



Redwood City's Overview of the California High Speed Rail Authority's Preliminary Alternatives Analysis Report (AA Report) – April 29, 2010

This summary outlines and highlights some of the key areas of the California High-Speed Rail (HSR) Authority's Alternatives Analysis Report (AA Report). This informal summary is provided by Redwood City staff to assist interested Redwood City community members in their review of the AA Report. It is not intended to represent any opinions or preferences, but is provided simply as a tool to assist in reviewing and understanding the content of the AA Report, helping people to form their own opinions and preferences about how the High Speed Rail system may be built through Redwood City. This summary has not been reviewed by or sanctioned by the California High-Speed Rail Authority.

Background:

The California High Speed Rail system (HSR) is planned to provide intercity, high-speed service on more than 800 miles of tracks throughout California, connecting major population centers. The HSR is envisioned as a state-of-the-art, electrically powered, high-speed, steel-wheel-on-steel-rail technology. The HSR will provide an expected express trip time between Los Angeles and San Francisco of approximately 2 hours and 40 minutes.

In the section between San Francisco and San Jose, trains will not exceed 125 mph and will operate in a shared use corridor with Caltrain, which is planned to be converted to an electrified railway.

Community members are directed to Redwood City's High Speed Rail information page (www.redwoodcity.org/HSR.html), where there are links to the complete 135-page draft AA Report, the complete draft Appendices to the AA Report, and a short document published by Caltrain titled *Peninsula Rail Program Frequently Asked Questions*.

Overview of Vertical Options:

The HSR segment through Redwood City is divided into three subsections:

- Subsection 4C (1.57 miles in length, between Cordilleras Creek and just north of Woodside Road)
- Subsection 4D (0.6 mile, between North of Woodside Road and north of 5th Avenue)
- Subsection 5A (0.76 mile, between north of 5th Avenue and south of 5th Avenue)

For the detailed evaluation of alternatives, HSR expanded the three basic vertical options – elevated, at-grade (existing Caltrain grade), and below grade – to six options to better differentiate their characteristics. An overview of the six vertical options is shown below. The construction cost estimates are found in Appendix L, and are described in the AA Report as “order-of-magnitude” cost comparisons of the different design options; they do not represent total costs for the project. Cost estimates summarized below primarily reference the 4-track scenario only; please refer to Appendix L for additional cost estimate information.

1. Aerial viaduct
 - Elevated structure on columns crossing over existing streets to provide grade-separated access in the community (except in the transitional area of changing vertical alternatives, and at supporting structures).
 - Property impact: to accommodate four tracks, a width of 79 feet is required. The nominal width including the necessary Temporary Construction Easement (TCE) for this option is 103 feet in subsection 4C.
 - Capital cost estimate: \$157 million for the four-track scenario in subsection 4C.
2. Berm or Mechanically Stabilized Earth (MSE) – this is essentially a large earthen wall on top of which would be the tracks (similar to the existing Caltrain tracks in parts of southern San Carlos).
 - The berm option does not enhance connectivity and mobility as well as an aerial viaduct option or trench or tunnel option. From the perspective of land use, the berm is inconsistent with adopted plans and policies; there is strong local opposition to this type of structure; and the berm structure (wall) would create a perceived barrier through this area which is not consistent with the local communities’ character and land uses.
 - This option has not carried forward in Redwood City for any subsections.
 - Property impact: 85 feet; 109 feet with TCE.
3. At-grade (existing Caltrain grade)
 - Grade separations requiring surface streets to go either over or under the tracks that remain at existing Caltrain grade. Right-of-way impacts include parcels affected by changes to the roadway profile approaching the grade separation. This option doesn’t provide community access except at the street crossings.
 - Property impact: 96 feet; TCE minimal (construction would occur primarily within ultimate ROW).
4. Open trench
 - This is a shallow “box” that is open at the top, and bridged at street crossings, drainage channels, or streams. Where they cross the trench, the structures of these bridged areas would be approximately 10 feet in depth in order to accommodate existing utilities. This option does not provide community access except at the street crossings.
 - Property impact: 96 feet; 120 feet with TCE.
 - Capital cost estimate: \$325 million for four-track scenario in subsection 4C.
5. Covered trench/tunnel

- This is a shallow covered “box” requiring fire and life safety systems. The top of the box would be approximately 10 feet below the existing street level to minimize impact to existing underground utilities.
 - This option provides community access in general except at the locations of fire and life safety systems and other support facilities.
 - Property impact: 96 feet; 120 feet with TCE.
 - Capital cost estimate: \$765 million for four-track scenario in subsection 4C.
6. Deep tunnel (HSR only)
- This is a deep tunnel, requiring large surface areas at the tunnel portals to facilitate construction. Fire and life safety systems are required.
 - This option needs to be considered together with reconstruction of the Caltrain tracks to achieve the required grade separation. This option does not provide community access unless the Caltrain tracks are elevated or relocated in a covered trench.
 - Property impact: Low impact except tunnel portal location.
 - Capital cost estimate: \$447 million (\$336 million for two-track HSR deep tunnel and \$111 million for two-track Caltrain aerial viaduct).

