

7.0 Preferred Alternative and Stations

This chapter identifies the Authority's and FRA's Preferred Alternative for the Fresno to Bakersfield Section. This is a new chapter because neither the Draft EIR/EIS (Authority and FRA 2011a) nor the Revised DEIR/Supplemental DEIS (Authority and FRA 2012) identified a preference among the alternatives presented. Because all the text in this chapter is newly introduced in this Final EIR/EIS, it is shown without highlighting.

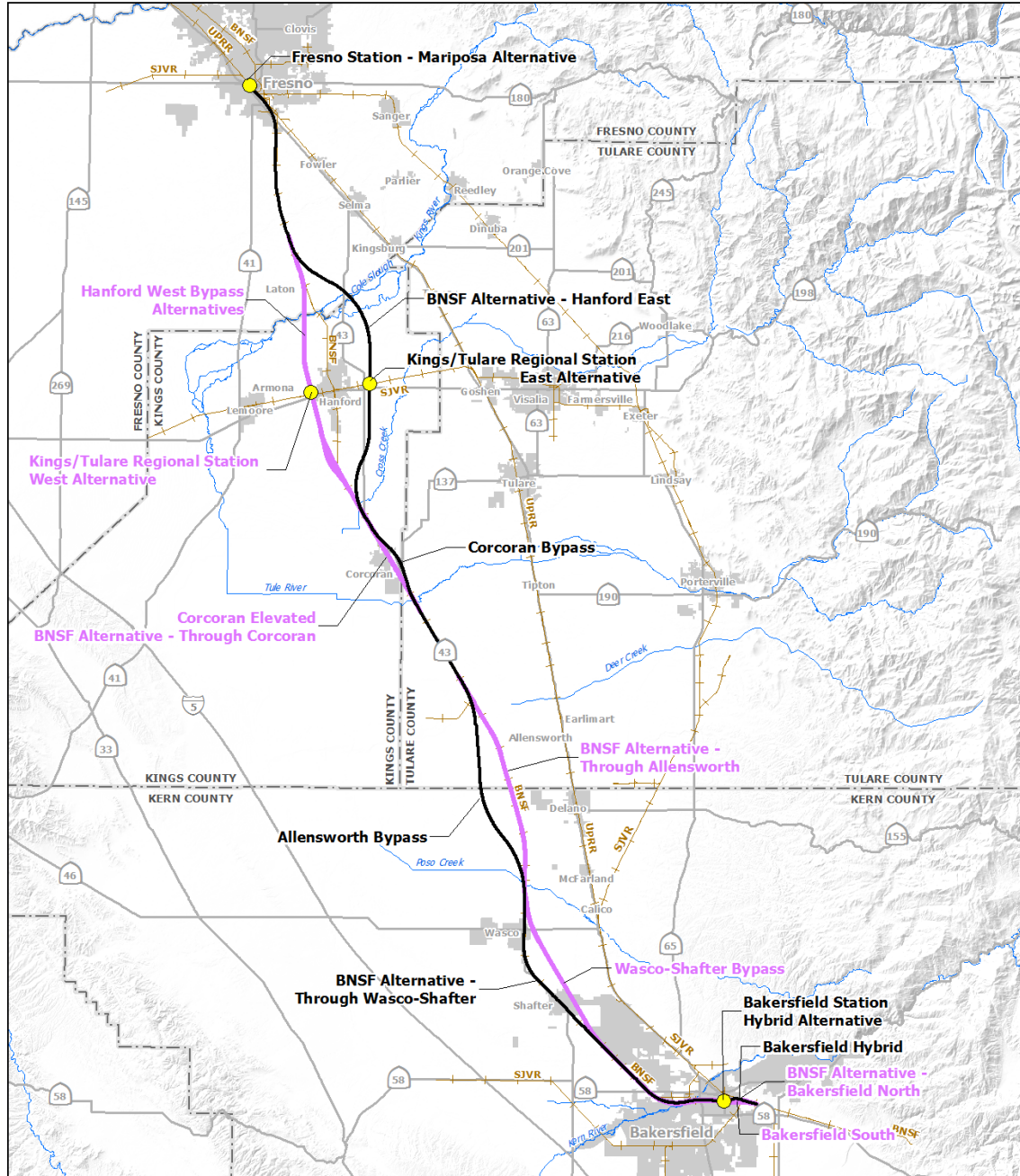
The Preferred Alternative extends from Downtown Fresno to Downtown Bakersfield and includes portions of the BNSF Alternative in combination with the Corcoran Bypass, Allensworth Bypass, and Bakersfield Hybrid alternatives (Figure 7-1). The Mariposa site was selected for the Fresno station as part of the environmental review undertaken for the Merced to Fresno Section. The Preferred Alternative for the Fresno to Bakersfield Section includes two stations: the Kings/Tulare Regional Station–East Alternative and the Bakersfield Station–Hybrid Alternative.

The Fresno to Bakersfield Section EIR/EIS process has not included identification of a preferred HMF site. The Authority and FRA anticipate considering the HMF sites evaluated in the Merced to Fresno Final EIR/EIS along with the five HMF sites evaluated in this Final EIR/EIS prior to making a determination on one or more preferred sites. It is also possible that further environmental analysis may be performed. Currently, the Authority and FRA anticipate the HMF decision to occur after completion of the Fresno to Bakersfield Final EIR/EIS process and decisions.

The identification of the Preferred Alternative is based on the data presented in the Fresno to Bakersfield Section Draft EIR/EIS (Authority and FRA 2011a) and the Revised DEIR/Supplemental DEIS (Authority and FRA 2012), including the supporting technical reports, comments received on the Fresno to Bakersfield Section Draft EIR/EIS (the 60-day comment period concluded on October 13, 2011) and the Fresno to Bakersfield Section Revised DEIR/Supplemental DEIS (the 90-day comment period ended on October 19, 2012), and comments provided by local communities and stakeholders in meetings held after the close of the public comment period on the Revised DEIR/Supplemental DEIS.

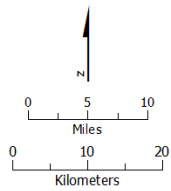
The Draft EIR/EIS and the Revised DEIR/Supplemental DEIS provided information on the relative differences among physical and operational characteristics and the potential environmental consequences associated with the HST alternatives and station location options, including the following:

- Physical/operational characteristics:
 - Alignment.
 - Length.
 - Capital cost.
 - Travel time.
 - Ridership.
 - Constructability.
 - Operational issues.
- Environmental impacts:
 - Transportation-related topics (air quality, noise and vibration, and energy).
 - Human environment (land use and community impacts, farmlands and agriculture, aesthetics and visual resources, socioeconomics, environmental justice communities, utilities and public services, hazardous materials and wastes).
 - Cultural resources (archaeological resources, historical properties).



