



**CALIFORNIA
HIGH-SPEED RAIL
AUTHORITY**

BRIEFING: JUNE 2010 BOARD MEETING AGENDA ITEM #6

TO: Chairman Pringle and Authority Board Members

FROM: Carrie L. Bowen, Deputy Director

DATE: May 25, 2010

RE: Fresno to Bakersfield Section Preliminary Alternatives Analysis

Fresno to Bakersfield Preliminary Alternatives Analysis

This agenda item is intended to serve as the release of the Preliminary Alternatives Analysis (AA) Report for the Fresno to Bakersfield Section and provide the public and the Board an opportunity to be briefed on the current state of analyzing the alignment and station alternatives in the section. The full Fresno to Bakersfield Preliminary Alternatives Analysis will be posted on the CHSRA Web site on June 3, 2010.

Subject to United States Environmental Protection Agency and U.S. Army Corps of Engineer concurrence as part of the Clean Water Act § 404 (b)(1)/National Environmental Protection Act NEPA integration process, and considering the technical data and the extensive community, stakeholder, and agency input received, Authority staff recommends the alignment, station, and heavy maintenance facility alternatives identified in the attached Executive Summary of the Preliminary AA be carried forward for detailed study in the Fresno to Bakersfield Section HST Project EIR/EIS.

Staff Recommendation

Staff requests approval of the Preliminary AA.

Attachments:

- ✓ Preliminary AA Report Executive Summary

ES.0 Executive Summary

ES.1 Results from the Preliminary Alternatives Analysis

This Preliminary Alternatives Analysis Report for the Fresno to Bakersfield Section incorporates conceptual engineering information and identifies feasible and practicable alternatives to carry forward for environmental review and evaluation in the draft environmental impact report/environmental impact statement (EIR/EIS) under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). For the purposes of this Alternatives Analysis, the Fresno to Bakersfield section was divided into three subsections from north to south:

- **Fresno Subsection** – Beginning at Clinton Avenue north of downtown Fresno and terminating in the vicinity of E. Manning Avenue south of Fresno (Figure ES-1).
- **Rural Subsection** – Beginning at E. Manning Avenue in Fresno and continuing south to Hageman Road in the community of Rosedale on the northwestern outskirts of Bakersfield (Figure ES-2).
- **Bakersfield Subsection** – Beginning at Hageman Road, continuing southeast through downtown Bakersfield and terminating at Oswell Street, southeast of downtown (Figure ES-3).

The study limits extend for approximately three miles north of the Fresno station and three miles southeast of the Bakersfield station in order to fully consider alignment alternatives in those areas. In both cases, the limits correspond to points where multiple options are reduced to a single alignment for a short distance.

A Heavy Maintenance Facility (HMF) for High-Speed Train rolling stock will be situated within the Central Valley between Merced and Bakersfield. In November 2009, based on specific site and facility requirements, the Authority solicited Expressions of Interest (EOI) from parties between Merced and Bakersfield who could provide proposals where the HMF could be located. Within the Fresno to Bakersfield Section of the High-Speed Train (HST) system, proposals for eight sites were received (Figure ES-4).

The following alignment alternatives are recommended to be carried forward for detailed study in the Fresno to Bakersfield Section HST Project EIR/EIS (Figure ES-4).

- **Fresno Subsection**
 - Elevated UPRR West / BNSF South
 - Elevated UPRR East / BNSF South
 - 4(f) Avoidance Alternative (Combination of UPRR West and UPRR East)

All recommended alternatives through Fresno are elevated, run adjacent to the Union Pacific Railroad, and provide for a station in downtown Fresno near Mariposa Street, the City’s desired location.