Guide to Critical Sections of the AA Report:

“Summary” section, page S -1:

The Preliminary Alternatives Analysis Report and its associated engineering and environmental analysis confirm that a four-track, grade-separated, shared Caltrain and High Speed Rail (HSR) system is feasible and is the preferred HSR alternative between San Francisco and San Jose on the Peninsula. It also confirms that such a system between San Francisco and San Jose can be built at costs that are in the range of what has been presented in the 2009 Business Plan and in previous Program Level environmental documents.

The entire alignment will be a predominantly four-track, grade-separated railroad and will allow both Caltrain and HSR to operate their respective services. It will be a shared-track system with HSR operating at speeds up to 125 mph and Caltrain up to 110 mph between San Jose and San Francisco.

The HSR stations recommended for continued study are:

- Downtown San Francisco (locations at both the Transbay Transit Center, and 4th and King)
- San Francisco International Airport Connector Station
- Potential mid-peninsula station – Redwood City, Palo Alto and Mountain View are currently under consideration.

In order to develop an appropriate and logical cost estimate, all of the 10 subsections of the Caltrain corridor must be “stitched” together into a cohesive system from San Francisco to San Jose. This exercise will be part of the 15% design study which is currently underway. Each transition from one vertical solution to another requires approximately 3,000 feet or just over ½ mile, so “quick” adjustments between vertical

alternatives are not possible.

Table of Alternatives Carried Forward, page S – 2:

This table graphically summarizes each of the six vertical design options and highlights which design options are “carried forward” for further consideration in each of the 10 geographic subsections. Redwood City is in subsection 4C and 4D; subsection 5 includes unincorporated areas. The following alternatives are carried forward for each subsection:

- Subsection 4C from south of Cordilleras Creek to north of Woodside Road: aerial viaduct, open trench, covered trench/tunnel, deep tunnel (HSR only)
- Subsection 4D from north of Woodside Road to north of 5th Avenue: aerial viaduct (HSR only), at-grade (Caltrain only), open trench (HSR only), covered trench/tunnel (HSR only), deep tunnel (HSR only)
- Subsection 5A from north of 5th Avenue to south of 5th Avenue: at grade, deep tunnel (HSR only)

“Next Steps,” page S – 5:

The preliminary AA Report informs the project description for the EIR/EIS. It also sets parameters for the next level of design (15%) and environmental analysis. As the engineering and environmental work continues, the Authority and Caltrain will continue to meet and engage the cities on the corridor in a discussion about the various alternatives. If deemed necessary by the lead agencies, a supplemental AA Report will consider feedback received about the preliminary AA Report and will discuss how the alternatives analysis will inform the detailed engineering, environmental, and outreach activities on the Caltrain Corridor. These activities will inform preparation of the draft EIR/EIS, which is currently scheduled for public comment in December of 2010.

“Design Objectives and Project Alternatives,” pages 2-2 and 2-3:

Six tables are included in this section. One table summarizes the project design objectives, and the remaining five tables summarize the measures used to evaluate and compare the project alternatives:

- Alignment and station performance objectives and criteria
- Land use evaluation measures
- Constructability evaluation measures
- Community evaluation measures
- Environmental resources evaluation measures
- Natural environment evaluation measures

Additional information pertaining to Context Sensitive Solutions (CSS) principles and transportation processes, outcomes, and decision-making are found here and on page 2-4.

“Alternatives,” page 3-1:

This section describes the two-step process used for evaluation of project alternatives, including an additional “No Project Alternative.” Elements included in this section are conventional passenger rail, highway, transit, and aviation. Subsections 4 and 5

(Redwood City and unincorporated area) are outlined on pages 3-15 and 3-16. The public outreach process, including feedback, is described beginning on page 3-20. A table outlining the options carried forward for all subsections is shown on pages 3-24 and 3-25.