Source: URS/HMM/Arup JV, 2013

October 24, 2013



- Proposed Preferred Alternative
- Alternative alignment
- Station
- Stream
- Existing rail line
- Community/Urban area
- County boundary

Figure 7-1
 Preferred Alternative and other HST alternatives

- Natural environment (geology and seismic hazards, hydrology and water resources, and biological resources and wetlands).
- Section 4(f)/6(f) properties (certain types of publicly owned parklands, recreation areas, or wildlife/waterfowl refuges, and significant historical sites regardless of ownership).

In identifying a preferred alternative, the Authority was guided by the project purpose and need and project objectives described in Chapter 1, Project Purpose, Need, and Objectives and the HST Performance Criteria identified in Chapter 2, Alternatives, as well as by the prior work developed for and recorded in the following:

- Visalia-Tulare-Hanford Station Feasibility Study (VTH Study) (Authority and FRA 2007).
- Fresno to Bakersfield Preliminary Alternatives Analysis Report (AA), California High-Speed Rail Authority, Board Briefing (Preliminary AA Report) (Authority and FRA 2010a).
- Supplemental Alternatives Analysis (Authority and FRA 2010b).
- Supplemental Alternatives Analysis (second version) (Authority and FRA 2011b).
- Supplemental Alternatives Analysis (third version) (Authority and FRA 2011c).

These documents can be found at <http://www.hsr.ca.gov/>.

Additionally, the criteria used to identify the Preferred Alternative are consistent with Section 404(b)(1), Guidelines of the Clean Water Act (40 CFR 230–233), including minimizing impacts on waters of the U.S. and other sensitive environmental resources. As a result of the analyses incorporated in the Draft EIR/EIS, in the Revised DEIR/Supplemental DEIS, and in the subsequent Final EIR/EIS, as well as in the biological assessment of ecosystems impacts and cultural and community impacts, the U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA) concurred (on December 19, 2013) that the Preferred Alternative contains the least environmentally damaging practicable alternative (LEDPA), which was identified consistent with USACE’s permit program (33 CFR Part 320–331) and EPA’s Section 404(b)(1) Guidelines (40 CFR 230–233).

7.1 Summary of Comments

During the comment period, 1,472 submissions and 3,177 comments were received on the Fresno to Bakersfield Section Draft EIR/EIS, and 783 submissions and 4,695 comments were received on the Revised DEIR/Supplemental DEIS. The comments covered a wide range of issues and represented viewpoints from government agencies, organizations, business groups, businesses, residents, and property owners.

Most comments came from individuals in the general public who live, work, or have property interests in the project study area, or from local government jurisdictions in Kings and Kern counties. Of the 2,255 submissions, approximately 124 generally supported the project and 630 were generally opposed. The City of Fresno is in favor of the alternative through Fresno adjacent to the UPRR tracks, and the city government is working with the Authority and FRA on appropriate modifications to the city’s roadway networks to accommodate the HST project. Comments received from the general public and from local officials in Kings County stated strong opposition to any alternative that would pass through Kings County. No clear majority opinion emerged for one alternative over another in the Corcoran and Allensworth areas. Commenters provided pros and cons for each alternative in these two areas of the project.

Comments from farmers in the Wasco-Shafter area preferred the BNSF Alternative that passed through Wasco and Shafter to the Wasco-Shafter Bypass even though they owned property along both alignments. This is because the BNSF Railway had already established the boundary to their fields and orchards whereas the Wasco-Shafter Bypass would cut across many fields and orchards and is perceived to interfere with existing agricultural operations. The City of Wasco

wrote that it would prefer an alternative that goes through town on the east side of the BNSF Railway (BNSF) tracks and is opposed to the BNSF Alternative that goes through town on the west side of the BNSF tracks due to the resulting impacts on commercial and industrial activities in the city. The City of Shafter wrote that it would support the BNSF Alternative through Shafter because it more closely fits with its long-term planning vision for the city.

Comments received from the general public and from local officials in Kern County rejected all alternatives that would include a station in Downtown Bakersfield. The majority of individual and government official comments preferred an alternative that would bypass Bakersfield and locate a station on the outskirts of the city. However, after the close of the public comment period on the Revised DEIR/Supplemental DEIS, the Bakersfield Downtown Business Association voiced support for a high-speed train station in Downtown Bakersfield.

The effects on agricultural and private property were the most frequent concerns expressed in the comments received from the general public about the project. Also, comments expressed concern over funding availability (including whether any tax-payer money should be spent on this type of project in light of state and federal budget deficits) and the accuracy of the ridership projections. Other common environmental and community concerns included noise and vibration, ecosystem effects, neighborhood impacts, and safety.

Many submissions suggested changing the Fresno to Bakersfield Section HST alternatives. The most common suggestions were to consider an alignment adjacent to I-5 that would bypass the Fresno to Bakersfield Section corridor altogether or to locate the alignment along SR 99. In addition, other comments suggested a preference that the State of California use HST funding for other infrastructure improvements. Many of these comments contended that residents of the San Joaquin Valley did not need and would not use an HST System for travel.

7.1.1 California Legislators

Congressmen Jim Costa, Devin Nunes, Jeff Denham, and Kevin McCarthy, State Senator Michael Rubio, and Congressman David Valadao, writing when he was a State Assembly member, requested an extension on the public review period for the Draft EIR/EIS. Congressman David Valadao also requested an extension on the public review period for the Revised DEIR/Supplemental DEIS. State Senator Michael Rubio expressed support for the HST in the Central Valley; however, he requested that a decision on an alignment through Downtown Bakersfield be postponed and an alternative alignment south of Bakersfield be considered.