- **Rural Subsection**
 - Full-Length Alignment
 - BNSF Route, West Side Shared Right-of-Way, Bypass east side of Hanford
 - Local Options
 - Through Corcoran, East Side of BNSF, Elevated
 - Corcoran East Bypass, At-Grade
 - Allensworth 4(f) Avoidance Alternative, At-Grade (west of BNSF corridor)
 - Through Wasco and Shafter, Elevated
 - Wasco and Shafter Bypass, At-Grade

Recommended Rural Subsection alternatives are largely at grade and parallel the existing BNSF Railway where possible, including sections where BNSF right-of-way is shared. Through-town (elevated) and bypass (at-grade) options are retained in the vicinity of small communities (Corcoran, Wasco, and Shafter). A Section 4(f) resource avoidance bypass is also provided in the vicinity of Allensworth State Historic Park and Pixley National Wildlife Refuge. All alternatives allow for a station in Kings County east of Hanford at SR-198.

- **Bakersfield Subsection**

- Through BNSF Yard, North of East Bakersfield, South of UPRR, Elevated
- North of BNSF ROW, along California Avenue through East Bakersfield, South of UPRR, Elevated

Recommended Bakersfield alternatives are both elevated; have slightly differing locations with respect to existing BNSF mainline and yard, major downtown buildings, and the low income community of East Bakersfield; and provide for a station adjacent to or near the existing Truxtun Avenue Amtrak station.

Heavy Maintenance Facility sites recommended for continued study are (Figure ES-4, from north to south):

- Fresno Works – Fresno
- Kings County – Hanford
- Kern Council of Governments – Wasco
- Kern Council of Governments — Shafter

Table ES-1 summarizes the findings and recommendations of this Alternatives Analysis for all alignment alternatives and HMF site alternatives considered.

ES.2 Alternative Analysis Evaluation Measures

The alignment alternatives, station locations, and design options carried forward into the detailed alternatives analysis were assessed for each of the project objectives and evaluation measures. This information was then used to determine which alternatives are feasible and practicable and should be carried forward into preliminary engineering design and environmental review as part of the EIR/EIS. The primary evaluation measures are listed below.

- ◆ Design objectives (including measures such as travel time and cost)
- ◆ Land use (including measures such as consistency with land use and general plans)
- ◆ Constructability (including measures such as track type construction and access to the corridor)
- ◆ Community impacts (including measures such as amount of land acquisition)
- ◆ Natural resources (including measures such as impacts to wetlands, potential threatened and endangered species habitat, and important farmlands)
- ◆ Environmental quality (including measures such as number of sensitive noise receptors)
- ◆ Additional considerations (including measures such as ability to meet project purpose and support by public and agencies)

ES.3 Fresno to Bakersfield High Speed Train Project Background

The 2005 Final Statewide Program EIR/EIS identified as a preferred alternative the BNSF alignment because it would have fewer constructability issues; fewer potential noise, cultural, community, and

property impacts; and an estimated lower cost than Union Pacific Railroad (UPRR) alignment options. In discussing the BNSF alignment, the Program EIR/EIS noted that potential environmental impacts could be avoided and minimized if the HST system could reach agreements with BNSF to share the existing rail right-of-way to the greatest extent feasible. Although the preferred alternative identified no potential station between Fresno and Bakersfield, the Program EIR/EIS recommended a follow-up study to consider alignments that could serve a station in the Visalia area. Consistent with that recommendation, the Authority prepared the *Visalia-Tulare-Hanford Station Feasibility Study*, which identified potential station locations in the Kings–Tulare region and alignments that could serve those locations. The findings of that study are reflected in this Preliminary Alternatives Analysis.

ES.4 Public and Agency Outreach Efforts

The Authority and the FRA, in addition to performing engineering and environmental analysis, have engaged the agencies, public, and the communities throughout the corridor and continue to incorporate their input. In February 2009, the Authority and the FRA began a project-level environmental review of the Merced to Bakersfield HST Section per requirements of CEQA and NEPA. Scoping meetings were held in March 2009, to receive input on the scope of issues that should be analyzed in the EIR/EIS. The meetings were summarized in the Merced to Bakersfield High Speed Train Project EIR/EIS Scoping Report released in July 2009. Subsequent to issuance of that report, the Merced to Fresno and Fresno to Bakersfield Sections were separated to become two independent project-level environmental studies, and an amended scoping process for the Fresno to Bakersfield Section only was undertaken. The final scoping report for the Fresno to Bakersfield Section was issued in December 2009.

