt payment and DB compliance with the Small Business Performance Plan and attainments
 - Complies with Title VI of the Civil Rights Act of 1964

RIGHT-OF-WAY (ROW) – CP#1



- Authority responsible for ROW
- General Provisions include Contractor's requirements for ROW
- ROW Acquisition Plan given to Contractor
- Additional ROW requests from Contractor requires 24 months lead



ENGINEERING

- Preliminary Engineering and Design Criteria provided to Contractors
- Authority retains responsibility for Environmental Approval and Third-party Agreements
- FRA reviewed preliminary engineering submittals
- Contractors have design and construction responsibility to meet performance standards
- Contractor self-certifies design and construction
- Use Alternative Technical Concepts/Value Engineering to incorporate cost-saving proposals

LEGAL / CONTRACTUAL CONDITIONS

- Individual items covered in Term Sheet
- Inclusive development – FRA / DOF / DGS / AG
- Follows Design-Build Institute of America process
- Collaboration with Caltrans
- Public Works Board (PWB) approval sought on March 9

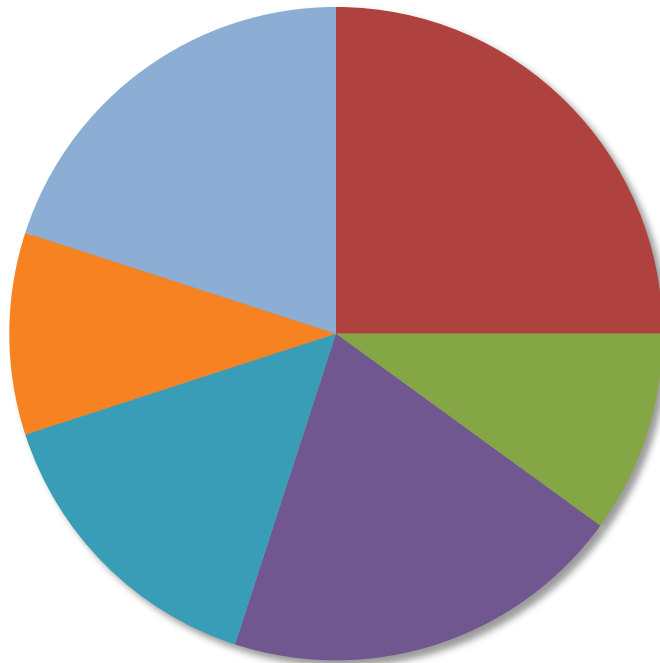
CP#1 BEST-VALUE SELECTION TECHNICAL/PRICE WEIGHTING JUSTIFICATION

- Proposal Selection Criteria
- Best-value Selection (Technical/Price)
- Federal Acquisition Regulations
- Examples of Technical/Price Weighting for DB Contractor Selections



3 STEP PROPOSAL EVALUATION PROCESS

STEP 1 - TECHNICAL EVALUATION

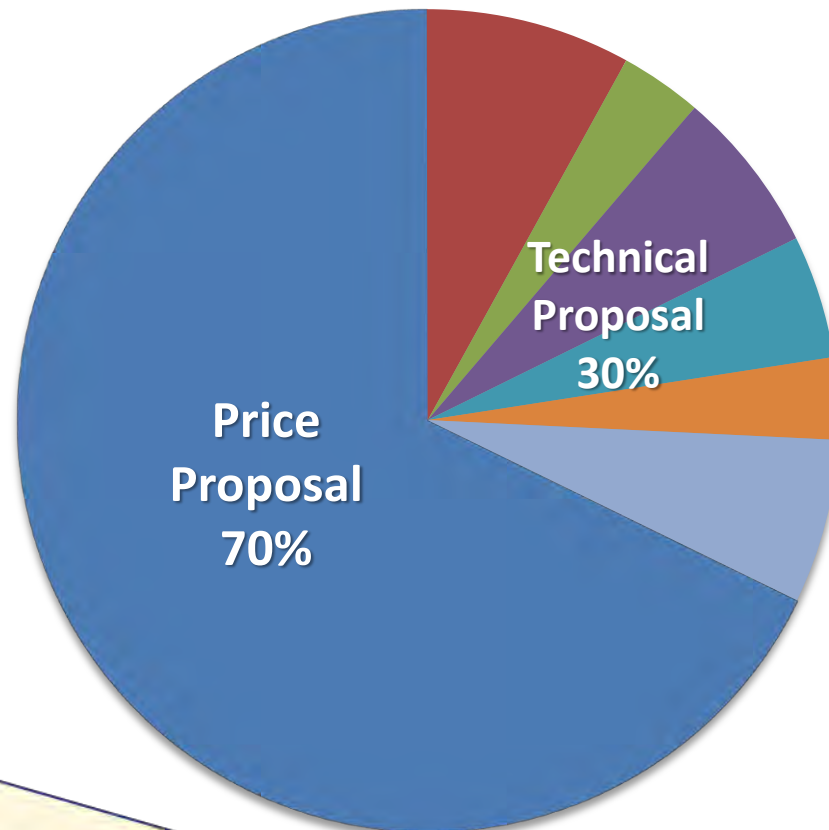


- Project Approach (25%)
- Safety (10%)
- Conceptual Engineering (20%)
- Ability to Meet Schedule (15%)
- Anticipated Problems/Proposed Solutions (10%)
- Quality & Self-Certification (20%)

PROPOSAL EVALUATION PROCESS STEP 2 – NARROW THE FIELD

- Only the top three technical proposals will be selected for further consideration based on price
- Price proposals not in the top three will not be opened
- If three proposers, top two technical proposals will be considered

PROPOSAL EVALUATION PROCESS STEP 3 – CONSIDER PRICE



- Project Approach (25% of Technical Proposal)
- Safety (10% of Technical Proposal)
- Conceptual Engineering (20% of Technical Proposal)
- Ability to Meet Schedule (15% of Technical Proposal)
- Anticipated Problems/Proposed Solutions (10% of Technical Proposal)
- Quality & Self-Certification (20% of Technical Proposal)

EXAMPLES OF TECHNICAL/PRICE WEIGHTING FOR DESIGN/BUILD CONTRACTOR SELECTIONS

- Design-Build Institute of America
 - “After the [technical] scores have been calculated, each offeror’s price envelope is opened. Price is then divided by score to yield a dollar per point rating.” [This process applies equal weight to both price and technical aspects of the proposal, i.e., 50% price and 50% technical]

DBIA Manual of Practice for Competitive Acquisition of Design Build Services, Page 51.
- Caltrans’ Design-Build Program
 - Price : 70 - 80 points
 - Technical: 20 - 30 points
- Denver RTD’s Denver Eagle P3 Rail Project
 - Price: 60 points
 - Technical: 40 points
- Dallas Area Rapid Transit Orange Line
 - Price : 35 points
 - Technical: 65 points

STIPENDS

- Recommendation
 - Stipend up to \$2.0M
 - Defrays engineering and other costs in return for submission of a responsive Proposal
 - Authority enters into stipend agreements with Proposers
 - Stipend falls within 0.1% to 0.2% range of estimated contract value – industry standard
 - If cancellation, payment upon proof of costs – up to maximum



SUMMARY / RECOMMENDATION OF RESOLUTION #HSR 12-04

- Approve the RFP for Construction Package #1 based upon the term sheet provisions
- HSR CEO can make non-substantive changes to the term sheet provisions in consultation with the Board Chair
- Approve the stipend up to the amount of \$2 million per each acceptable proposal for proposal teams not awarded the contract or if the contract is cancelled prior to award
- Approve the three step RFP evaluation criteria

Exhibit I



Resolution # HSRA 12-04

Approval of the Term Sheet, Stipend and RFP scoring criteria for Construction Package # 1

Whereas, the California High-Speed Rail Authority (Authority) may enter into design build contracts with private and public entities pursuant the Public Utilities Code §185036;

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Vote: 5-0 (1 Abstain – Burns)

Date: 3/1/12

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Exhibit J

California High-Speed Train Project



Request for Proposal for Design-Build Services

RFP No.: HSR 11-16
Book 2, Part C: Scope of Work

03/13/2012 RFP HSR 11-16

Revision No.	Date	Description
0	01 Mar 12	Initial Release, R0

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03/13/2012 RFP HSR 11-16



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PART C – Scope of Work

This Scope of Work covers the technical aspects of the project. Other requirements are delineated elsewhere in this Procurement Package. Contractor shall refer General Provisions for a list of general terms and definitions.

1 California High Speed Train Project (CHSTP) Standards and Manuals

The following technical documents are provided to Contractor in order to direct the development of final design drawings, construction drawings, and construction:

- **California High-Speed Train Project (CHSTP) Design Criteria** – Mandatory design guidance and criteria requirements Contractor shall follow and apply in the development of final design and construction documents.
- **Directive Drawings** – Directive Drawings provide mandatory design criteria in a graphical format Contractor shall follow and apply to ensure consistency during design for system-wide elements and features.
- **California High-Speed Train Project (CHSTP) CADD Manual** – Mandatory drawing standards and format Contractor shall follow and apply in the preparation of design, construction, and as-built drawings.
- **California High-Speed Train Project (CHSTP) Plan Preparation Manual** – Mandatory plans format Contractor shall follow and apply in the preparation of design and construction submittals, and as-built drawings.
- **Aesthetic Guidelines for Non-Station Structures** – Mandatory aesthetic guidelines Contractor shall follow and apply to the design of non-station structures.
- **Design Variance Request Process** – Mandatory process Contractor shall follow and apply in the identification, preparation, and submittal of design variance requests, as necessary to achieve approval.
- **Preliminary Ground Motion Data** – Preliminary ground motion data that the Authority has prepared and Contractor shall use in seismic and structural design included in the proposal.
- **Final Ground Motion Data** – Final ground motion data that the Authority will prepare and Contractor shall use in seismic and structural design for preparation of design submittals, construction, and as-built drawings.
- **Basis of Design** – Policy document prepared by the Authority that defines the major components and performance objective of the CHST System. Contractor shall use this document in the preparation of designs to ensure consistency with the components, objectives, processes, requirements, and assumptions governed by Authority policy.

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- **Record of Survey and Control Monument Data** – Survey control data that the Authority has completed to date and Contractor shall use in its topographic survey and mapping for its design.
- **Standard Specifications (for reference)** – Technical specifications for use in Authority construction contracts, and as determined applicable by the Contractor. Standard Specifications are not considered mandatory for this project, except for those sections or portions thereof identified in Attachment 5 “Mandatory Standard Specifications Listing” of this Scope of Work.
- **Standard Drawings (for reference)** – Standard project elements for use in the construction of the California High-Speed Train system, as determined applicable by the Contractor. Standard Drawings are not considered mandatory for this project. However, if Contractor chooses to use a Standard Drawing, the design as shown on that drawing shall be followed.