7.1.2 Project Area Local Governments

The City of Fresno supports the alignment through Fresno with a Mariposa Street station¹. Kings County and the City of Hanford do not support an HST alignment in Kings County and would prefer the HST to follow SR 99 or I-5. At a Hanford City Council meeting on October 12, 2012, the City Council decided not to express a preference for any of the alternatives through Hanford. The City of Corcoran does not agree with any of the three alternatives in or around Corcoran but believes that the alternatives that cross through town would have greater impacts than the Corcoran Bypass Alternative. The City of Visalia supports the BNSF Alternative east of Hanford and its corresponding HST station. The City of Shafter supports the BNSF Alternative through Wasco and Shafter and indicated a preference for below-grade crossings for freight at three roads. The City of Shafter also indicates that the Wasco-Shafter Bypass would result in substantial impacts on agricultural operations important to the Shafter's economy as well as

¹ Please see the FRA ROD issued for the Merced to Fresno Section EIR/EIS on September 27, 2012 for the reasons why the Mariposa Street site was selected for the Fresno HST station.

impacting the City's multimodal freight terminal. The City of Wasco has stated that an alternative through the city must be located on the east side of the BNSF Railway to avoid major impacts on Wasco's economy. The City of Bakersfield, Kern County, and the Kern Council of Governments do not support an HST alignment through Downtown Bakersfield with a downtown station. They wish to see an alignment that bypasses Downtown Bakersfield with a station on the outskirts of the city.

7.1.3 Federal Agencies

The EPA and USACE have provided letters to the FRA and Authority concurring with the LEDPA identified by the FRA and the Authority for purposes of permit decisions under Section 404 of the federal Clean Water Act. The U.S. Department of Interior, Office of Environmental Policy and Compliance, sent letters stating it did not have any comments on the EIR/EIS. The Federal Highway Administration provided comments concerning the interface between the HST and federal highways. The USFWS did not submit a comment letter on the Draft EIR/EIS or the Revised DEIR/Supplemental DEIS.

7.1.4 Tribal Consultation

A total of 27 Native American tribal entities were notified of the initiation of the preparation of this EIR/EIS and the National Historic Preservation Act Section 106 process in 2009. Consultation with these tribes continued through the preparation of the environmental document and they will continue to be consulted at each key decision point of the project.

The Native Americans consulted have not identified for the Authority or FRA any traditional cultural properties or other cultural resources that could be affected by the current project alternatives from Fresno to Bakersfield. However, many tribal entities have voiced general concerns regarding the cultural resources in the project area of potential effect and indicated a desire to meet with the Authority concerning future monitoring of project activities and the formulation of an agreement to address burials for unanticipated discoveries. The Authority and FRA will continue to consult with these tribes to address these concerns.

7.1.5 State Agencies

State agencies that commented on the Draft EIR/EIS and/or the Revised DEIR/Supplemental DEIS were the Department of Conservation, Department of Fish and Wildlife, Department of Toxic Substances Control, Division of Oil, Gas, and Geothermal Resources, State Lands Commission, Department of Resources Recycling and Recovery, Department of Transportation, Public Utilities Commission, Department of Housing and Development, State Water Resources Control Board, California State University, Bakersfield, and California State University, Fresno. None of the agencies indicated a preference for any alternative. Comments from state agencies primarily provided additional baseline information in their areas of expertise, questions regarding environmental impacts, and clarification of the agencies' regulatory responsibilities relative to the HST project.

7.1.6 Regional and Other Public Agencies

The 40 regional and public agencies submitting comments, most of which were water districts, school districts, and irrigation districts, did not state a preference for a specific alternative.

7.1.7 Businesses

Comments were received from 132 different businesses, and most commenters focused on the impacts on their property and/or their business. Businesses owners whose property would be

affected by the project typically stated a preference for the alternative that would avoid their property. Several agricultural businesses including Del Monte Foods, J.G. Boswell Company, and Baker Commodities, Inc. provides detailed information on the effects of the project to specific operations owned by those businesses and the difficulty of modifying or replacing those operations.

Several owners were concerned about the loss of jobs if their businesses were acquired and could not be relocated and also about the resulting impacts on the economy from the loss of jobs, businesses, and tax revenue for the local jurisdictions. Some business owners were concerned about the impacts that would affect them during operation and construction, such as loss of access, noise, dust, and visual changes.

Forty-four farm, dairy, or ranch owners expressed concern about the impacts on agriculture and farmlands and how these would affect their ability to comply with Water Quality Control Board regulations and state pesticide and drift regulations; the cost of changes to agricultural infrastructure including irrigation systems and waste disposal systems; increased cost of accessing property split by the HST alignment; the cost of relocating livestock; and the impacts of noise, vibration, dust, and stray voltage on livestock.

Amtrak provided detailed comments related to different alternatives and project description information, but did not express support for a specific alternative. The BNSF Railway did not comment on the Draft EIR/EIS or the Revised DEIR/Supplemental DEIS. The UPRR provided comments on both documents primarily related to its right-of-way and uses proposed in and adjacent to it. The UPRR stated that its entire right-of-way must be preserved and the project should not be located within that right-of-way.

7.1.8 Organizations

Comments were received from 50 special-interest or community organizations, including groups representing environmental interests or farming interests, groups organized in response to this project, and groups representing other organized stakeholder groups. Organizations supporting farming interests included the California Farm Bureau Federation; the farm bureaus for Fresno and Kings counties; associations for growers and producers; and farmland trusts. These organizations generally felt the analysis of impacts on farmland was inadequate and suggested an alternative that followed I-5 or SR 99 to minimize impacts on farmland. Organizations formed in response to the HST project generally opposed the project and either did not express an alternative preference or requested that the HST follow I-5 or SR 99 or an alignment that bypassed Kings County and Downtown Bakersfield.

7.1.9 Individuals

The majority of comments from individuals came from residents of Kings and Kern counties, who voiced many of the same concerns as the local governments of these counties. Most individuals in Kings County who submitted comments did not want the HST to cross their county and preferred an alternative on either I-5 or SR 99. Most comments from individuals in Kern County were from residents of metropolitan Bakersfield, who preferred an alternative that bypasses Downtown Bakersfield with a station on the outskirts of the city.

7.2 Alternatives Considered

After the 2005 Statewide Final Program EIR/EIS, the Authority and FRA selected the BNSF Railway route for the Central Valley HST between Fresno and Bakersfield to advance for further study in a second-tier, project-level EIR/EIS. Therefore, the Project EIR/EIS for the Fresno to Bakersfield Section focused on alternative alignments along the general BNSF Railway corridor.

In addition to the first-tier decision to advance the BNSF corridor, the Authority and FRA decided to conduct a planning study for the potential location of an HST station in the Visalia/Tulare/Hanford area before initiating project-level planning studies for the Fresno to Bakersfield Section. This study, the *Visalia-Tulare-Hanford Station Feasibility Study*, was initiated in 2005 and completed in 2007 (Authority and FRA 2007). The study concluded that a station east of Hanford on the BNSF Alignment would be capable of serving the Visalia-Tulare-Hanford area, and that a UPRR alternative would have greater constructability issues and greater potential noise, cultural, community, and property impacts than an alignment on the BNSF corridor.