In addition, a number of agency, general public, and small group meetings were held throughout the Alternatives Analysis process. The purpose of these meetings was to explain the alternatives analysis process, share the results of the preliminary studies with the public and agencies, and receive feedback.

Input at these meetings and other comments were distilled to produce initial alignment alternatives and station and design options for consideration in this AA Report. Feedback from the public and agencies included issues such as noise, visual impacts, vibration, community cohesion, biological impacts, project cost and funding, right-of-way, and more.

ES.5 Next Steps

This Preliminary Alternatives Analysis Report Fresno to Bakersfield Section informs the Project Description for the EIR/EIS. It also sets parameters for the next level of design and environmental analysis. This ongoing work will provide the Authority, FRA and the communities in Fresno to Bakersfield Section more details and a fuller picture of both the design options in each subsection and a comprehensive vision of the entire corridor.

As the engineering and environmental work continues, the Authority will continue to meet and engage communities along the Fresno to Bakersfield corridor in a discussion about the different alternatives. If deemed necessary by the lead agencies, a supplemental Alternative Analysis report will consider feedback received on this Preliminary Alternative Analysis report and will discuss how the alternatives analysis will inform the detailed engineering, environmental and outreach activities in the Fresno to Bakersfield corridor. These activities will inform preparation of the draft EIR/EIS, which is currently scheduled for public comment in December 2010.

Table ES-1. Alignment Alternatives and Heavy Maintenance Facility Sites Considered