The Standard Specifications and Standard Drawings indicate a standard of quality to be achieved by the Contractor for the construction of the Project.

The identified technical documents are found in Book 3 and Book 4 of this Procurement Package.

2 Preliminary Engineering Documents

Preliminary design documents have been prepared to support environmental assessment and approval, and demonstrate technical feasibility and constructability.

The following preliminary engineering documents are provided to the Contractor for reference:

a. **Design Plans:**

Excerpts from 15 percent design plans for Construction Package 1A Option 1 (Hybrid Alternative) and Construction Package 1C (Alignment F1) – Initial design prepared by the Authority with the intent of supporting environmental assessment and approval.

Preliminary design plans for Construction Package 1A, exclusive of the Hybrid Alternative, and Construction Package 1B – Proposed preliminary design prepared by the Authority with the intent of demonstrating technical feasibility and constructability.

- b. **Preliminary Technical Reports** – Technical reports prepared by the Authority to document data collection efforts completed to date and document the basis of the design for the proposed preliminary design and environmental documents.
- Floodplain Impacts Assessment and Hydraulics and Hydrology Report
 - Stormwater Management Report
 - Geotechnical Data Report
 - Structures Report
 - Design Variances



- c. **Special Specifications** – Proposed technical specifications with specific reference to the Preliminary Design Plans for Construction Package 1, and as determined applicable by the Contractor. Special Specifications are not considered mandatory for this project, except for those sections or portions thereof identified in Attachment 6 “Mandatory Special Specifications Listing” of this Scope of Work.
- d. **Electronic Files** – Available electronic files used in the preparation of the preliminary design documents.
 - Design Files
 - Topographic Mapping
 - Digital Terrain Model (DTM)
 - Alignment Geometry Files
 - Design Cross Sections
 - Existing Utility Data
 - GIS Files for Environmentally Sensitive Areas

The above-identified Preliminary Engineering documents can be found in Book 4 of this Procurement Package.

The Preliminary Engineering Plans, Reports, and Special Specifications are based on preliminary design efforts and investigations and are provided for reference, unless otherwise specified for specific elements in this Scope of Work. If Contractor chooses to use the proposed preliminary design, Contractor shall review and validate that design meets CHSTP design criteria, directive drawings, local jurisdictional authorities’ design criteria, and/or other requirements before advancing design to a baseline level (see Design Services section of this Scope of Work).

3 Project Description and Limits

Construction Package 1 (CP1) is located within the counties of Madera to the north and Fresno to the south, and the City of Fresno in the southern area. It is composed of four segments: Hybrid Alternative of Construction Package 1A, the remaining alignment of Construction Package 1A, Construction Package 1B, and Construction Package 1C.

General Project limits, from north to south, are described below. Refer to Attachment 1 “Limits and Extents of Work Table” and Attachment 2 “Limits of Work Map” for additional information.

- Construction Package 1A (CP1A), Hybrid Alternative – South of Avenue 17 to North of Veterans Boulevard (alignment generally along the existing BNSF Railway)
- Construction Package 1A (CP1A), Remaining alignment: North of Veterans Boulevard to north of Stanislaus Street
- Construction Package 1B (CP1B): North of Stanislaus Street to South of Santa Clara Street



- Construction Package 1C (CP1C), Alignment F1: South of Santa Clara Street to South of East American Avenue

Description and major elements of each segment are described in the following sections.

3.1 CP1A, Hybrid Alternative Segment– South of Avenue 17 to North of Veterans Boulevard (alignment generally along the existing BNSF Railway)

The northern terminus of Hybrid Alternative is near Avenue 17 in Madera County. Traversing southward, the alignment parallels the west side of the BNSF tracks for approximately four miles before turning towards the Union Pacific Railroad (UPRR) south of Madera. The alignment follows the east side of the UPRR and transitions from at-grade to an elevated section to cross over the San Joaquin River. South of the river crossing, the elevated section continues over the UPRR tracks and transitions to an at-grade configuration west of the UPRR near Herndon Avenue. This segment terminates at the north side of Veterans Boulevard and is approximately 14 miles in length.

The majority of the construction will be on embankment approximately 4 to 5 feet high. Major structural elements for consideration are three major bridges at the Fresno River, Cottonwood Creek, and the San Joaquin River. The work will be subject to seasonal construction constraints as defined in the Final Environmental Documents. There are ten 2-lane road grade separated structures and one highway crossing at SR- 145. The San Joaquin River Bridge is expected to be approximately 30 feet or more in height and 2.3 miles long. Construction includes demolition, site clearing, utility relocations, roadway construction, and compliance with the applicable requirements and mitigation measures identified in the Final Environmental Documents.

3.2 CP1A, Remaining Alignment Segment – North of Veterans Boulevard to North of Stanislaus Street

This segment is approximately eight miles in length and runs adjacent to the west side of the UPRR. From Veterans Boulevard to approximately Olive Avenue, the alignment runs nominally at-grade. In the vicinity of Olive Avenue, the alignment begins its descent into a below-grade section, approximately 1.7 miles in length. Between Olive Avenue and Belmont Avenue, the below-grade section is further constrained by Roeding Park to the west, UPRR to the east, and an existing 96-inch storm drain pipe. On the south side of Belmont Avenue, the below-grade section is also constrained by a drainage basin. Continuing south of Belmont Avenue, the below-grade section passes under two active San Joaquin Valley Railroad (SJVR) spurs, Dry Creek Canal, and SR-180 before returning to a nominal at-grade section through to the end of CP1A just north of Stanislaus Street. The proposed design to cross under SR-180 is a 2-track box approximately 300 to 400 feet in length.

Additional major construction elements include seven grade separated structures, realignment of local roads including Golden State Boulevard and SR-99 (including a new interchange at West Clinton Avenue), as well as demolition, site clearing, and utility relocations, and compliance with the applicable requirements and mitigation measures identified in the Final Environmental Documents.



3.3 CP1B Segment – North of Stanislaus Street to South of Santa Clara Street

This section is approximately one mile in length and runs nominally at-grade, from the north side of Stanislaus Street to south of Santa Clara Street. It includes the future High-Speed Train Fresno Station and must accommodate the future 4-track and 6-track section(s), which include two storage tracks immediately south of the future Fresno station (one on each side of the station tracks), necessary for operation of the CHST.

Major work elements for this section include necessary civil work for the at-grade track section and four (4) grade separations at Stanislaus Street, Tuolumne Street, Tulare Street, and Ventura Street, as well as demolition, site clearing, and utility relocations, and compliance with the applicable requirements and mitigation measures identified in the Final Environmental Documents. In addition, close coordination and collaboration will be required with the enabling-works project at Fresno Street underpass, which is to be completed by others.

3.4 CP1C, Alignment F1, Segment – South of Santa Clara Street to South of East American Avenue

This segment is approximately five miles in length and runs adjacent to the west side of the UPRR after crossing SR-99, via an aerial structure, and adjacent to the west side of BNSF. From south of Santa Clara Street, the alignment passes under SR-41 and runs nominally at-grade to approximately East Belgravia Avenue. In the vicinity of East Belgravia Avenue, the alignment begins to descend into a shallow cut section, approximately one mile in length, to pass under existing East Jensen Bypass. As it approaches South Orange Avenue, the alignment transitions to a 1.2 mile aerial structure, passes over Golden State Boulevard, SR-99, and South Cedar Avenue, before returning to grade to cross under East Central Avenue and through to the end of CP1C, south of East American Avenue.

Major construction elements for this segment include civil works for the at-grade track sections and three grade separations. Close coordination with Caltrans will be required on the planned improvements for South Cedar Avenue and impacts of the CHSTP aerial structure to SR-99.

The construction effort will also include demolition, site clearing, utility relocations, and compliance with the applicable requirements and mitigation measures identified in the Final Environmental Documents.

3.5 Limits of Work for Enabling Facilities

As described above, Contractor's scope of work includes a number of grade separations, highway reconstructions, railroad relocations, and utility works owned by Third-Party Entities. These include the following:

- California Department of Transportation (Caltrans)
- City of Fresno
- County of Madera



- County of Fresno
- Union Pacific Railroad (UPRR)
- San Joaquin Valley Railroad (SJVR)
- BNSF Railway
- Utility companies
- Flood Control Districts (Fresno Metropolitan Flood Control District, Fresno Irrigation District, Fresno County Flood Protection Board)
- Other permitting agencies as noted in Book 3 of this Procurement Package

Contractor shall be responsible for coordinating and confirming the limits of work described above to ensure conformance with:

- Final Environmental Documents
- Local jurisdictional entity requirements
- Third-Party Agreements
- Direct coordination with the impacted third parties
- Other works required to support future CHSTP elements through Interface Coordination and Design Integration Workshops with the Authority.

4 Project Scope of Work

4.1 General

Contractor's Work is defined as all services, labor, materials, equipment, and other efforts to be provided and performed by the Contractor including the following general categories:

- Scheduling
- Utility protection and relocation
- Demolition
- Permitting
- Survey
- Mapping
- Geotechnical
- Design
- Environmental mitigation
- Construction
- Quality control and quality assurance for design and construction



- Community relations
- Quality inspection and testing
- Verification and validation
- Construction safety and security
- Preparation of CADD As-Built and Consolidated Services Drawings
- Maintenance
- Implementation of Contractor's extended warranty for the Project after construction completion
- Coordination with jurisdictional authorities (governments, public, and private entities), utility companies, railroad companies, and local communities
- Other efforts necessary or appropriate to complete the design and construction of the Project, and to ensure the Project's ultimate readiness for high-speed rail passenger operations

The exceptions to this list include those efforts that the Contract specifies will be performed by the Authority or other Persons.

Contractor shall provide design and construction for CHSTP trackway civil infrastructure, complete in place. Contractor shall design, install, and maintain a protective layer over the trackway and access road subgrade to protect the subgrade from degradation until the future trackwork contractor is on board.

Contractor shall design and install structural embedments such as anchor bolts, embeds, grounding, and bonding, foundations, etc., as needed, in structures, walls and subsurface infrastructure to accommodate future CHSTP systems components not in the Project scope.

Contractor shall design and construct enabling works, such as grade separations and intrusion protection, complete in place. The enabling work shall be coordinated, designed, and constructed in accordance with the Third-Party Entity's requirements (i.e., City of Fresno, County of Fresno, California Department of Transportation, railroads, etc.). If the enabling work such as grade separations and intrusion protection are located above or below or immediately adjacent to the CHSTP alignment, in no case shall the enabling work be constructed to standards less stringent than the CHSTP Design Criteria if their failure would have the potential for damaging or otherwise interrupting HST service.