The Authority, in cooperation with FRA, began the environmental review process for the Fresno to Bakersfield Section of the California HST Project, which included a Notice of Intent and Notice of Preparation (published in 2009) and a public scoping process in early 2009. The environmental review process resulted in a number of alternatives analysis reports developed in consultation with the public, federal, state, and local agencies, and community groups. For more information on the alternatives analysis process, please see Chapter 2, Alternatives, Section 2.3, Potential Alternatives Considered during Alternatives Screening Process.

7.3 Preferred Alternative

The Authority's and FRA's Preferred Alternative for the Fresno to Bakersfield Section combines the BNSF Alternative with the Corcoran Bypass, Allensworth Bypass, and Bakersfield Hybrid alternatives (Figure 7-1). The Preferred Alternative includes the Mariposa Street Alternative for the Downtown Fresno Station (already approved as part of the Merced to Fresno Final EIR/EIS and associated decisions), the Kings/Tulare Regional Station–East Alternative, and the Bakersfield Hybrid Station for the Downtown Bakersfield Station.² This Preferred Alternative was selected based on a balanced consideration of the environmental information presented in the Draft EIR/EIS and Revised DEIR/Supplemental DEIS in the context of the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), and Section 404(b)(1) requirements, local and regional land use plans, community preferences, and cost.

The identification of the Preferred Alternative also integrates FRA's evaluation under Section 4(f) of the Department of Transportation Act (49 U.S.C. 303) (Section 4(f)) which provides special protection to publicly owned public parks; recreational areas of national, state, or local significance; wildlife or waterfowl refuges; and lands of an historic site of national, state, or local significance. As described in Chapter 4 (Section 4(f)/6(f) Evaluation), Section 4(f) properties can only be used by federally funded transportation projects if there is no feasible and prudent alternative and all possible planning has been taken to minimize harm to any 4(f) property used by the project. For more information on FRA's evaluation under Section 4(f), please see Chapter 4.

The Preferred Alternative is estimated to cost approximately \$7.1 billion (in 2010 dollars). The Preferred Alternative would have lower capital costs than the BNSF Alternative, which is estimated at \$7.7 billion. The alternative with the lowest capital cost (\$6.9 billion) consists of segments of the BNSF Alternative in combination with the Allensworth Bypass and Wasco-Shafter Bypass alternatives.

Except in the Hanford and Corcoran areas, the selection of the preferred alignment in any one area (Allensworth, Wasco-Shafter, and Bakersfield) is independent of the selection of the

² Because only one HMF site will be required for the HST System and that site may be located in adjacent project sections, it is premature to identify a Preferred Alternative HMF site at this time. The HMF decision can be made separately from the identification of the preferred alignment and station alternatives in this Fresno to Bakersfield Section EIR/EIS.

preferred alignment in any of the other areas along the Fresno to Bakersfield corridor. For example, the selection of the preferred alignment in the Allensworth area does not influence the selection of the preferred alignment in the Wasco-Shafter area. The one exception to this is the connection of the Hanford West Bypass alternatives to the Corcoran alternatives. In this case, the Hanford West Bypass 2 alternatives connect to the Corcoran Bypass and the Corcoran Elevated alternatives, and the Hanford West Bypass 1 alternatives connect to the BNSF Alternative through Corcoran. It was necessary to have two slightly different Hanford West Bypass alignments to connect to all of the Corcoran alternatives because of the geometric constraints of an HST alignment.

This section describes how the Authority and FRA identified the Preferred Alternative that the agencies believe would fulfill their statutory missions and responsibilities by giving consideration to economic, environmental, technical, and other factors. FRA and the Authority identified the Preferred Alternative by balancing the adverse and beneficial impacts of the project on the human and natural environment. Taking this holistic approach means that no single issue was dispositive in identifying the Preferred Alternative in any given geographic area. FRA and the Authority weighed all of the issues including natural resource and community impacts, the input of the communities along the route, the views of federal and state resource agencies, project costs, and constructability, to identify what both agencies believe is the best alternative to achieve the project's purpose and need.

This evaluation provides information on the environmental topics where the alternatives are substantively different, and does not focus on resource topics where the potential impacts for the alternatives are similar (e.g., air quality and global climate change, safety and security, electromagnetic fields and interference, station planning, and archaeological and paleontological resources) or were not significant (e.g., hydrology, public utilities and energy, geology, soils and seismicity, and hazardous materials and waste).

Table 7-1 summarizes the potential impacts on natural resources (i.e., impacts on aquatic resources and special-status species) for easy comparison. Table 7-2 summarizes the potential impacts of the project alternatives on community-based resources, including impacts on farmlands, visual impacts, potential displacements, and environmental justice considerations. The color coding provided in the tables signifies a relative range of impacts that would be substantially higher (represented by red), average (yellow), or substantially lower (green). The color codes offered the resource specialist a method of integrating a professional, qualitative judgment with the quantity of impacts. For instance, when the affected resources varied more by habitat value than by acres, the color code reflects the value of impacts applied using professional judgment rather than only quantities.