ALIGNMENT ALTERNATIVE/STATION LOCATION AND DESIGN OPTIONS	AA DECISION		REASONS FOR ELIMINATION (P-Primary S-Secondary)							ENVIRONMENTAL/OTHER CONCERNS
	Carried Forward	Withdrawn	Construction	Incom-patibility	Right-of-Way	Connectivity/Accessibility	Revenue/Ridership	Community Impact	Environment	
Fresno Subsection										
UPRR West / Elevated / BNSF	X									Visual and noise impacts; impact on 4(f) property (Roeding Park). Station further from downtown core (less desirable).
UPRR East / Elevated / BNSF	X									Visual and noise impacts; impact on historic 4(f) property (SP Depot Building). Station closest to downtown core (desired City location).
Golden State Blvd / Elevated / BNSF		X		P		S			S	Extensive community and cultural impact; located away from urban core; not preferred by City and stakeholders; more costly and complex construction.
UPRR West / Elevated / UPRR		X		S					P	Not compatible with selected alignments in Rural Subsection.
UPRR East / Elevated / UPRR		X		S					P	Not compatible with selected alignments in Rural Subsection.
Golden State Blvd / Elevated / UPRR		X		P		S			S	Community and cultural impacts; located away from downtown urban core; not preferred by City and stakeholders; costly and complex construction.
UPRR West / Mixed At-Grade & Elevated / BNSF		X	P						S	Displacements; road network severance; noise; community barrier effects.
UPRR East / Mixed At-Grade & Elevated / BNSF		X	P						S	Displacements; road network severance; noise; community barrier effects.
Golden State Blvd / Mixed At-Grade & Elevated / BNSF		X		P		S			S	Greatest community and cultural impact; located away from urban core; not preferred by City and stakeholders; costly and complex construction.
UPRR West / Mixed At-Grade & Elevated / UPRR		X	S						P	Not compatible with selected alignments in Rural Subsection.
UPRR East / Mixed At-Grade & Elevated / UPRR		X	S						P	Not compatible with selected alignments in Rural Subsection.
Golden State Blvd / Mixed At-Grade & Elevated / UPRR		X		P		S			S	Community and cultural impacts; located away from downtown urban core; not preferred by City and stakeholders; costly and complex construction.
Section 4(f) Avoidance (UPRR West / East Crossover)	X									Visual and noise impacts; costly and complex construction. No impacts on 4(f) properties. Station further from downtown core (less desirable).
Rural Subsection										
Full-Length Alignment Alternatives										
BNSF-Hanford East Bypass / Shared ROW	X									Greater construction complexity and cost; more coordination and mitigation of BNSF operational impacts required.
BNSF-Hanford East Bypass / Separate West Side Alignment		X			S				P S	Alternative has greater ROW requirements and impacts more agricultural lands and natural resource lands than "Shared ROW" alternative. Separate HST ROW not feasible within rural communities of Corcoran, Wasco, and Shafter.
BNSF-Hanford East Bypass / Separate East Side Alignment		X			S				P S	Alternative has greater ROW requirements and impacts more agricultural lands and natural resource lands than "Shared ROW" alternative. Separate HST ROW not feasible within rural communities of Corcoran, Wasco, and Shafter.
UPRR to BNSF / Shared ROW		X		P		S			S S	UPRR corridor not selected due to (1) deviation from preferred Program EIR/EIS alignment, (2) extensively greater Greenfield construction, (3) moderately greater impacts on agricultural lands, and (4) greater cost and construction complexity.
UPRR to BNSF / Separate West Side Alignment		X		P		S			S S	UPRR corridor not selected due to (1) deviation from preferred Program EIR/EIS alignment, (2) extensively greater Greenfield construction, (3) moderately greater impacts on agricultural lands, and (4) greater cost and construction complexity.
UPRR to BNSF / Separate East Side Alignment		X		P		S			S S	UPRR corridor not selected due to (1) deviation from preferred Program EIR/EIS alignment, (2) extensively greater Greenfield construction, (3) moderately greater impacts on agricultural lands, and (4) greater cost and construction complexity.
Local Alignment Options										
Fowler/Selma/Kingsburg Greenfield Bypass		X		P		S			S S	Not compatible with selected full-length alignment alternative.
Fowler/Selma/Kingsburg Near-Town Bypass		X		P		S			S S	Not compatible with selected full-length alignment alternative.
Visalia 198 East Station Alignment		X		P		S			S S	Not compatible with selected full-length alignment alternative.
99 Center Station (South of 198) Alignment		X		P		S			S S	Not compatible with selected full-length alignment alternative.
99 North Station (Goshen) Alignment		X		P		S			S S	Not compatible with selected full-length alignment alternative.
BNSF Hanford West Bypass (Modified Program Alignment)		X		S					P S	Has agricultural impacts similar to Hanford East Bypass; conflicts with local land use plans; station site poorly serves Visalia Tulare area.

Table ES-1. Alignment Alternatives and Heavy Maintenance Facility Sites Considered