The Scope of Work does not include construction of trackwork itself; passenger stations; buildings; right-of-way engineering, negotiations, and acquisition; soundwalls; and systems work (i.e., Overhead Contact System poles, foundations, and wires; Traction Power Facilities; Automatic Train Control; etc.). The Scope of Work excludes civil/site works for said future CHSTP systems facilities and ancillary sites, unless noted otherwise (i.e., civil preparatory works are generally limited to the improvements required for the CHSTP trackway only). However, while these elements are not included in the Scope, Contractor shall ensure their



future accommodation and integration via the Interface Coordination and Design Integration Workshops with the Authority.

Contractor is further responsible for the following:

- Design and construction of the civil infrastructure elements as generally described above and identified in further detail in Attachment 3 “Scoping Typical Sections” and Attachment 4 “Scope Elements Matrix”. The Work shall be performed and completed in accordance with the documents as defined in Sections 1 and 2 of this Scope of Work, as well as Master Agreements, design criteria, standards, and permits by Third Parties for facilities within their jurisdictions. Contractor shall refer to the Project Elements section of this Scope of Work.
- Contractor’s design and construction shall be completed such as to ensure the ultimate operation of the CHSTP system to operate at speeds of at least 220 miles per hour. Note that design speed shall be 250 miles per hour (see 4.2.1.1 in this Scope of Work).
- Accommodation of future CHSTP elements and facilities to be designed and constructed by others that affect the civil infrastructure as identified in this Scope of Work and through the Interface Coordination and Design Integration Workshops, including the following:
 - Trackwork
 - Traction Power Facilities
 - Overhead Contact System
 - Automatic Train Controls Facilities
 - Communications
 - Rolling Stock
 - Operations
 - Maintenance Access/Emergency Access/Egress from Trackway (Ladders and Stairs)
- Preparation of design and construction submittals in accordance with this Scope of Work.
- Preparation of Construction Specifications in accordance with this Scope of Work.
- Coordination with Third-Party Entities, including the following:
 - Local, Regional, State, and Federal Agencies
 - Railroads
 - Utility Companies
 - Other Permitting and Regulatory Agencies



4.2 Design Services

4.2.1 Review of Design Criteria, Drawings, Reports and Specifications

Contractor is responsible for review of the CHSTP Design Criteria, Preliminary Engineering Drawings and Reports, Standard Drawings, Directive Drawings, Standard Specifications, and Special Specifications for completion of design and construction of the Project.

4.2.1.1 CHSTP Design Criteria

Design Criteria has been prepared to direct the development of Contractor's final design and construction drawings for the Project. Contractor shall develop the alignment to ensure an initial operating speed of at least 220 miles per hour and future operation at 250 miles per hour.

Contractor shall document the applicability assessment in the Requirements Verification Traceability Matrix (RVTM), including identification of each criterion that is determined by the Contractor to not be applicable to the Project. RVTM is described in more details in Verification, Validation and Self-Certification in Book 3.

Contractor shall review the CHSTP Design Criteria and determine applicability of each criterion.

Where Contractor has determined a specific design criterion is applicable but cannot be reasonably and/or practically achieved for the minimum criteria, a Design Variance Request shall be submitted to the Authority Representative for approval. Design Variance Requests are location-specific. Design Variance Requests are subject to Configuration Management and Change Control. Contractor shall not assume that additional Design Variance Requests, above those included in Book 4 of Scope of Work, will be approved. Refer to Design Variances (see 4.14 in this Scope of Work).

4.2.1.2 Preliminary Engineering Documents: Drawings and Reports

The 15% Design and Preliminary Engineering Drawings are at various design levels and are provided for Contractor's reference.

Contractor shall review the Preliminary Engineering Design Drawings and Technical Reports and confirm technical feasibility and constructability within the requirements of the approved Final Environmental Documents and the applicable CHSTP Design Criteria and Directive Drawings as described in this Scope of Work.

Contractor shall substantiate the technical feasibility and constructability of the design in the Baseline Design Report. This report will serve as a baseline document for configuration management, and will be subject to change control.

Contractor shall be responsible for the preparation of Construction Drawings and Reports.

4.2.1.3 Specifications

Contractor shall be responsible for the preparation of Construction Specifications.



CHSTP Standard Specifications were developed to support design and construction and are provided for Contractor's reference. Standard Specifications are not considered mandatory for this project, except for those sections or portions thereof as identified in Attachment 5 "Mandatory Standard Specifications Listing" of this Scope of Work.

Contractor shall review CHSTP Standard Specifications and Special Specifications, and determine applicability of each specification section to Contractor's final design and construction methods, and determine what additional specifications are required.

Where Contractor has confirmed applicability of CHSTP Standard and Special Specifications sections, with or without modification, Contractor shall incorporate each into its Draft Construction Specifications in track change format, as needed, in accordance with the format of CHSTP Standard Specifications, which are based on Construction Specifications Institute (CSI) MasterFormat™ 2011 edition and SectionFormat™ 2009 edition. For Contractor-added specifications not included as part of the CHSTP Standard and/or Special Specifications, shall include "NEW" in bold capital letters in the top margin of the new Contractor-developed Construction Specifications.

4.2.2 Review of Environmental Documents

Before completing its technical and engineering reports and construction drawings, Contractor shall conduct a review of and ensure compliance with all environmental documents. Contractor shall be responsible for obtaining required permits for construction of the project, as indicated in Approach for Obtaining ICS Environmental Approvals/Permits.

4.3 Additional Data

Contractor shall be responsible for obtaining additional data, including:

- Final identification, confirmation, and potholing for existing utilities.
- Survey and topographic mapping for final design, including site surveys as required. Available photogrammetric data used for preliminary design is provided for Contractor's reference.
- Collecting additional geotechnical information to complete the Project, support the finalization of ground motions work and fault rupture data, and prepare technical reports, construction drawings, and construction specifications. Contractor shall store, maintain, and make available its acquired geotechnical core samples until final acceptance and close out of contract.

4.4 Design and Code Analysis

Contractor shall review and analyze current design, industry and regulatory design and construction codes, including those referenced in the Final Environmental Document, and third parties' requirements for applicability to its design and construction of the project.



Contractor shall identify applicable design, industry, and regulatory construction codes by resource from the EIR/EIS and by affected Third-Party Entities in a Design and Code Analysis Report.

4.5 Safety and Security Certification Program

Contractor shall be responsible for safety and security certification activities during the Final Design and Construction phases of the Project. Contractor shall develop a Safety and Security Certification Plan that describes in detail how they will identify, mitigate, verify/validate, and certify safety and security requirements. The Safety and Security Certification Plan requirements are described in detail in the CHSTP Safety and Security Management Plan in Book 3 of this Procurement package.

4.6 Interface Coordination and Design Integration

Contractor shall be responsible for coordinating the interfaces and performing design integration with adjacent contracts, third parties, and the Authority, as specified in the General Provisions.

4.7 Verification and Validation and Self Certification

Contractor shall develop and implement a verification and validation (V&V) process to confirm to the Authority that by examination and provision of objective evidence the technical contract requirements and the particular requirements for specific intended use have been fulfilled. With every submittal to the Authority, Contractor shall provide a V&V submittal self-certifying compliance with the Contract requirements and fitness for purpose. Every submittal shall be fully checked and certified by an Independent Checking Engineer (ICE) and Independent Site Engineer (ISE) before they are submitted to the Authority.

Refer to Book 3 for V&V and Self-Certification requirements.

4.8 Value Engineering

Contractor shall initiate, conduct, complete, and implement a value engineering task upon approval of its Design Baseline Report. Value engineering shall comply with methodologies and procedures adopted by Caltrans and shall be performed in coordination with the Authority. Contractor shall refer to value engineering process requirements specified in the General Provisions of this Procurement Package.

Further contractor-initiated value engineering opportunities can be initiated, conducted, and implemented through final design and construction efforts.



4.9 Design Reports

4.9.1 Design Baseline Report

Contractor shall prepare a Design Baseline Report that defines the major design elements to be progressed to design and construction, and confirms technical feasibility, constructability, and compliance with the approved Final Environmental Documents, including the following:

- **Final Track Alignment and Limits of Construction Activities**
 - Plan and profile for the CHSTP track alignment for the entire limits of the Project, including location of all special trackwork. The limits of track alignment shall extend beyond Contractor's construction limits to the nearest point of tangency in plan and profile to ensure consistency, interface, and integration requirements with future work and in full support of High-Speed Train operations.
 - Typical sections for CHSTP trackway for at-grade, grade separated structures, and trenches, third-party facilities, as well as facilities constructed by others that affect Contractor's design. Typical sections shall identify and address future traction power, overhead contact system, communications, train controls, operations, and maintenance equipment. CHSTP facilities by others shall be confirmed during the Interface Coordination and Design Integration Workshops. CHSTP facilities by others shall be identified as "NIC" (Not in Contract) on the drawings.
- **Clearances at Structures and Restricted Locations** – Proper clearances in conformance with CHSTP Design Criteria at all grade separations and future CHSTP facilities by others that affect the design, including substation locations, radio antenna sites, special trackwork, signal houses, access and egress, and location of the system's undertrack ductbank and manholes.
- **Geotechnical Conditions** – See Geotechnical Reports requirements elsewhere in this Scope of Work.
- **Structure Plans, Elevations, and Typical Sections** – For grade separated structures, trenches, tunnels, and retaining walls. Drawings shall include nominal dimensions of the structures subject to final design calculations.
- **Railroads** - For relocation of, or modification to, existing railroad trackways and other facilities per Master Agreements with such entities.
- **Utilities** – Relocation of utilities within Authority's and state and local jurisdictions' right-of-way in accordance with applicable state and federal regulations.
- **Geometric Approval Drawings** – For relocation of, or modification to, state highway facilities and local roadways, as agreed with the affected third-party agency.
- **Storm Water Pollution and Protection Plan (SWPPP) and Best Management Practices (BMP)**

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- **Consistency with Final Environmental Documents** – describing whether and to what extent the Baseline Design remains consistent with the project described in the Final EIR/S and the environmental analysis provided therein.
- **Aesthetic Design and Review for Non-Station Structures** – See Aesthetic Design and Review for Non-Station Structures Report requirements as delineated elsewhere in this Scope of Work.
- **Other information that establishes the baseline for the project**

Contractor shall prepare Design Baseline Report, submit for review, coordinate comment resolution, and ensure approval by Authority within 180 days of NTP. Authority's nominal review period is twenty business days.

Drawings shall include dimensions that demonstrate the intent and boundaries of the design to be advanced into final design. Design assumptions for elements identified as future CHSTP facilities by others will be provided by the Authority for incorporation into the Design Baseline Report documents, and reviewed with Contractor during the Interface Coordination and Design Integration Workshops.