Table 7-1
 Natural Resources Impacts in the Fresno to Bakersfield Section

Parameter	Alternatives		Common Components ^a	Alternative Components															
	Preferred Alternative	BNSF Alternative		Hanford/Corcoran Area									Allensworth Area		Wasco-Shafter Area		Bakersfield Area		
				BNSF-Hanford East with Corcoran Bypass	BNSF-Hanford East with BNSF-Through Corcoran	BNSF-Hanford East with Corcoran Elevated	Hanford West Bypass 1 with BNSF-Through Corcoran	Hanford West Bypass 1 Modified with BNSF-Through Corcoran	Hanford West Bypass 2 with Corcoran Elevated	Hanford West Bypass 2 with Corcoran Bypass	Hanford West Bypass 2 Modified with Corcoran Elevated	Hanford West Bypass 2 Modified with Corcoran Bypass	BNSF-Through Allensworth	Allensworth Bypass	BNSF-Through Wasco-Shafter	Wasco-Shafter Bypass	BNSF-Bakersfield North	Bakersfield South	Bakersfield Hybrid
<i>Aquatic Resource Direct Impacts^a</i>																			
Wetlands Impact (waters of U.S.)	9.35	18.84	1.42	1.37	3.07	3.14	3.14	2.96	3.56	1.79	3.40	1.63	13.72	6.05	-	-	0.63	0.51	0.51
Other Waters of the U.S. Impact	141.79	140.33	30.95	43.80	42.41	56.64	53.05	51.68	74.33	61.49	75.61	62.77	44.22	41.37	11.19	9.78	11.55	13.89	14.47
<i>Total Direct Impacts to Aquatic Resources (Waters of the U.S.) (acres)^b</i>	<i>151.14</i>	<i>159.16</i>	<i>32.37</i>	<i>45.18</i>	<i>45.48</i>	<i>59.78</i>	<i>56.18</i>	<i>54.63</i>	<i>77.89</i>	<i>63.28</i>	<i>79.00</i>	<i>64.40</i>	<i>57.94</i>	<i>47.42</i>	<i>11.19</i>	<i>9.78</i>	<i>12.18</i>	<i>14.40</i>	<i>14.98</i>
Riparian Habitat (direct impact, acres)	3.24	4.33	-	1.74	2.63	1.97	3.58	4.13	2.92	2.69	3.47	3.24	1.39	0.49	-	-	0.31	1.00	1.00
Permanent Impact to Special-Status Plant Species Habitat (acres)	453.17	402.44	62.98	168.36	80.35	154.62	80.92	88.94	167.50	181.24	200.56	214.30	205.67	159.71	22.49	32.48	30.95	42.65	39.64
Permanent Impact to Special-Status Wildlife Species Habitat (acres)	4,676.78	4,763.18	1,090.40	1,726.72	1,684.22	1,685.99	1,392.69	1,456.00	1,398.23	1,438.96	1,543.69	1,584.42	671.61	590.79	996.68	741.09	320.27	290.94	272.20

Notes:
 The color coding provided in the table signifies a relative range of impacts that would be substantially higher (represented by red), average (yellow), or substantially lower (green). The color codes offered the resource specialist a method of integrating a professional, qualitative judgment with the quantity of impacts.
^a The acreage impacts include direct permanent and temporary impacts.
 Impact calculations in this table include project alternatives and station alternatives but do not include heavy maintenance facility alternatives.
 All impacts were calculated based on 15% engineering design project footprint.

Table 7-2
 Community Resource Impacts in the Fresno to Bakersfield Section

Parameter	Alternatives		Common Components	Alternative Components															
				Hanford/Corcoran Area									Allensworth Area		Wasco-Shafter Area		Bakersfield Area		
	Preferred Alternative	BNSF Alternative		BNSF-Hanford East and Corcoran Bypass	BNSF-Hanford East and BNSF-Through Corcoran	BNSF-Hanford East and Corcoran Elevated	Hanford West Bypass 1 and BNSF-Through Corcoran	Hanford West Bypass 1 Modified and BNSF-Through Corcoran	Hanford West Bypass 2 and Corcoran Elevated	Hanford West Bypass 2 and Corcoran Bypass	Hanford West Bypass 2 Modified and Corcoran Elevated	Hanford West Bypass 2 Modified and Corcoran Bypass	BNSF-Through Allensworth ^b	Allensworth Bypass ^b	BNSF-Through Wasco-Shafter	Wasco-Shafter Bypass	BNSF-Bakersfield North	Bakersfield South	Bakersfield Hybrid
Section 4(f) Properties Impacted by Project	3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2
Transportation and traffic (permanent road closures)	53	46	24	14	9	8	10	10	9	15	9	15	3	4	5	20	5	3	11
Noise-sensitive receptors affected after mitigation	1,096	1,070	71	219	234	172	293	355	251	298	227	274	10	-	745	52	10	61	61
Important Farmland (acres)	3,472	3,541	788	1,466	1,501	1,372	1,131	1,256	1,016	1,109	1,194	1,288	516	482	678	573	-	-	-
Prime Farmland (acres)	1,747	1,747	325	464	464	464	331	403	332	332	424	424	222	85	678	573	-	-	-
Williamson Act lands (acres)	1,698	2,096	270	975	1,089	955	893	971	702	723	808	828	420	410	43	304	-	-	-
Confined-animal facilities affected	18	18	1	17	17	17	4	4	4	3	3	3	-	-	-	-	-	-	-
Parks, recreation, open space: before mitigation (with mitigation)	5(3)	6(4)	-	-	-	1(0)	-	-	1(0)	-	1(0)	-	1(1)	-	-	-	5(3)	5(3)	5(3)
Visual quality in rural areas affected	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes	No	No	No
Visual quality in urban areas affected	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes
Number of historic properties affected—direct(indirect)	6(15)	7(12)	4(9)	1(1)	1(1)	1(1)	3(0)	1(1)	3(0)	3(0)	1(1)	1(1)	1(0)	-	-	-	1(2)	1(1)	1(5)
Oil wells	18	15	-	-	-	-	-	-	-	-	-	-	-	-	4	18	11	14	14
Key community facilities affected	7	10	1	-	-	-	-	-	-	-	-	-	-	-	1	1	8	11	5
Displacement of religious facilities (parcels affected)	3(2)	6(5)	-	-	-	-	-	-	-	-	-	-	-	-	2(1)	2(1)	4(4)	5(5)	1(1)
Division of Ponderosa Road/Edna Way community	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No
Division of Newark Ave and 5th Ave/Waukena-Corcoran community	Yes	No	No	No	No	No	No	No	No	Yes	No	Yes	No	No	No	No	No	No	No
Division of Community of Crome	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No
Disproportionate effects on EJ communities	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Estimation of no. of commercial and industrial businesses displaced	395	416	63	2	17	3	19	19	6	5	6	5	-	-	34	2	302	149	294
Estimation of no. of housing units displaced	405	460	39	83	82	56	71	70	41	68	43	70	7	0	23	10	309	315	231

Notes:
 The color coding provided in the table signifies a relative range of impacts that would be substantially higher (represented by red), average (yellow), or substantially lower (green). The color codes offered the resource specialist a method of integrating a professional, qualitative judgment with the quantity of impacts.

The Preferred Alternative is identified from north to south as starting with the Fresno station, continuing in the geographic areas where an alternative diverges from the BNSF Alternative, providing a choice between build alternatives, and ends at the Bakersfield station. Where a station is associated with a specific alignment alternative (i.e. Kings/Tulare Regional Station East and the BNSF Alternative), any relevant discussion of that station alternative is included with the overall identification and discussion of the specific alignment alternative. For a detailed description of any of the alignment or station alternatives, please see Chapter 2, Alternatives.