ALIGNMENT ALTERNATIVE/STATION LOCATION AND DESIGN OPTIONS	AA DECISION		REASONS FOR ELIMINATION (P-Primary S-Secondary)							ENVIRONMENTAL/OTHER CONCERNS
	Carried Forward	Withdrawn	Construction	Incom-patibility	Right-of-Way	Connectivity/Accessibility	Revenue/Ridership	Community Impact	Environment	
Corcoran Through Town (At-Grade)		X	P			S		P		Major intrusion through small community; loss of road network connectivity; extensive commercial and some residential displacement; inconsistent with BNSF operations and service to local customers; at-grade construction is costly and complex.
Corcoran Through Town (Elevated)	X									Visual and noise impacts; mitigation of BNSF numerous operations issues required; more complex and costly construction than bypass alternative.
Corcoran Bypass East Side of Town	X									Agricultural land acquisition and operations impacts; rural/county roadway network impacts.
Allensworth Bypass (West)	X									Greater impact on agricultural lands and that BNSF shared-ROW alternative; avoids numerous 4(f) resources (Allensworth SHP, Pixley NWF, and Allensworth Ecological Reserve); potentially greater impact on natural resources.
Wasco/Shafter Through Town (At-Grade)		X	P			S		P		Major intrusion through small community; loss of road network connectivity; extensive commercial and some residential displacement; inconsistent with BNSF operations and service to local customers; at-grade construction is costly and complex.
Wasco/Shafter Through Town (Elevated)	X									Visual and noise impacts; mitigation of BNSF numerous operations issues required; more complex and costly construction than bypass alternative.
Wasco East Bypass, Through Shafter (At-Grade)		X	P			S		P		Major intrusion through small community; loss of road network connectivity; extensive commercial and some residential displacement; inconsistent with BNSF operations and service to local customers; at-grade construction is costly and complex.
Wasco/Shafter East Bypass (At-Grade)	X									Agricultural land acquisition and operations impacts; rural/county roadway network impacts.
Wasco/Shafter Through Town (Elevated in Wasco At-Grade in Shafter)		X	P			S		P		Major intrusion through small community; loss of road network connectivity; extensive commercial and some residential displacement; inconsistent with BNSF operations and service to local customers; at-grade construction is costly and complex.
Wasco/Shafter Through Town (At-Grade in Wasco Elevated in Shafter)		X	P			S		P		Major intrusion through small community; loss of road network connectivity; extensive commercial and some residential displacement; inconsistent with BNSF operations and service to local customers; at-grade construction is costly and complex.
Wasco/Shafter/7 th Standard Road East Bypass		X			S			P	S	Greenfield alignment; extensive acquisition of agricultural lands; impact on major planned and permitted mixed use development.
Bakersfield Subsection										
Through BNSF Yard / Adjacent to Amtrak Station / North of UPRR		X	P	S				S		Impacts on downtown activities and structures, including Bakersfield High School; impact on commercial property on north side of UPRR ROW; costly and complex construction to pass over UPRR right-of-way and Edison Hwy south of Kern Junction.
Through BNSF Yard / Adjacent to Amtrak Station / South of UPRR	X									Displacement of building on Bakersfield High School campus; visual and noise impacts throughout Bakersfield.
North of BNSF Right-of-Way/ One Block South of Amtrak Station / South of UPRR	X									Visual and noise impacts throughout Bakersfield; residential and commercial displacement in East Bakersfield (EJ community).
Over BNSF Main Line / One Block South of Amtrak Station / South of UPRR		X	P					S		Impacts on downtown activities and structures, including Bakersfield High School; impact on east Bakersfield EJ community greater than alignments carried forward; costly and complex construction to pass over BNSF mainline across downtown Bakersfield.
Heavy Maintenance Facility Sites (North to South)										
Fresno Works – Fresno	X									Acquisition of agricultural land.
Kings County EDC – Hanford	X									Acquisition of agricultural land.
Schuil & Associates – Angiola		X	P							Insufficient size; near sensitive natural resources; limited access to utilities and workforce; incompatible soils.
City of Allensworth Development Group LLC – Allensworth		X				S		P		Located near sensitive natural and cultural resources; most remote site: limited access to utilities and workforce; not accessible from Allensworth Bypass alignment; located on curve making connection difficult; poor soils.
Watson Touchstone Commercial Development – McFarland		X				P		S		Located 6.5 miles from nearest HST alignment alternative; 65% of site is within 100-year floodplain.
Kern Council of Governments – Wasco	X									Acquisition of agricultural land.
Kern Council of Governments – Shafter	X									Acquisition of agricultural land.
MUSE LLC – Bakersfield		X	S			P				Located 6 miles from nearest HST alignment; insufficient size; inconsistent with current and planned land use; inconsistent with freeway plans.