Upon receipt of approval, the Design Baseline Report will be subject to the Authority's configuration management and change control process.

4.9.2 Hydrology and Hydraulics Reports

Contractor shall prepare Hydrology and Hydraulics reports to support the drainage design of the full build-out of CHSTP trackway as well as temporary drainage system for the interim condition.

Contractor shall contact and coordinate with State and local jurisdictions to obtain necessary information for preparation of its reports.

4.9.3 Geotechnical Reports

Contractor shall prepare a Geotechnical Data Report and Geotechnical Engineering Design Reports to support its design calculations and requirements for design and construction of the full build-out of trackway and trackwork, embankment, excavation, soundwalls, retaining walls, trenches, tunnel structures, grade separation, roadways, and all other facilities constructed by Contractor or to be constructed by others per the requirements of the Design Criteria as well as the requirements of State and local jurisdictions. These Geotechnical Reports shall include and address additional geotechnical explorations performed by the Contractor through its design and construction phases.

Contractor shall contact and coordinate with State and local jurisdictions to obtain all necessary information for preparation of its reports.

4.9.4 Structures Reports

Contractor shall prepare Structures Reports providing the basis for its selection of structure for the retaining walls, U-Walls, cut-and-cover boxes, jacked boxes, bridges, and aerial structures.



The report shall provide all necessary information such as General Plan, Typical Sections, foundation type, member sizes, and seismic and other geotechnical information to support Contractor's design.

Structure Reports for other jurisdictional authorities such as Caltrans, cities, counties, and railroads shall comply with requirements of that jurisdiction. Contractor shall coordinate with these jurisdictional authorities to obtain their approval prior to the design and construction of these structures.

4.9.5 Aesthetic Design and Review for Non-Station Structures Report

Contractor shall follow the aesthetic design guidance (Aesthetic Guidelines for Non-Station Structures included in Book 3 of the Procurement Package), in addition to the aesthetics mitigation measures in the Final EIR/EIS and the Mitigation Monitoring Reporting Plan, to implement aesthetic design and visual resource mitigations and enhancements to structures. The Aesthetic Design and Review Report shall describe Contractor's approach to implementing the guidelines.

Structures and other elements included in CP1 for aesthetic design and review preliminarily include the items below (subject to confirmation by the Contractor in its coordination as required herein).

- Aerial structures – approximately 3.7 miles in length
- Bridges, such as the one spanning across the San Joaquin River
- Overpasses, such as the ones crossing Highway 99, approximately 315 feet in length, and Golden State Boulevard, approximately 420 feet in length
- Retaining walls
- Trenches
- Local street lighting
- Access control fence
- Intrusion protection barrier

4.9.6 Certifiable Elements and Hazards Log

Contractor shall update and expand the Certifiable Elements and Hazards Log during the Design and Construction phases. Hazards associated with each certifiable element that can reasonably be expected to occur within Contractor's scope of work shall be identified on the Certifiable Elements and Hazards Log as defined in the CHSTP Safety and Security Management Plan found in Book 3.



4.9.7 Safety and Security Certification Package

Contractor shall compile a Safety and Security Certification Package when all Certifiable Items Lists for a particular element or infrastructure component are completed for applicable milestone payment. The Safety and Security Certification Plan shall consist of a signed Certificate of Conformance for the project element, all completed Certifiable Items Lists, a completed Certifiable Elements and Hazards Log (see Section 4.9.6), and all supporting documentation such as hazard analysis, drawings, and design element descriptions.

4.9.8 Final Design Report

Contractor shall prepare a Final Design Report that includes all changes and revisions made to the Design Baseline Report. This report shall be supported by all variances and design exceptions granted by the Authority or other third parties that support the changes to the Design Baseline Report. The Final Design Report shall represent a conformed configuration of the design.

4.10 Preparing Construction Drawings and Construction Specifications for CHSTP Facilities Third-Party Entities

Contractor shall be responsible for preparation of the complete design and certification that construction drawings, construction specifications, reports, and calculations meet the requirements of Authority, and Third-Party Entities.

The Project includes modification of facilities owned by Third-Party Entities, and construction in and around facilities owned by Third-Party Entities as shown in Section 3.5.

Contractor shall identify the design and construction requirements and codes of affected Third-Party Entities; and document the requirements and codes in the Design and Code Analysis Report. Contractor shall perform this assessment taking into account signed agreements, permits, or MOUs between the Authority and the Third-Party Entities, or draft agreement, permit, or MOU language in process, as provided by the Authority.

Agreements, Permits, and MOUs are included in Book 3 of this Procurement Package.

4.11 CHSTP Design Submittals

Contractor shall provide Design Submittals to the Authority as specified in this Scope of Work, the CHSTP Design Criteria and other mandatory documents included in the Procurement Package. Unless otherwise noted, Submittals will be reviewed and a determination by the Authority will be issued as follows:

- Statement of No Objection (SONO)
- Statement of No Objection with incorporation of comments
- Objection with comments requiring Resubmittal



Design Submittals require issuance of a SONO or SONO with incorporation of comments to meet the requirements of this Procurement Package.

Contractor shall submit no more than two submittals in any ten consecutive working days, unless otherwise agreed in writing with the Authority.

Contractor shall include in the schedule each Design Submittal and Authority review period, including breakdown by Construction Package Segment and/or structure.

Contractor shall include hard copies and an electronic file posted in accordance with the CHSTP Document Control Manual.

At minimum, submittals shall identify the following:

- Location including Construction Package Segment (CP1A, CP1B, CP1C)
- Preparer and date
- Checker and date
- Signed and sealed by Engineer of Record, in accordance with State regulation
- Issue date and revision number
- Main point of contact, phone number, and company contact details

Contractor shall provide the following submittals to the Authority:

- Design Reports
 - Design Baseline Report
 - Design and Code Analysis Report
 - Aesthetic Design and Review for Non-Station Structure Report (as part of Design Baseline Report)
 - Value Engineering Report
 - Hydrology and Hydraulics Report
 - Geotechnical Reports
 - Structures Reports
 - Certifiable Elements and Hazards Log (included in Safety and Security Certification Package)
 - Final Design Reports
 - Certificate of Conformance Package
- Construction Drawings
 - Nominal 60 percent design, all sheets represented
 - Nominal 90 percent design, all sheets included



Civil and Structure Construction Drawings may be submitted in segments or by structure and shall include identification of future facilities by others for reference as determined in the Interface Coordination and Design Integration Workshops. These include facilities for traction power, overhead contact system, communications, train controls, location of special trackwork, and CHSTP facilities by others, and shall be identified as “NIC”.

- Independent checks and calculations supporting design shall be submitted with the nominal 90 percent design drawings.
- Construction Specifications
 - Nominal 60 percent: an outline of construction specifications shall be submitted
 - Nominal 90 percent: all applicable construction specifications shall be submitted
- Electronic Submittal Files (certified as representing the designs in the Construction Packages). Drawing Submittals shall be in accordance with the CHSTP CADD and Plan Preparation Manuals. All other electronic design files shall be in PDF.
- Engineering Calculations (certified as representing the designs in the Construction Packages)
- Survey Reports (signed and sealed) as defined in CHSTP Design Criteria and Standard Specifications.

4.12 Third-Party Entity Design Submittals

Contractor shall provide Third-Party Submittals to respective Third-Party Entity and a copy to the Authority unless otherwise noted. Contractor shall be responsible for determining and providing submittal quantities required by Third-Party Entities.

Submittals shall identify the following information:

- Location including Construction Package Segment (CP1A, CP1B, CP1C)
- Preparer and date
- Checker and date
- Signed and sealed by Engineer of Record, in accordance with State regulation
- Issue date and revision number
- Main point of contact, phone number, and company contact details

Contractor shall include in the schedule each Third-Party Entity Submittal and review period.

4.13 Ready for Construction (RFC) Submittals

Contractor shall provide Ready for Construction Submittals to the Authority. Unless otherwise noted, Submittals will be reviewed and a determination by the Authority will be issued as follows:



- Statement of No Objection (SONO)
- Statement of No Objection with incorporation of comments
- Objection with comments requiring Resubmittal

Submittals shall include hard copies and an electronic file posted in accordance with the CHSTP CADD Manual.

Submittals shall identify the following information:

- Construction Package Segment (CP1A, CP1B, CP1C)
- Preparer and date
- Checker and date
- Engineer of Record (signed and sealed for Construction Packages)
- Issue date and revision number
- Main point of contact, phone number, and company contact details

Contractor shall provide the following submittals to the Authority:

- Civil and Structure Construction Drawings
- Testing and Commissioning Plans
- Certificate of Conformance Package
- As-Built Drawings (signed and sealed), including Consolidated Service Drawings incorporating all utility work completed by others in support of the Project and verified by the Contractor
- Maintenance Manuals and Training
- Maintainability Demonstration Plan and Procedures
- Maintainability Demonstration Report

Contractor shall include in its schedule each Submittal, including breakdown by section or structure.

4.14 Design Variances

Design variances have been approved for specific conditions and locations based on preliminary engineering studies, and are identified in the Preliminary Design Variance Report(s) included in Book 4 of this Procurement Package.

Contractor shall review the Preliminary Design Variance Report and determine if design modifications can be incorporated into the Design Baseline Report to achieve the design criteria,



and not require a design variance. Regardless of previous approvals during preliminary engineering studies, Contractor shall submit a request for each design variance needed to support design and construction.

Contractor shall follow the Authority's Design Variance Guidelines included in Book 3 of this Procurement Package where Contractor has identified specific conditions where the minimum design criteria cannot be reasonably and/or practically achieved. Contractor shall refer to CHSTP Design Criteria for definition on design variance criteria thresholds.

Contractor shall obtain approval of Design Variances prior to incorporation of a design variance into a Construction Package. Design Variance Requests are subject to the Authority's change control process. Contractor shall not assume that additional Design Variance Requests will be approved.

Design Variances required as part of Alternative Technical Concepts shall be subject to Authority review and approval as delineated in this Scope of Work. Contractor shall therefore prepare, submit, and ensure approval of all Design Variances to be included as part of Alternative Technical Concepts.

4.15 Construction Services

Contractor shall provide Construction Services including but not limited to those described below.

4.15.1 Safety and Security

Contractor shall be responsible for all work-site safety and security activities. Contractor shall submit a Site-Specific Health and Safety Plan and Site-Specific Security Plan as described in the CHSTP Safety and Security Management Plan in Book 3 of this Procurement Package.

4.15.2 Hazardous Material Handling

Contractor shall remove all Hazardous Material in accordance with previously completed Phase I and II work. Prior to performing the hazardous material removal work, Contractor shall submit a Hazardous Materials Remediation Plan per the requirements of the regulatory agency having jurisdiction over the site, as well as other requirements delineated in this Procurement Package.