7.3.1 Fresno Station Alternative

The Fresno Station–Mariposa Alternative was approved by the Authority Board and by the FRA in its Record of Decision (ROD) after the Merced to Fresno Final EIR/EIS was issued. Consistent with those decisions and the analysis in this Fresno to Bakersfield Final EIR/EIS, the Fresno Station–Mariposa Alternative is identified here as the preferred downtown Fresno Station location. The station would be centered on Mariposa Street and bordered by Fresno Street on the north, Tulare Street on the south, H Street on the east, and G Street on the west. The City of Fresno has included this HST station site into its specific area planning for the Fulton Mall corridor.

7.3.2 Hanford and Corcoran Alternatives with Kings/Tulare Regional Station

The BNSF Alternative through Hanford (Hanford East Alternative) and the Corcoran Bypass are preferred because they are more compatible with the long-range development planning for the city of Hanford and the region as a whole, which will result in more options for regional development. In addition, these alternatives will result in slightly fewer potential impacts on the natural environment (see Table 7-1), and the community impacts are similar in both intensity and severity in Hanford and Corcoran when compared to the other alignment alternatives. FRA has also determined that the BNSF Alternative through Hanford would result in the least overall harm to properties protected by Section 4(f). For more information on the least harm analysis please see Section 4.9. The Kings/Tulare Regional Station-East is also identified as the Preferred Alternative because it is the station associated with the BNSF Alternative (Hanford East Alternative).

On balance, the Hanford East Alternative and the Corcoran Bypass are likely to result in fewer impacts on the natural environment. For example, these alternatives would have the fewest total direct impacts on waters of the U.S. and riparian habitat of any of the possible alternative combinations in the Hanford and Corcoran region (Table 7-1).

FRA and the Authority also considered the alternatives in the Hanford and Corcoran areas in the context of potential community impacts, including consistency with the long-term development in this region. The community-based resource impacts are relatively equivalent in terms of intensity and severity for the Hanford and Corcoran area alternatives. For example, the Hanford East Alternative in combination with the Corcoran Bypass Alternative affects more farmland and confined-animal facilities than most other Hanford and Corcoran area alternatives but would result in the displacement of fewer commercial or industrial properties than most other Hanford and Corcoran area alternatives. In addition, with the exception of the Hanford East and Corcoran Elevated alternatives, on balance the Preferred Alternative has fewer adverse effects on noise receivers than all other Hanford-Corcoran alternative combinations (Table 7-2). While the Hanford East Alternative would divide the existing rural residential neighborhoods at Ponderosa Road and Edna Way, the Hanford West Bypass alternatives will interfere with the residential development planned in the Live Oak Master Plan.

The areas near the Hanford West Bypass alternatives and the BNSF Alternative east of Hanford are sparsely populated, with few minority and low-income populations. Therefore, adverse effects of project construction and operation would not be borne primarily by minority and low-income populations and consequently, project construction and operation of any of the alternatives in the Hanford area would not result in disproportionately high and adverse effects on minority and low-income populations.

All of the alignment alternatives in the Corcoran area would have similar impacts to minority and low-income populations. During construction, these populations would experience adverse traffic, air quality, and visual impacts. During operation, minority and low-income populations would experience adverse impacts associated with noise and visual resources. The BNSF Alternative would result in the displacement of 30 residential units. The Corcoran Elevated Alternative would displace four residential units. The Corcoran Bypass Alternative would displace 10 residential units in the small, rural residential community of Newark Avenue and 10 residential units in the 5th Avenue and Waukena Avenue area. Some of the units displaced by each alternative are occupied by minorities and/or low-income residents.

Based on recent land use plans, it appears that locating an alignment and station east of Hanford is more consistent with the City of Hanford's long-term development vision than putting an alignment and station west of Hanford. Hanford envisions strong commercial development on the eastern edge of the city. For example, in 2012 the city issued a Notice of Preparation/Initial Study to amend the Hanford General Plan for a 58-acre site in the northwest quadrant of the SR 43/SR 198 interchange to facilitate the ultimate development of about 500,000 square feet of commercial buildings and up to 200 apartment units. The commercial development will be anchored by Costco, which plans to build a 150,000-square-foot store in this area. The DEIR for the Hanford General Plan update was released in October 2013. An HST station close to the northeast quadrant of the SR 43/SR 198 interchange would be compatible with the development Hanford is planning in this area.

An alignment and station east of Hanford would also capture a larger regional population of travelers than an alignment and station west of Hanford (Authority 2007). The Kings/Tulare Regional Station–East is 5 miles closer to the cities of Visalia and Tulare, and on the eastern side of Hanford, and therefore likely to draw more riders from those cities than the Kings/Tulare Regional Station–West Alternative.

Finally, the Hanford East Alternative has less cost uncertainty than the Hanford West Bypass alternatives. The Hanford West Bypass alternatives may have groundwater conditions that make identification of project construction costs more uncertain. Perched groundwater is locally present west of the city of Hanford near the Hanford West Bypass alternatives. Construction of a below-grade station on the Hanford West Bypass alternatives would be affected by this condition. If a perched water zone is present at the below-grade alignment cut and at station sites, it would be necessary either to install a water collection and management system; seal the excavation with concrete, which could require additional stabilization measures; or raise the elevation of the alignment and station above the shallow saturated zone, which could reduce or eliminate the noise and visual benefits of a below-grade alternative.

7.3.3 Allensworth Alternative

The Allensworth Bypass is the Preferred Alternative because it results in fewer impacts to both the natural environment (e.g., wetlands and special-status species habitat) and communities than the BNSF Alternative does in the Allensworth area. It also avoids the use of two properties protected under Section 4(f).

As shown in Table 7-1, the Allensworth Bypass has far fewer impacts to natural resources than the BNSF Alternative in the Allensworth area. It affects the fewest acres of wetlands, and natural habitat when compared to the BNSF Alternative. In addition, it would have a slightly lesser impact on wildlife movement. While the HST alignment through the Allensworth area would be designed to allow for wildlife movement regardless of the alignment alternative, the Allensworth Bypass has some slight advantages over the BNSF Alternative because it would not compound effects from the presence of the BNSF Railway as a preexisting restriction to wildlife movement through the Sand Ridge linkage.

With respect to community-based resources, the Allensworth Bypass does not displace any residential units, while the BNSF Alternative through the Allensworth area would displace approximately nine residential units, some of which are occupied by minorities and/or low-income residents. The Allensworth Bypass also results in fewer total impacts to farmlands as compared to the BNSF Alternative. In addition, as described in Chapter 4, the BNSF Alternative would result in a Section 4(f) use of the Allensworth State Historic Park and the Allensworth Ecological Reserve which can be avoided by the Allensworth Bypass.