Figure ES-1. Fresno Subsection — Alignment Alternatives Considered

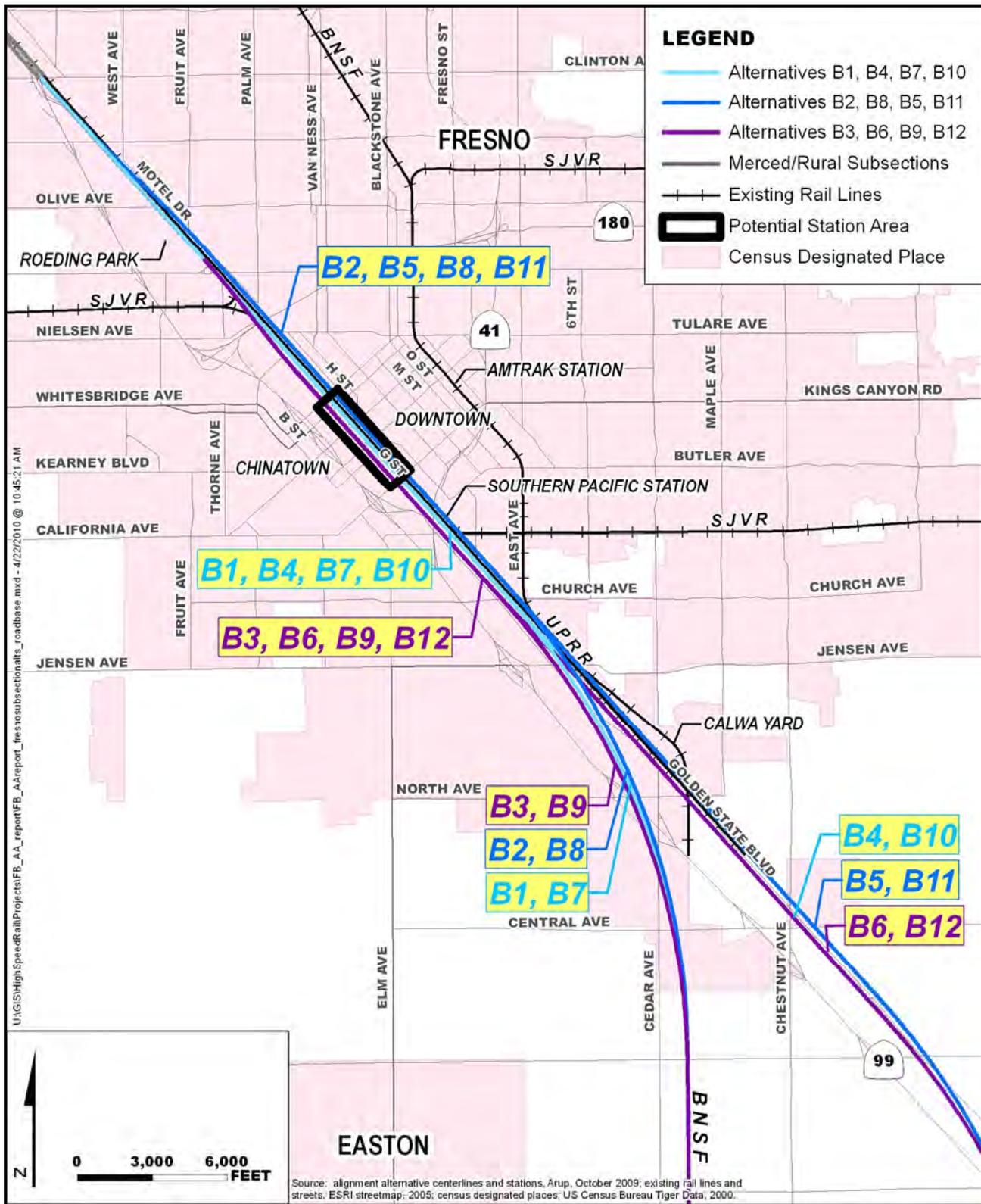


Figure ES-2. Rural Subsection — Alignment Alternatives Considered

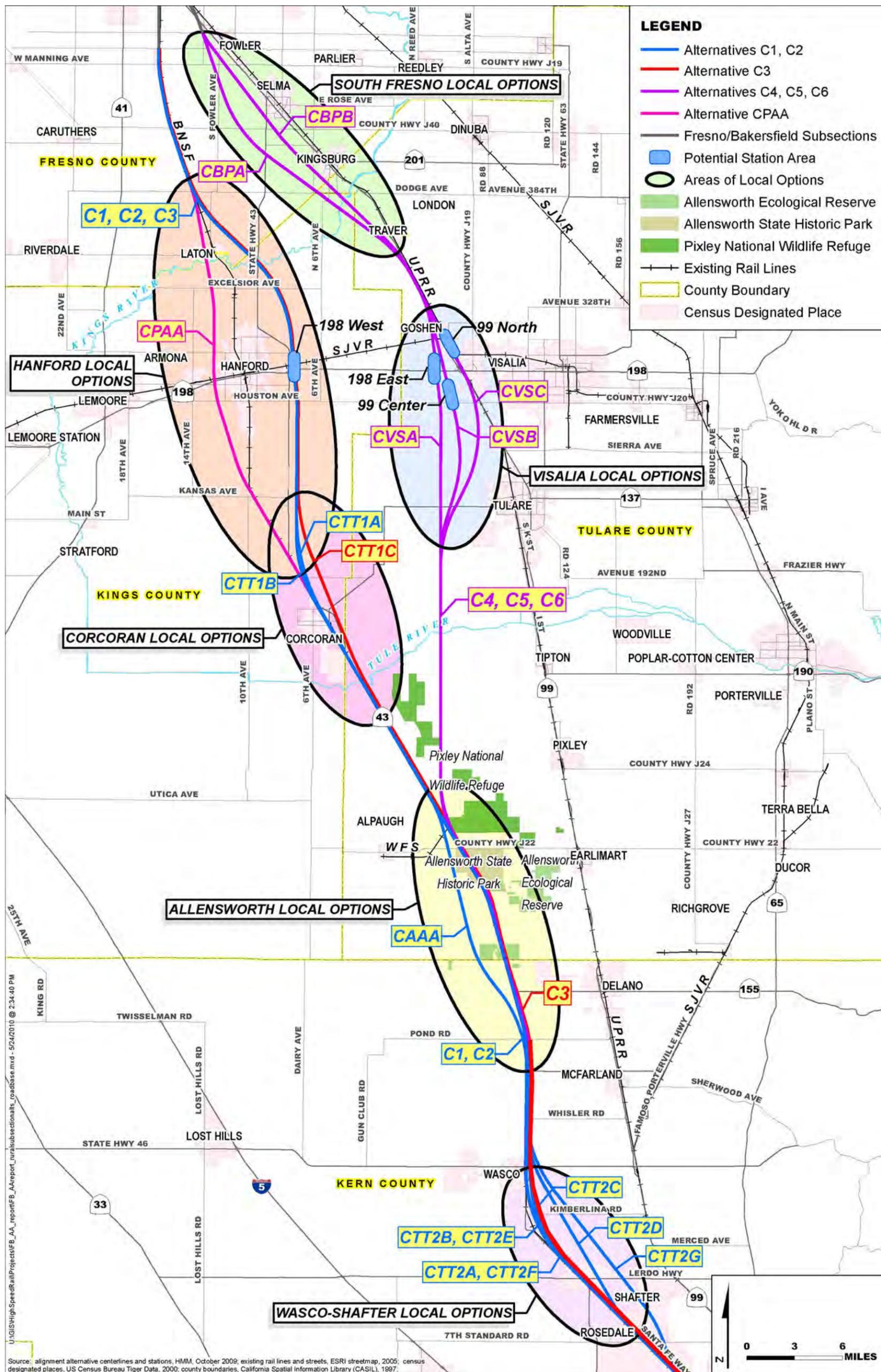
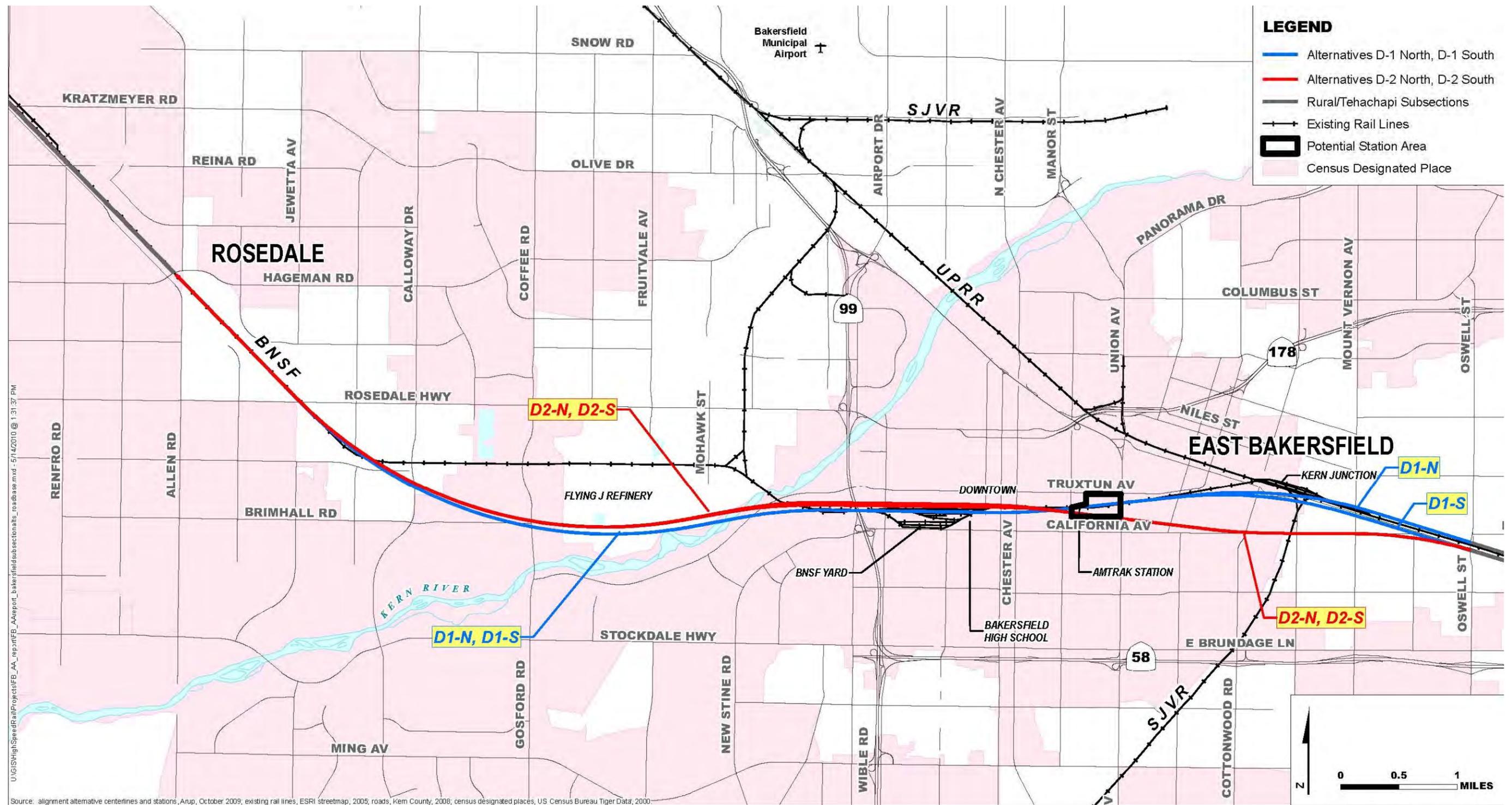


Figure ES-3. Bakersfield Subsection — Alignment Alternatives Considered



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Source: alignment alternative centerlines and stations, Arup, October 2009; existing rail lines, ESRI streetmap, 2009; roads, Kern County, 2008; census designated places, US Census Bureau Tiger Data, 2000.

Figure ES-4. Alignment Alternatives and Heavy Maintenance Facility Sites Carried Forward for Evaluation in the Draft EIR/EIS