4.15.3 Utility Work and Coordination with Utility Companies

Contractor shall be responsible for utility work as delineated in the General Provisions and Special Provisions in this Procurement Package. Coordination with utility companies shall be conducted as described in the CHSTP Design Criteria, Master Agreements, and other requirements specified in the Special and General Provisions.



4.15.4 Shop Drawings

Contractor shall prepare and submit construction and material shop drawings in accordance with mandatory CHSTP Standard Specifications, or portions thereof, as noted in Attachment 5 of this Scope of Work and in accordance with Contractor's construction specifications.

4.15.5 As-Builts

Contractor shall prepare and submit as-built drawings in accordance with CHSTP CADD and Plan Preparation Manuals. As-built drawings shall fully reflect the final, completed, as-built condition, inclusive of works completed by others in support of the Project. As-built plans shall include Consolidated Service Drawings that fully address utility services designed and constructed by Contractor and/or others in support of the Project. Contractor shall survey the installed utilities to verify the actual placement.

4.15.6 Environmental Mitigations

Contractor shall be responsible for the review, coordination, permitting, design, construction, and monitoring of the applicable mitigations and commitments consistent with the limits and scope of work for CP1. Contractor is expected to review the mitigations and commitments included in the Environmental Documents, verify against Scope of Work, and submit a list of mitigation measures in the bid proposal to the Authority to allow the Authority to verify completeness and concurrence in the list. Contractor's attention is further referred to other requirements as specified in the General/Special Provisions and the Monitoring and Reporting Plan.

5 Project Work Elements

The following is a summary of major work elements of the Project. For a more comprehensive list of Work Elements refer to Attachment 3 "Scoping Typical Sections" and Attachment 4 "Scope Elements Matrix" of this Scope of Work.

5.1 Demolition, Clearing, and Grubbing of the Construction Site

Existing buildings and structures within the limits of the construction shall be removed, and the site shall be cleared and grubbed to ensure the successful installation of the Project per the applicable requirements of regulatory and jurisdictional authorities. The construction site shall include the entire Authority right-of-way and construction areas required for the construction of grade separations and the relocation of waterways and utilities. Contractor shall prepare and submit a demolition plan prior to its demolition activities. For recycling requirements, refer to Sustainability Requirements in the General Provisions.

5.2 Railroad Relocation and Reconstruction

The Authority is working with the railroads to draft and execute design, construction, and maintenance agreement(s) with the railroads. These agreements will establish roles, scope, and responsibilities of the parties during each phase of project development such as railroad's



review and approval of contractor's design, the railroad's review period, permitting, inspection, safety, insurance requirements, and flagging.

If the agreements with the railroads assign the scope of design and construction of railroad relocation to the Authority, the Contractor shall design and/or construct railroad relocation to accommodate the CHSTP per the requirements of the agreements. Contractor shall coordinate its railroad design and construction activities with railroads directly and comply with railroad requirements when working within or adjacent to railroad right-of-way.

If the railroads perform the design and/or construction of their relocation to accommodate the CHSTP, Contractor shall coordinate with the railroads directly to ensure railroad activities accommodate Contractor's Work and schedule. Contractor shall comply with railroad requirements when working within or adjacent to railroad right-of-way.

5.3 Roadway Construction

Work within or affecting the State Highway System (SHS) or within the SHS right-of-way shall be coordinated with and performed per Caltrans requirements.

Work within or affecting local jurisdictions shall be coordinated with and performed per the requirements of the jurisdictional authorities. Work by others for early construction of the Fresno Street grade separation project will require coordination with that contractor.

Contractor shall design, construct, and maintain temporary access roads for its needs and those that may be required by local jurisdictions and emergency response authorities. Contractor shall also design, construct, and maintain permanent CHSR access roads required by the project per the requirements of the CHSTP Design Criteria and Directive Drawings. Contractor shall coordinate with the Authority Representative and local jurisdictions for the location of permanent access roads. Permanent access roads are required as indicated in the Design Criteria Manual and shall coincide with the location of future CHSR wayside systems/operations facilities as shown on the Preliminary Design Plans. Additional permanent access roads may be required by emergency response authorities. Contractor shall coordinate the design of access roads through Interface Coordination and Design Integration Workshops with the Authority.

Lighting and landscaping of roadway facilities that are within Caltrans and other jurisdictional authorities shall be coordinated with and performed per the requirements of the jurisdictional authorities.

Work in the vicinity of the existing Golden State Boulevard ramps will require coordination with the City of Fresno. The City of Fresno is responsible for the demolition of these ramp structures just north of SR-41.

5.4 Trackway

Final horizontal and vertical alignments for the trackway shall be designed by Contractor for the entire Project limits, including location of all special trackwork. The limits of track



alignment shall extend beyond Contractor's construction limits to the nearest point of tangency in plan and profile to ensure consistency, interface, and integration requirements with future work and in full support of ultimate CHSR operations.

Contractor's design of the trackbed shall not preclude the eventual design and installation of either a ballasted or non-ballasted track section, unless local conditions warrant a more specific determination. In this case, Contractor shall submit its analysis and results to the Authority for review. Specifically, at-grade sections and shorter aerial structures (less than 1,000FT) shall be designed to accommodate either track section, including the more stringent structural loading requirements. Contractor shall assume the eventual design and construction of a non-ballasted track section for longer aerial structures (greater than 1,000FT) and below-grade structure. Contractor shall consider the long-term settlement criteria of the constructed trackway in the design and shall monitor the settlement of the constructed trackway to ensure conformity with the most stringent CHSTP Design Criteria to accommodate either track section. Contractor shall coordinate and implement track section homogeneity as well as operations and maintenance considerations through the Interface Coordination and Design Integration workshops with the Authority.

Trackway shall include the cut and fill, and the surface and underground drainage, with the exception of the underdrain system along the trackbed. The installation of underdrain system along the trackbed will be performed by the follow-on contractor(s). Contractor shall identify, design, install, and maintain a protective layer to ensure protection of the installed subgrade through the warranty period.

5.5 Retaining Walls

Contractor shall design and construct retaining walls necessary for the CHSTP trackway, State Highway System, and local roadways. Design and construction of retaining walls shall include the drainage system for the walls.

5.6 Concrete Barriers

Intrusion protection barriers shall be designed and constructed by Contractor where required to protect the High-Speed Train Operating Infrastructure from intrusion by automotive vehicles and/or railroad locomotives and cars per CHSTP Design Criteria, railroad, and Caltrans requirements. Contractor shall reference Proposed Preliminary Design plans for intrusion protection barrier preliminary locations between High-Speed Train Operating Infrastructure and existing railroads. Final locations of intrusion protection barriers between High-Speed Train Operating Infrastructure and existing railroads will be based on preliminary risk assessment and hazard analysis prepared by the Authority.

At locations where the CHSTP will be located adjacent to an existing railroad and/or highway facility and an intrusion protection barrier is required, said barrier shall be located as close as possible to the right-of-way line that delineates the bounds between both entities. The intrusion



protection barrier shall be designed and constructed to ensure maintenance and constructability from within Authority's right-of-way.

For concrete barriers on grade separated structures over CHSTP trackway, Contractor shall design the barriers to accommodate future protective screen with solid plate.

5.7 Cut Sections and Walls (Trench Structures)

In areas where CHSTP trackway alignment is below grade, Contractor shall design and construct cut or cut wall sections to accommodate CHSTP trackway. Trenches are defined as below grade structures with a concrete retaining structure on both sides. When the bottom of a trench is below the water table or flood plains, the retaining structures shall be joined by a common reinforced concrete foundation (known as U-Wall).

Other cut walls that can be used when the CHSTP trackway alignment is above the existing ground water table (or flood plains), including but not limited to soil nail walls, cantilever soldier-pile walls, slurry walls, secant pile/tangent pile walls, and ground anchored walls (other than nail walls), depending on local site conditions. Space for access/egress shall be designed and constructed within the depressed alignment sections at nominal 2,500-foot intervals. Staircases shall be designed by Contractor as future accommodation and will be installed by others. Future installation of staircases shall not be precluded by Contractor's design and/or construction.

5.8 Tunnels

In areas where CHSTP trackway alignment is sufficiently below final grade and/or the local conditions require third-party crossings over the depressed CHSTP trackway, Contractor may design and construct a short tunnel (or other tunnel type) to accommodate CHSTP trackway. Tunnels shall be waterproofed and be independent of temporary excavation support. CHSTP structures shall be designed and constructed independent of third-party facilities. Fire/Life/Safety codes (NFPA 130) and CHSTP Design Criteria requirements shall be followed.

5.9 Bridges/Aerial Structures

Contractor shall design and construct grade separated structures such as bridges, aerial structures, and grade separations that are required for the Project in accordance with CHSTP Design Criteria requirements.

Grade separated structures owned by Third-Party Entities to be built as part of the CHSTP project shall be designed and constructed in conformity with the requirements of Caltrans and the local agencies. In the event of conflicting requirements between the CHSTP Design Criteria and other standards and codes of practice, the more stringent requirements shall take precedence. Grade separated structures that span high-speed train trackways and have the capability to influence operability of high-speed trains in the event of failure, shall be designed per provisions in the CHSTP Design Criteria.



Contractor shall design the CHSTP grade separated structures, including the parapet walls, to accommodate the future installation of soundwalls (by others).

Contractor shall make an independent interpretation of the geotechnical information from previous site investigations, and shall carry out such additional geotechnical and subsurface investigations and surveys as are necessary to design and construct the grade separated structures or other elements of the Project, in conformity with the Contract requirements.

The Authority will review the seismic analysis and design to ensure the successful application of said criteria, as specified in the CHSTP Design Criteria. This effort shall be coordinated through the Interface Coordination and Design Integration Workshops with the Authority.

5.10 Drainage

Contractor is responsible for the design to accommodate the full build-out of CHSTP trackway and facilities. However, in lieu of constructing CHSTP trackbed underdrains (closed drainage system) and the drainage system inside the CHSTP trench or tunnel sections, Contractor shall design and construct a temporary drainage system for CHSTP trackbed and trench or tunnel sections to accommodate the drainage of these facilities until the follow-on Contractor installs the final drainage system. Contractor shall design and construct all other permanent drainage systems, such as drainage laterals, to ensure the successful drainage of the Project in the interim and final conditions, complete in place.

Contractor is responsible for the design and construction of permanent drainage systems for Third-Party facilities being impacted by the Project.

At locations where the CHSTP will be located adjacent to an existing railroad and/or highway facility, a separate drainage system shall be designed and constructed to capture the runoff from each facility independently. The drainage system for each entity (Authority or Third-Party) shall be located within its right-of-way. Contractor shall also reference intrusion protection barrier location requirements as noted elsewhere in this Scope of Work.