“Development and Evaluation of Project Alternatives,” page 4-1:

This is an extensive section. Redwood City-specific information (subsection 4) is found on pages 4-35 through 4-44, and information pertaining to the unincorporated area (subsection 5) is found on pages 4-45 through 4-51. General information is included early in this section beginning on page 4-1, and includes the following:

- Detailed descriptions of alternatives, including operations and configurations
- Evaluation measures, including criteria (capital cost, property impact, utilities, and environmental resources and measures)

“Rail Crossovers During Freight Service Operation,” page 4-2:

The existing freight “spurs” along the corridor will be served by freight trains operating on the corridor between midnight and 5:00 AM under special operating conditions.

“Analysis Summary and Conclusions,” page 5-1:

This 5-page portion of the AA Report summarizes options carried forward for each geographic subsection, and includes a summary table.

Appendices:

Readers may wish to review one or more appendices, which contain additional, pertinent information. The appendices are linked via the City’s HSR informational page at www.redwoodcity.org/HSR.html.

Appendices that may be of most interest to Redwood City community members include the following:

Appendix B, Plan & Profile Drawings: presents guidance for geometric design as it pertains to horizontal and vertical alignment elements, and track layouts at Caltrain stations. Guidelines and values are provided for three types of design criteria: Desirable, Minimum, and Exceptional. Detailed graphics are included for each geographic subsection, so readers interested primarily in the Redwood City area may easily direct themselves to the schematics for subsections 4 and 5.

Note: Minimum grade for HSR service: 1.25% (Desirable), 2.5% (Maximum), and 3.5% (Exceptional). Minimum grade for Caltrain (shared use) tracks with diesel powered freight trains: 1.0%. Intermediate HSR station track layout: 1,380 feet with an outboard platform width of 20 feet.

Appendix C, Typical Cross Sections: contains fairly detailed technical drawings and specifications.

Appendix D, Utilities Table: contains a succinct table of immovable / relocation avoidance utilities, presented by geographic subsection.

Note: Only the Hetch Hetchy aqueduct has been identified as “immovable” at Milepost 26.77 north of 5th Avenue. Twenty one feet of storm drain concrete channel at Milepost 22.34 in Belmont have been identified as “relocation avoidable.” Additional utilities information must be evaluated for crossings of Redwood Creek and other local utilities.

Appendix J, Right-of-Way: contains detailed drawings showing numerous rights-of-way and easements for each subsection. Page order is arranged from geographic north to south, consistent with other sections of the AA Report. Subsection 4 (Redwood City) is found in drawings 24A through 26A, and subsection 5 (unincorporated area) is found in drawings 26A and 27A.

Appendix K, Train Operations: contains technical memorandums and detailed, extensive operational schematics.

Note: The *Technical Memorandum* (dated Nov. '08) in Appendix K includes several tables that show Redwood City (RWC) as the only intermediate station between Millbrae (SFO) and San Jose (SJC); the other potential mid-peninsula stations are not referenced in these tables. The “dwell time” (stopping time at stations) at RWC and SFO stations is 1.5 minutes, and 2.0 minutes in SJC. The RWC station serves several of the train stopping patterns. RWC is the only stop between San Francisco Transbay (SFT) and SJC in the “Bay Area Limited” pattern and in several of the San Fernando Valley Limited patterns. The minimum trip time between SJC and SFT is 27 minutes.

Appendix L, Conceptual Cost Estimates: contains an extensive and detailed listing of construction cost estimates based on conceptual designs of the various vertical options. Right-of-way costs are not estimated but are only identified qualitatively (high, medium, low). Detailed costs for Redwood City are found in subsection 4, and for the unincorporated area in subsection 5 (pages not numbered).

Note: Costs for potential mid-peninsula HSR station are not included. Temporary construction easement is not included. Contingency of 25% is included.

Next Meeting:

The second of two High Speed Rail community information meetings in Redwood City is scheduled for May 11, and will be hosted by Redwood City:

Tuesday, May 11, 2010 – 7:00 pm
Veterans Memorial Senior Center
1455 Madison Avenue, Redwood City

The May 11 meeting follows up on the April 29 meeting, providing an opportunity for the community to have small group discussions about what they support or are concerned about regarding the High Speed Rail system, how those concerns might be addressed, and

their preferences and opinions about the alternatives presented by the High-Speed Rail Authority.

From this second meeting City staff will compile the attendees' comments, concerns, areas of support, and opinions on preferred alternatives, and fold them into the City's official "comment letter" to the HSR. All collected comments will be provided to the HSR, along with the letter from the City Council outlining the City's specific comments on the alternatives.