7.3.4 Wasco to Shafter Area Alternatives

Given the similarities of the impacts to natural resources between the two alternatives in the Wasco/Shafter area and the possibility to address community impacts through mitigation, the Authority and FRA identified the BNSF Alternative through Wasco and Shafter as preferred. This also satisfies a project objective that the HST System follows existing transportation or utility corridors to the extent feasible (see Section 1.2.3). FRA and the Authority considered the strong regional interests, consistency with the long-term development plans in Shafter, and the cost uncertainties associated with constructing the project in an existing and rapidly expanding oil field in the context of this project objective when identifying the BNSF Alternative through Wasco and Shafter as the Preferred Alternative.

With respect to natural resources, specifically potential impacts to waters of the U.S., the BNSF Alternative through Wasco will result in more overall acres of impacts than the Wasco-Shafter Bypass. However, it is noteworthy that none of these waters are wetlands and are instead man-made features installed in uplands for agricultural purposes, such as irrigation return-flow detention basins and irrigation canals (see Section 3.7, Biological Resources). It is equally important that these man-made features are in poor condition for aquatic habitat and that the functions and services provided by these aquatic features can be restored by rerouting canals and ditches or by creating additional capacity in detention basins. Therefore, while slightly more acres of waters of the U.S. are impacted by the Preferred Alternative in the Wasco/Shafter area, the type of features (i.e., man-made) and relative poor quality of the waters results in little qualitative difference between the two alternatives from a natural resource perspective.

The BNSF Alternative will impact more residential and commercial properties, and impact a larger minority and low-income population in the city of Wasco than the Wasco-Shafter Bypass Alternative. For example, the BNSF Alternative would cross the principal industrial/commercial center of Wasco containing 20 commercial and industrial units that include a bio-pesticide production facility, agricultural processing and storage facilities, welding shops, automotive shops, a recycling facility, and a gas distribution facility. It is possible that a few of these businesses could remain at their current locations if the business applies for and receives a waiver consistent with the Authority's air rights policy. However, any businesses that could not remain at their current locations would need to be relocated. These relocations would occur consistent with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act (Uniform Relocation Act) and the Authority will work closely with both the City of Wasco and the affected businesses to reduce the short- and long-term impacts of the relocations.

In terms of residential impacts, the BNSF Alternative through Wasco and Shafter is likely to affect a public-housing development, owned and operated by the Wasco Housing Authority, which is located east of the proposed alternative. These impacts could potentially be mitigated by the Authority assisting the Wasco Housing Authority in its existing effort to relocate this community (the Wasco Housing Authority is working with the U.S. Department of Agriculture to accomplish this and has purchased the property for the relocation), which would avoid operational noise impacts on 226 noise receivers and avoid impacts on this environmental justice community.

The City of Shafter staff indicated in comment letters about the EIR/EIS that the Preferred Alternative would affect Shafter less than would the Wasco-Shafter Bypass Alternative. It is the opinion of the city that the Wasco-Shafter Bypass would have greater adverse impacts on the agricultural economy of the area than would the Preferred Alternative and that such impact would also negatively impact Shafter's economy. In addition, the city commented that the Wasco-Shafter Bypass Alternative would interfere with the long-term development of the Paramount Logistics Park in Shafter, which would severely impact the city's economy and possibly the state's economy, as this is a significant inland port that would fulfill the capacity needs of the constrained Port of Los Angeles.

The Authority staff has met with many of the landowners in the Wasco-Shafter area. Many farmers in the region have property along both alternatives and prefer the BNSF Alternative to the Wasco-Shafter Bypass Alternative. Because the Preferred Alternative is next to the BNSF Railway, the farmers expressed that it would cause less interference with agricultural operations than the Wasco-Shafter Bypass, which bisects many agricultural fields and necessitates re-establishment of existing agricultural infrastructure (e.g., irrigation systems and farm roads). As shown in Table 7-2, the Preferred Alternative preserves a greater number of acres of land in Williamson Act contracts, an important means by which agricultural land is preserved but also an element of sustaining economically viable farming through tax incentives.

The Preferred Alternative through Wasco and Shafter would have substantially less cost uncertainty than the Wasco-Shafter Bypass Alternative because it has fewer active and abandoned oil wells than does the Wasco-Shafter Bypass Alternative. It is the Authority's policy that active oil and gas wells within 200 feet of the HST tracks will be plugged and relocated and inactive wells will be examined and re-abandoned, as necessary. The cost of relocating active wells is uncertain. As of early 2013, there were 16 wells within the 200-foot safety zone of the Wasco-Shafter Bypass Alternative, 2 of which are also included in the Preferred Alternative alignment. Four of the wells on the Wasco-Shafter Bypass are inactive, one of which is plugged, and the remaining 12 are active oil wells. On the preferred alignment through Wasco and Shafter, there are 4 wells; one a potentially active oil well, one an active saltwater disposal well, and two inactive wells, one of which is plugged. The uncertainty in the cost of moving active wells and the long-term operational interference that could occur with abandoned wells that eventually leak results in a greater uncertainty of the overall costs of the Wasco-Shafter Bypass Alternative compared to the Preferred Alternative.

When considering all the relevant factors including economic and environmental, the BNSF Alternative through Wasco and Shafter is the Preferred Alternative in this area. While there are additional community and environmental impacts with the BNSF Alternative, such impacts can be addressed through mitigation and are reasonably balanced against the prevailing regional and community interests, as well as the cost uncertainty associated with construction in an expanding oil field.

7.3.5 Bakersfield Alternatives with Bakersfield Station

After analyzing the potential impacts in the Revised Draft EIR/Supplemental Draft EIS, the Bakersfield Hybrid Alternative is the Preferred Alternative because it would impact the fewest

acres of waters of the U.S. when compared with the BNSF Alternative (Bakersfield North) and because it would result in fewer community impacts including fewer overall displacements and fewer impacts to religious facilities when compared with both the BNSF Alternative (Bakersfield North) and Bakersfield South Alternative. The Authority and FRA developed the Bakersfield Hybrid Alternative in response to community concerns received after publication of the Draft EIR/EIS and after proactive engagement with the communities to solicit input and to combine the best of the BNSF Alternative and the Bakersfield South Alternative.