In addition to the requirements of the Construction General Permit, the Project is subject but not limited to FMFCD Ordinance 96-1, "Urban Storm Water Quality Management and Discharge Control". Compliance with Ordinance 96-1 requires that Contractor implement the measures included in the FMFCD's "Fresno-Clovis Storm Water Quality Management Program Construction Site Storm Water Quality Management Guidelines".

5.10.1 Reliability of the Drainage Subsystem

Each pump station site shall be dimensioned to accommodate a redundant set of pumps and control equipment in the full build-out condition.

5.11 Utilities

Contractor shall ensure that existing and planned future utilities are not in conflict with CHSTP, State, and local improvements. Contractor shall relocate and/or protect the existing utilities in



accordance with the requirements specified in the Special and General Provisions, CHSTP Design Criteria, and the requirements of utility owners and local jurisdictions. Contractor shall coordinate with local jurisdictions and the utility owners throughout the Project and shall design and construct the relocation of utilities in conflict with the Project, including future CHSTP facilities to be designed and constructed by others (i.e., relocation of existing overhead utilities that will conflict with future design and installation of CHSTP overhead contact system). Contractor is responsible for protection of utilities to remain in place during and after the performance of the Work.

Agreements executed to date between the Authority and utility owners are included in Book 3 of this Procurement Package. Contractor shall support the Authority for utility relocation agreements that may need to be finalized and/or executed for the project.

Contractor is responsible for providing temporary utilities required for the performance of its work.

5.12 Grounding and Bonding

Contractor is responsible for design, installation, and testing, which includes providing the testing procedures for acceptance of all grounding and bonding for the facilities it is constructing, and shall install provisions for grounding and bonding of facilities constructed by third party or future contractors, per the requirements of Attachment 3 “Scoping Typical Sections,” Attachment 4 “Scope Elements Matrix,” CHSTP Design Criteria, and Directive Drawings.

5.13 Access Control

Contractor shall design, construct, and maintain permanent access control including fences, gates, walls, and doorways.

5.14 Low Voltage Systems, Underground and Undertrack Ductbank, and Manholes

Contractor shall refer to and coordinate between CHSTP Design Criteria, Preliminary Design Plans, and Directive Drawings to locate, design, and install underground undertrack ductbanks and supporting manholes for future CHSTP Systems facilities along the Authority right-of-way, as delineated in Attachment 4 “Scope Elements Matrix” and shown on the Preliminary Engineering Plans. Final locations and designs for the underground and undertrack conduit ductbanks shall be coordinated with Contractor at the Interface Coordination and Design Integration Workshops with the Authority.

5.15 25 kV Traction Power Underground Ductbank and Manholes

Contractor shall refer to and coordinate between the CHSTP Design Criteria, Preliminary Design Plans, and Directive Drawings to locate, design, and install underground undertrack ductbanks and supporting manholes for future CHSTP Traction Power Facilities that are



located away from the Authority right-of-way (e.g., when the relocated Golden State Boulevard separates the Authority right-of-way from a future Traction Power facility site). Final locations and designs for the underground and undertrack conduit ductbanks shall be coordinated with through the Interface Coordination and Design Integration Workshops with the Authority.

5.16 Temporary Lighting and Pumps

Contractor shall be responsible for design and installation of temporary lighting and pump facilities for the Project. Contractor shall leave the temporary lighting and pump facilities for trenches and tunnels in place after completion of the contract.

5.17 Maintainability

The following additional maintainability requirements shall be ensured in the design and construction:

- **Accessibility** – This includes inspection points, hatches, doors, swing out racks, quick release covers and similar features aimed at providing rapid access to equipment and structural elements which requires routine maintenance inspection, cleaning or replacement (such as gratings and filters), without the need for special tools or equipment. Contractor shall ensure ease of access for inspections and for the replacement of components that can be relatively easily replaced.

Other accessibility issues will include physical access into confined spaces, access that does not require dismantling of components and structures, access that minimizes a need for the isolation of the OCS wherever possible, and the maximizing of access and repair activities that require less than five hours to include the set-up of equipment, including scaffolding and lifting platforms in order to conduct inspections and repair replaceable elements, and necessary final inspections and tests that will allow the return of the works to operational status.

Special attention shall be given to avoiding the need to access the underside of bridges and viaducts directly above the tracks given the proximity of the future high voltage OCS, including feeder and static wires and the supporting poles, portals, and headspans. Inspection access shall avoid to the maximum extent possible the need for special equipment, the isolation of OCS, and the occupation of the tracks themselves.

Access shall not require the removal and/or deconstruction of any part of the works in order to inspect bearings, expansion joints and other sensitive elements of the structures that require inspection as part of the regular preventive maintenance program.

Necessity for isolation of the OCS and/or tracks for passenger and work train operations to perform maintenance activities shall be minimized.

Visible fault indicators shall be provided to assist in the physical monitoring or repair of structural elements and equipment.



Handling provisions shall be facilitated - this may include provisions such as lifting lugs for removal/replacement of heavy items or assemblies, fork-lift compatibility and lifting limitations for manual handling.

- Adjustment and Alignment – Provisions shall be made to allow for adjustment or alignment of equipment such that it can be done with no isolation or occupation of the future operating tracks.

5.18 Durability

Contractor shall prepare design and Construction Specifications to meet the Design Life and Durability goals of various elements of the project as stated in CHSTP Design Criteria. Contractor shall submit documentation indicating how design meets the requirements of the Design Life and Durability of various elements of the work to the Contracting Officer for concurrence. Documentation shall include analysis, engineering data or research, and test reports, as applicable. Documentation shall include citing which Construction Specifications requirements and which design details address specific Design Life and Durability issues. Documentation shall explain design and Construction Specifications provisions which address Design Life and Durability for typical elements in specific locations and those design and Construction Specifications provisions which address Design Life and Durability.

As an example, The following aspects for concrete design are among those that shall be addressed to achieve the required service life:

- Design shall develop concrete mixes with cement contents, cement type and water/cement ratios that are compatible with achieving the required chemical resistance as well as producing a workable concrete.
- Admixtures that enhance the durability shall be used.
- Contractor shall identify methodology for assessing the characteristics of the environment, the properties of the concrete required to resist the environment, and the requirements for trials to demonstrate that the concrete being produced is of a suitable standard and has the necessary properties.
- Contractor shall assess the environment and determine what the appropriate value (or values) of permeability would be to achieve the service life.
- Contractor shall develop crack control criteria in accordance with the Design Criteria, AASHTO Bridges and ACI standards and guidelines.

6. Attachments

- Attachment 1 – Limits and Extents of Work Table
- Attachment 2 – Limits of Work Map
- Attachment 3 – Scoping Typical Sections
- Attachment 4 – Scope Elements Matrix



- Attachment 5 – Mandatory Standard Specifications Listing
- Attachment 6 – Mandatory Special Specifications Listing



California High-Speed Train Project



**Request for Proposal
for Design-Build Services**

**RFP No.: HSR 11-16
Scope of Work**

**ATTACHMENT 1
LIMITS AND EXTENTS OF WORK TABLE**

CONSTRUCTION PACKAGE 1
ATTACHMENT 1 - LIMITS AND EXTENTS OF WORK TABLE

SEGMENT	EIR/EIS Document	LIMITS		STATIONING			FT	Miles	TOTALS	
		Start	End	Start	End				Miles	
CP1A	Hybrid Alternative	Merced - Fresno	South of Avenue 17	North of Veterans Boulevard	2065+00	2740+56	67,556	13	15	
					<i>Sta. equality</i> 2740+56 = 1713+98					
					1713+98	1801+43	8,745	2		
					<i>Sta. equality</i> 1801+43 = S 10535+00					
CP1B	"S" Alignment N. of Veterans Blvd to N. of Stanislaus St	Merced - Fresno	North of Veterans Boulevard	West Clinton Avenue	S 10535+00	S 10806+00	27,100	5	8	
		Merced - Fresno	West Clinton Avenue	North of Stanislaus Street (at Turnout)	S 10806+00	S 10970+00	16,400	3		
CP1C	"S" Alignment N. of Stanislaus St to S. of Santa	(See Note 1)	North of Stanislaus Street (at Turnout)	South of Santa Clara Street (at Turnout)	S 10970+00	S 11030+00	6,000	1	1	
	Alignment F1	Fresno - Bakersfield	South of Santa Clara Street (at Turnout)	South of East American Avenue	<i>Sta. equality</i> S 10535+00 = 317+25		27,000	5	5	
					317+25	587+25				

Note:

- Segment is addressed in both the Merced-Fresno and Fresno-Bakersfield EIR/EIS Documents.

Approx. Total: 29

California High-Speed Train Project



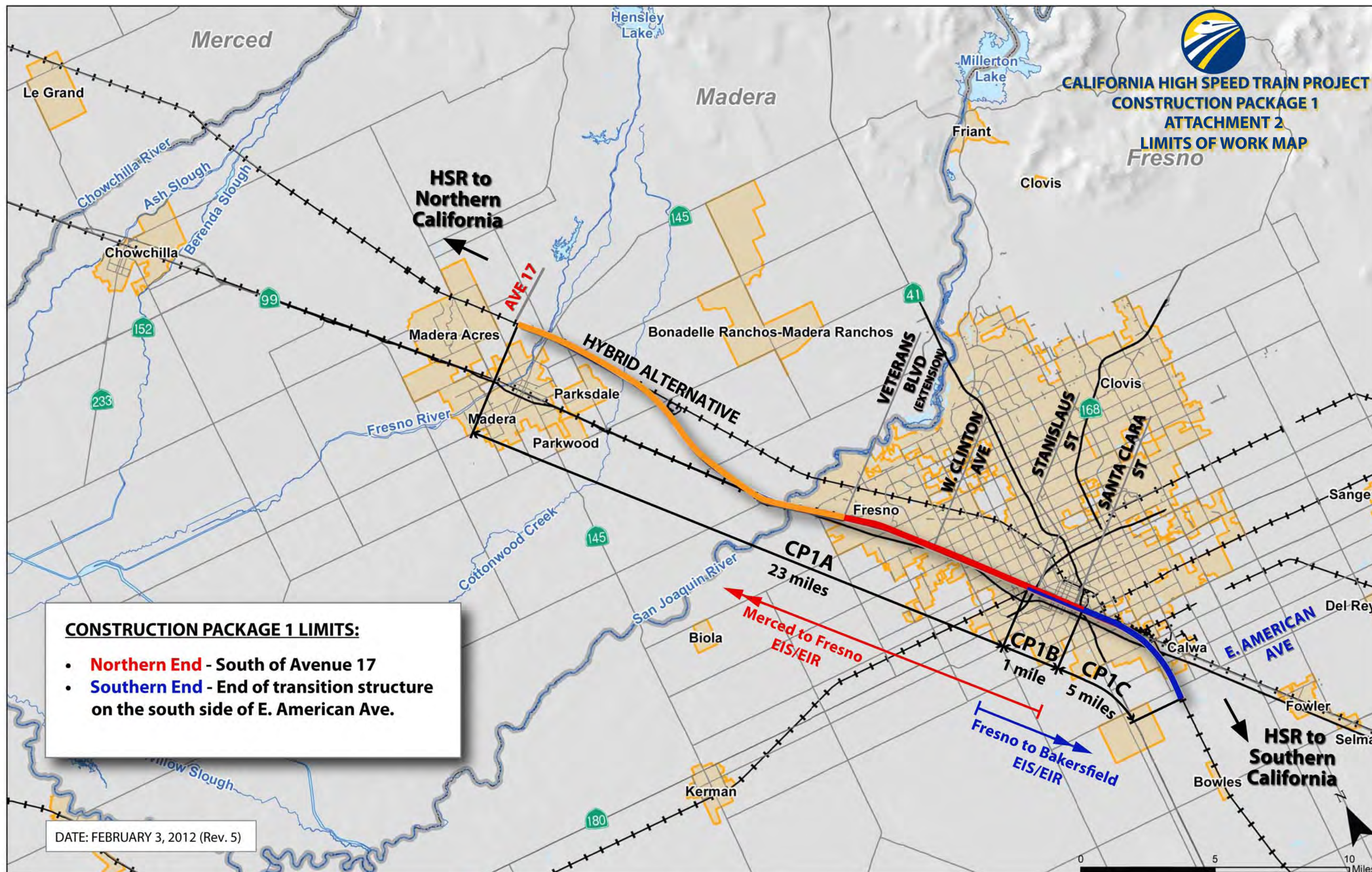
**Request for Proposal
for Design-Build Services**

**RFP No.: HSR 11-16
Scope of Work**

**ATTACHMENT 2
LIMITS OF WORK MAP**



**CALIFORNIA HIGH SPEED TRAIN PROJECT
CONSTRUCTION PACKAGE 1
ATTACHMENT 2
LIMITS OF WORK MAP
Fresno**



CONSTRUCTION PACKAGE 1 LIMITS:

- **Northern End** - South of Avenue 17
- **Southern End** - End of transition structure on the south side of E. American Ave.

DATE: FEBRUARY 3, 2012 (Rev. 5)

Exhibit K

California High-Speed Train Project



TECHNICAL MEMORANDUM

15% Design Scope Guidelines TM 0.1

Prepared by: Signed document on file 12 May 08
Ken Jong, PE Date

Checked by: Signed document on file 12 May 08
John Chirco Date

Approved by: Signed document on file 12 May 08
Ken Jong, PE, Engineering Manager Date

Released by: Signed document on file 3 June 08
Anthony Daniels, Program Director Date

Revision	Date	Description
0	17 Dec 07	Initial Release
1	12 May 08	Update per FRA Review and Comments

Prepared by 
for the California High-Speed Rail Authority

This document has been prepared by **Parsons Brinckerhoff** for the California High-Speed Rail Authority and for application to the California High-Speed Train Project. Any use of this document for purposes other than this Project, or the specific portion of the Project stated in the document, shall be at the sole risk of the user, and without liability to PB for any losses or injuries arising for such use.

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:

Systems:	<u>Signed document on file</u> Print Name: Eric Scotson	<u>12 May 08</u> Date
Infrastructure:	<u>Signed document on file</u> Print Name: John Chirco	<u>12 May 08</u> Date
Operations:	<u>Signed document on file</u> Print Name: Paul Mosier	<u>12 May 08</u> Date
Maintenance:	<u>Signed document on file</u> Print Name: Paul Mosier	<u>12 May 08</u> Date
Rolling Stock:	<u>Signed document on file</u> Print Name: Frank Banko	<u>12 May 08</u> Date

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ABSTRACT

The California High-Speed Train Project (CHSTP) is proposed as a high-speed steel wheel on steel rail train system that provides service throughout the state of California with end terminals in Sacramento, San Francisco, Fresno, Bakersfield, Los Angeles, Anaheim, and San Diego. At this time, the CHSTP is entering the project-level environmental assessment stage. In order to facilitate this process, the CHSTP has been divided into sections where specific engineering and environmental technical studies are being prepared by separate Regional Consultant teams.

This technical memorandum presents design guidance for a minimum level of engineering (referred to as 15% Design) required to support the project-specific EIR/EIS process. It further defines design elements, development level, and engineering outputs with the objective of providing a consistent approach in developing preliminary engineering documents across all teams of the CHSR program while ensuring compliance with applicable state and federal regulations as well as project specific Design Criteria.

1.0 INTRODUCTION

1.1 Purpose of Technical Memorandum

The California High-Speed Train (HST) program is entering the project-level environmental review phase. The HST system is being divided into project sections for environmental clearance and implementation. The purpose of this technical memorandum is to ensure consistency of the California High Speed Train Project (CHSTP) engineering studies by defining a minimum level of engineering design needed to support the project-level environmental process and to support more detailed construction cost estimates.

2.0 DEFINITION OF TECHNICAL TOPIC

This memorandum defines the scope for the engineering effort required to prepare a 15% Design for sections of the CHSTP. It identifies the design elements to be addressed, the level of design effort, and the engineering outputs as part of the project's conceptual design in support of the project-level environmental review. The following parameters were used to develop the 15% Design scope:

- Engineering Subsystems – 15% Design will define requirements for the five subsystems (Infrastructure, Systems, Rolling Stock, Operations, and Maintenance) necessary to design a safe and reliable operating high-speed railway that meets applicable regulatory requirements and achieves CHSTP performance requirements. Additional information regarding the CHSTP objectives can be found in the Basis of Design Report.
- Design Consistency -- 15% Design will conform to the Basis of Design, applicable codes of practice, design guidelines, design practices adopted as part of the program environmental review, and criteria prepared for the CHSTP operational and performance requirements.
- Regulatory and Performance -- 15% Design will comply with Federal Railroad Administration (FRA) railroad safety and California Public Utility Commission (CPUC) regulations except where requirements are otherwise defined specifically for CHSTP operations. Exceptions to regulatory and performance requirements will be identified, documented, and submitted for FRA consideration.
- Construction Cost -- Completion of 15% Design is expected to result in sufficient information consisting of unit costs, quantities, construction staging, and implementation information to allow for preparation of construction cost estimates accurate enough to support a maximum 25% cost contingency.
- Review and Acceptance -- 15% Design will comply with applicable AREMA design standards and with FRA regulations and guidelines. 15% Design deliverables and supporting data will be transmitted to FRA for review, comment, and acceptance as to the applicable environmental, design, operational, and safety requirements. Concurrent review will be performed by state agencies and affected railroad owners and operators.

As each section of the HST system has unique characteristics, it is important to note that the Regional Consultant teams are responsible for confirming whether additional engineering beyond the minimum requirements defined in this document is needed to address specific project issues, to support the Project EIR/EIS or other applicable local laws and regulations, and to generate the construction cost estimate.

3.0 ASSESSMENT / ANALYSIS

3.1 ASSESSMENT

3.1.1 Analysis / Approach

The engineering requirements for the 15% Design were initially established in collaboration with the Regional Consultant engineering managers at a June 2007 Engineering Managers Meeting held in Los Angeles. The requirements were reviewed and revised to incorporate the design requirements for engineering of transit projects prepared under the guidance provided by the Federal Transit Agency (FTA).

As part of the development of the 15% Design scope, these engineering requirements were also reviewed with the following persons:

- Don Emerson, Former FTA Deputy Administrator and author of the white paper "What is PE?" that was prepared for the FTA and describes what occurs during preliminary engineering for FTA New Starts projects.
- Internal reviews and assessments were performed by the Infrastructure Manager for the CHSTP Engineering Management Team and by the Environmental Manager for the CHSTP Program Management Team in November 2007.

3.1.2 Applicability

The guidelines in this technical memorandum are applicable to all Regional Consultants preparing engineering for sections of the CHSTP.

4.0 SUMMARY AND RECOMMENDATIONS

4.1 GENERAL

The recommendations are included in Table 1.

5.0 SOURCE INFORMATION AND REFERENCES

5.1 GENERAL

- "What is PE?", A white paper describing what occurs during Preliminary Engineering for New Starts, Feb 2003, Donald J. Emerson
- 13 June 2007, Engineering Managers Meeting, Los Angeles, CA
- 11 July 2007, Meeting and review with Donald J. Emerson, Former FTA Deputy Administrator

6.0 DESIGN MANUAL CRITERIA

6.1 INFORMATION FOR INCLUSION IN DESIGN MANUAL

The guidance in this technical memorandum is not intended to be a part of the CHSTP Design Manual. The purpose of the CHSTP Design Manual is to define and document appropriate design criteria for the CHSTP. The purpose of this technical memorandum is to define a minimum level of engineering design required to develop a design for environmental assessment and generate a new construction cost estimate.