On balance, the Bakersfield Hybrid Alternative has the fewest impacts on natural resources. The Bakersfield Hybrid would affect the fewest acres of wetlands along with the Bakersfield South Alternative. The Bakersfield Hybrid would affect slightly more acres of other waters of the U.S. than the BNSF and Bakersfield South alternatives (Table 7-1); however, most of these waters are man-made features installed in uplands for water conveyance purposes (see Section 3.7, Biological Resources). It is equally important that these man-made features are in poor condition for aquatic habitat and that the functions and services provided by these aquatic features can be restored by rerouting canals. The Bakersfield Hybrid Alternative would have permanent impacts on the fewest acres of habitat for special-status wildlife species of any of the Bakersfield alternatives (Table 7-1). The Bakersfield Hybrid would permanently affect more acres of habitat for special-status plan species than the BNSF Alternative but fewer acres of this type of habitat than the BNSF Alternative.

With respect to community resources, the Bakersfield Hybrid would avoid impacts on the Bakersfield High School campus, which was an issue consistently highlighted as a significant concern by the public and community groups during the public comment period. Similarly, the Bakersfield Hybrid would avoid impacts on the Bethel Christian School. The Bakersfield Hybrid also results in significantly fewer residential displacements, as it would displace 186 residential units, versus 265 residential unit displacements for the BNSF Alternative and 272 residential unit displacements for the Bakersfield South Alternative (Table 7-2). It would also affect fewer religious facilities (impacts on three religious facilities versus impacts on five or six religious facilities under the other alternatives). While the Bakersfield Hybrid Alternative, like any alternative through Bakersfield, would affect other community facilities such as the Mercado Latino Tianguis, the Bakersfield Corporate Yard, and the Kern County Mental Health facility, the Authority has engaged with the appropriate community groups and local governments to try to minimize these impacts by relocating the affected facilities. These consultations will continue through final design.

All of the Bakersfield alternatives would have similar impacts to minority and low-income populations. All three alternatives pass through the Central and Northeast districts of the city that contain high densities of minority and low-income populations. All three alternatives would displace 70 residential units in the CityPlace development in the Central District, a low-income housing development. The BNSF, Bakersfield South, and Bakersfield Hybrid alternatives would displace 123, 143, and 62 housing units, respectively, in the Northeast District of Bakersfield.

While the Bakersfield Hybrid will result in an additional 1 minute of trip time between Fresno and Bakersfield, caused by running at a lower speed through the city due to the geometric curves in the alternative, this increased trip time is offset by the reduction in impacts to community and natural resources.³

The Bakersfield Station-Hybrid Alternative is identified here as the Preferred Alternative as it is the station associated with the Bakersfield Hybrid alignment alternative.

³ The Preferred Alternative would take 34 minutes and 5 seconds to travel between Fresno and Bakersfield, 1 minute and 1 second more than the BNSF Alternative.

7.4 Environmentally Superior Alternative

The CEQA guidelines [Section 15126.6(e)(2)] state that if the environmentally superior alternative is the No Project Alternative, then the EIR must also identify an environmentally superior alternative among the other alternatives. For the reasons described in this Final EIR/EIS, the environmentally superior alternative is not the No Project Alternative. The HST alternatives would provide benefits, such as reducing vehicle trips on freeways and reducing regional air pollutants that would not be realized under the No Project Alternative. CEQA does not require identification of an environmentally superior alternative. Nevertheless, the Preferred Alternative is the environmentally superior alternative. Implementing the high-speed train project between Fresno and Bakersfield will have adverse environmental impacts regardless of which alternative is selected, but overall, the Preferred Alternative provides the environmentally superior alternative by best meeting environmental regulatory requirements and best minimizing impacts on the natural environment, farmland, and communities.

7.5 Environmentally Preferable Alternative

The environmentally preferable alternative is a NEPA term for the alternative that will promote the national environmental policy as expressed in NEPA's Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources. As required by the regulations implementing NEPA, the FRA will identify the environmentally preferable alternative in its ROD for the Fresno to Bakersfield Section.

7.6 Least Environmentally Damaging Practicable Alternative

The Authority and FRA are working closely with federal, state, and regional agencies to meet regulatory requirements by refining the Fresno to Bakersfield Section alternatives to avoid and minimize impacts and, where necessary, to reach agreement on mitigation measures for impacts that cannot be avoided. One important process that integrates many of the applicable regulatory requirements is Section 404 of the Clean Water Act and Section 408, as managed by the USACE with oversight from EPA. The Authority and FRA entered into a NEPA/Section 404/408 Integration Process Memorandum of Understanding (MOU) with EPA and USACE (FRA et al. 2010), which outlines three major checkpoints in the integration of the NEPA and Section 404/408 process. Each checkpoint consists of the submittal of technical data and studies by the Authority and FRA to USACE and EPA for review and consideration before issuing a formal written agency response.

The first of these submittals is Checkpoint A, which involves preparing a project purpose statement that serves both NEPA and Section 404 requirements. EPA concurred on the Fresno to Bakersfield Section purpose and need on January 20, 2011, and USACE concurred on the purpose and need on February 2, 2011, to satisfy Checkpoint A. The second submittal is Checkpoint B, which is required to screen and reduce the potential alternatives to an appropriate range of "reasonable" and "practicable" alternatives using the best available information. On July 5 and June 24, 2011, USACE and EPA, respectively, provided letters on the alternatives that the Authority and FRA proposed to carry through the EIR/EIS. Both agencies concurred on the range of alternatives except for the Hanford West Bypass Alternative. The Authority and FRA had chosen not to carry the Hanford West Bypass Alternative through the Draft EIR/EIS. The USACE and EPA disagreed with this decision. The Draft EIR/EIS was circulated without the Hanford West Bypass Alternative. That alternative was included in the Revised Draft EIR/Supplemental Draft EIS.

Finally, Checkpoint C consists of the assembly and assessment of information contained in the EIR/EIS and associated technical studies for consideration by USACE and EPA in determining the preliminary Least Environmentally Damaging Practicable Alternative (LEDPA) and providing a formal agency response. The documentation includes those analyses completed to meet requirements of NEPA, Sections 401 and 404 of the Clean Water Act, and Section 14 of the Rivers and Harbor Act, which include consideration of compliance with the federal Endangered Species Act and the National Historic Preservation Act. The Authority submitted Checkpoint C materials to the USACE and EPA on November 7, 2013, and received concurrence from the agencies that the Preferred Alternative contains the preliminary LEDPA on December 19, 2013.

All materials prepared for the checkpoint are available on the Authority's website at www.hsr.ca.gov.

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