Table 1. 15% Design Scope Guidelines

TABLE 1	15% Design Scope	Engineering Output
General	Engineering design to support a project-level EIR/EIS, provide a more detailed construction cost estimate, and conform to all requirements and commitments included in decision documents (FRA ROD, Authority resolution, CEQA findings and MMRP, the Final Statewide Programmatic EIR/EIS for the California High-Speed Train Project and the Bay Area to Central Valley Program EIR/EIS). These are minimum requirements. Additional detailed studies are to be completed where necessary.	- Limits of disturbance for each project alternative - Design and technical documentation prepared to support regulatory agency approvals - Required agreements identified - Major cost elements identified - Risk assessment completed and reflected in construction costs for each alternative
Infrastructure	15% Design Scope	Engineering Output
Alignment (Plan and Profile)	- Update alignment with available off-the-shelf (i.e., Intermap) planimetric and terrain mapping (3-foot vertical accuracy) - Alignment drawings at a scale appropriate to the context. Drawing scale is to be ▪ 1"=200' scale for undeveloped areas ▪ 1"=200' in developed areas ▪ 1"=100' in constrained urban areas ▪ 1"=50' for stations and special study areas) on rectified aerial photo base These are recommended scales and are to be confirmed with the Environmental Manager and Regional Manager. - Develop typical sections that identify clearances to water bodies, roadways, structures, access points, wayside equipment, etc. - Define right of way limits	- Base mapping and photo aerials - Horizontal Alignment - Vertical Alignment showing key existing features (ground, water bodies, over and under crossings) - Typical cross sections - Station location alternatives - Limits of at-grade, elevated, and underground structures - Right-of-Way limits for each alternative including easements
Temporary Construction Facilities	- Develop design to a level where the feasibility of construction can be confirmed i.e., plan and profile level studies - Identify construction methods/staging/laydown/tunnel mucking/shaft and access requirements, and assess and identify suitable disposal sites for each alternative consistent the requirements of the decision documents and the two Final Program EIR/EISs (Statewide and Bay Area to Central Valley) - Identify roadway/highway traffic control requirements - Identify other railroad operator requirements - Determine temporary construction easements	- Constructability assessment memorandum - Construction staging concepts as needed to determine limits and to characterize temporary impacts during construction - Temporary construction/staging measures, sites and facilities
Stations	- Develop general station programs and identify and design potential sites including at a minimum: - o Station Platforms - o Preliminary Station layout - o Station facilities (ticketing, waiting areas, etc.) - o Vertical and horizontal passenger circulation - o Parking facility footprint, height, access and egress - o Traffic circulation and intermodal connections - o Pick up, drop off, access, and egress roadways and facilities	- Station Site alternatives - Station footprints - Parking and site configuration - Station Platforms: number, configuration, location - Vertical and horizontal circulation elements

Infrastructure (cont.)	15% Design Scope	Engineering Output
Bridges and Elevated Structures	- Develop approximate length, width, height, and depth of structures based on alignment design - Identify appropriate types of bridges and structures for consideration - Identify transition structures i.e. at-grade to bridge, at-grade to tunnel, bridge to tunnel, retaining walls, etc. - Prepare Advanced Planning Study (APS) level of analysis and documentation - Identify need for scour protection and preliminary requirements - Identify site constraints including, hydrology, salt spray and water, problematic soils, geologic problems, etc.	- Structure design (plan, elevation, cross section) to APS level including: ✧ Bridge length, width, depth, max. height ✧ Column / footing locations ✧ Foundation type ✧ Number of spans ✧ Transitions structures ✧ Retaining walls ✧ Changes to affected adjacent facilities (pedestrian, roadway, highway, railroad) ✧ Major utility relocations - Advanced Planning Study Tech Memo/Report including ✧ Structure importance classification (i.e. lifeline, etc) ✧ Key design and site constraints ✧ Seismic design considerations ✧ Construction costs
Tunnels	- Determine basic tunnel configuration, tunnel location alternatives and lengths - Confirm number of tracks and approximate tunnel diameter - Identify major seismic considerations - Locate faults and avoid fault crossings in tunnels - Assess need for pilot tunnels - Determine portal location options and length - Determine ventilation requirements as required to define tunnel size and any major ventilation facilities - Assess fire and life safety requirements and develop project footprint needs for as required (i.e. structures, equipment/ operation rooms, access, shafts, egress, etc) - Identify local requirements for first responders - Assess constructability including methods, access, temporary construction areas, muck disposal, etc.	- Tunnel horizontal and vertical alignments - Tunnel cross sections including consideration for fire and life safety requirements, OCS, and other required equipment - Mitigation and design requirements for seismic - Tunnel lining requirements - Portal and ventilation structure locations - Cross passage spacing and locations - Construction methods assessment - Temporary construction easements
Buildings	- Develop footprint based on general program of functions for the following: ○ Operations Control Center and redundant line facilities ○ Maintenance facilities (Heavy and Light Maintenance) ○ Lineside facilities for maintenance-of-way ○ Access, parking, utility services for the above facilities as required to define right-of-way requirements ○ Employee considerations as appropriate	- Site Selection - Building footprint limits and size - Parking and Site Configuration - Access requirements - Utility services requirements

Infrastructure (cont.)	15% Design Scope	Engineering Output
Grading	- Determine cut and fill slope limits based on 2:1 side slopes (typical) - Identify retaining structures as required to reduce ROW requirements and/or mitigate impacts - Determine retaining wall type, locations, lengths and heights - Identify temporary construction requirements	- Cut and fill slope catch points included on alignment plans - Retaining wall locations, lengths and heights - Retaining wall type (standard, MSE, tie-back, etc) - Construction easement requirements
Hydrology / Hydraulics / Drainage	- Prepare Hydrology and Hydraulic studies required for environmental impact studies including: - o Type, location and cost of major drainage facilities or modifications as well as their footprint and costs - o Assess and incorporate rise in tidal waters (and expansion of tidal waters) due to climate change (global warming) - o Environmental methodologies for hydrology and design practices to reduce impacts or improve water quality - Prepare a floodplain impacts assessment (i.e Location Hydraulic Study) - Review stormwater runoff water quality issues and identify best management practices	- Hydrology and Hydraulics Report - Floodplain Impacts Assessment Report - Storm Water Management Report
Utilities	- Contact utility companies for data collection - Identify conflicts, ownership and rights for major utilities affected by the alignment. - Identify planned new High-Risk utilities that could conflict with alternatives. - Identify possible relocation/mitigation options, responsibilities and costs for high risk utilities	- Major utilities identified - High Risk Utilities Conflict memo
Geotechnical	- Research available literature and geotechnical studies within the project limits for use to identify and resolve geotechnical related design and cost issues - Prepare preliminary Geotechnical design recommendations based on available geotechnical data - Geotechnical investigation plan recommendations to support 15% Design - Subsurface investigations for special circumstances where additional geotechnical information is required to establish the project footprint or to establish a reasonable construction cost estimate	- Updated Geotechnical Database - Preliminary Geotechnical Design Report - Geotechnical investigation plan recommendations
Right-of-Way	- Identify adjacent parcels and ownership for alternatives - Identify adjacent parcels and estimated costs for: - o Full and partial takes - o Permanent easements - o Construction areas - o Temporary staging areas and easements	- Preliminary right-of-way Requirements Report
Construction Cost Estimate	- Develop quantities per CHSTP 15% Design Construction Cost Guidelines - Prepare construction cost estimates per CHSTP Construction Cost Guidelines (cost categories consistent with FRA and FTA guidelines)	- 15% Design level quantities - Cost adjustments to reflect regional conditions

Systems	15% Design Scope	Engineering Output
Traction Power	- Identify site locations, access, and parking for substations. - Determine facilities for power between substation to the railway - Coordinate preliminary CHSTP load requirements with CPUC	- Traction Power System Computer Model Analysis - Approximate substation locations and footprint requirements
PUC / Electric Power Connections	- Identify power supply points in coordination with the Utility Companies - Identify needed facilities and site options, including high voltage transmission or tie lines, to connect substations to commercial power lines	- Possible power supply points - Engineering requirements for Grid connections
Overhead Contact System (OCS)	- Develop conceptual design for OCS for design speeds	- Conceptual OCS Design - Electrical Clearance Diagrams - Standard Drawings
Communications	- Determine communications technology - Identify footprint and access requirements for communication facilities	- Physical requirements to support communications technology outside the CHSTP corridor
Trackside Services	- Identify requirements for equipment houses, signal houses, troughs, wayside equipment, etc.	- Physical requirements within the corridor for trackside equipment
Rolling Stock	15% Design Scope	Engineering Output
Technology	- Identify Rolling Stock performance requirements to meet CHSTP requirements including operating speed, capacity - Review available technology from HSR systems in the U.S., Europe and Asia	- Rolling Stock performance characteristics for use in Train Simulation Model and Traction Power Model
Clearances	- Develop vehicle clearance requirements that is inclusive of potential vehicle technologies for the CHSTP	- Vehicle Clearance Diagrams (Structure Gauge)

Operations	15% Design Scope	Engineering Output
Facilities	- Identify activities and functional requirements for an operations center - Review requirements for redundancy of the operations facilities - Identify potential locations and develop size of operations facilities	- List of activities and functionality of the operations facilities - Types and size of operations facilities including a Central Control Center and redundant line facilities as required
Operations Concept	- Identify train performance characteristics that meet CHSTP performance requirements including operating speed and capacity - Identify operational parameters to provide a train service that supports the projected ridership - Develop a train dispatch schedule using computer based train simulation models to confirm operational feasibility and number of trainsets	- Concept of Operations Report
Maintenance	15% Design Scope	Engineering Output
Rolling Stock	- Develop list of activities and functions for a Heavy Maintenance/Repair facility - Develop list of activities and functionality for the Light/Medium maintenance facilities located near terminal stations - Determine facility requirements for rolling stock maintenance facilities - Develop track layout and access requirements for central maintenance and repair facility (Heavy Maintenance /Repair) and terminal maintenance facilities (Light/Medium Maintenance) - Identify potential hazardous waste generators, special requirements for storage, and current best practices for disposal	- Alternative sites and approximate size of Heavy Maintenance/Repair facility - Alternative sites and sizes of Light/Medium maintenance facilities near terminal stations
Maintenance of Way	- Determine maintenance-of-way (MOW) activities and access requirements based on expected CHSTP infrastructure - Identify and develop siding locations for MOW maintenance facilities - Identify and develop HST railway access points from local roads including easement requirements - Identify requirements for continuous longitudinal access for inspection and maintenance - Identify effects on maintenance of adjacent railroads. - Identify requirements for emergency access and incident response	- Sites for MOW facility locations and functional requirements - Determination if MOW facilities require additional footprint - Confirmation of accessibility of CHST alignment for maintenance

Exhibit L



Central Valley Sections:

San Jose-Merced, Merced-Fresno, Fresno-Bakersfield

Overview of Biological Resources and Wetlands Survey Plan

November 5, 2009

Central Valley

California High-Speed Train Project





Survey Plan Effort

- Program EIRs/EISs Commitments to conduct subsequent analyses
- Subsequent Response to Agencies
 - Consolidated methodologies for Central Valley Projects
- Close Coordination between Sections
 - Background Research
 - Results
 - Field Survey Plan





Survey Plan Outline

- Resources
- Background Research
- Results
- Field Survey Plan
 - Where? (Survey Areas)
 - How? (Protocols)
 - When? (Survey Timing/Duration)
 - Reports
- Summary
- Discussion





Field Surveys: Wildlife

- Guidelines - Wildlife Habitat Assessment
 - Habitat based, *not protocol-level surveys*
 - *Based on results of habitat assessment, protocol-level surveys for select species would be conducted*
 - Species with widespread range=assume presence
 - Protocol-level surveys for species that are habitat specialist species, or with limited range
 - *Why not protocol-level surveys?*
 - Time constraints
 - ARRA Funding





Field Survey Plan: When?

- Different Projects=Different Schedules
- Optimize surveys to observe and record wetland, botanical and wildlife resources

Resource	Central Valley HST Projects
Wetland	November-May
Botanical	3 events early, mid, late season (March-August)
Wildlife	November-May



Exhibit M

Figure 10. Conceptual California-Wide Networked Transit

