

CALIFORNIA HIGH-SPEED TRAIN

Program Environmental Impact Report/Environmental Impact Statement

Sacramento to Bakersfield

SECTION 4(F) AND 6(F) TECHNICAL EVALUATION

January 2004

Prepared for:

California High-Speed Rail Authority

U.S. Department of Transportation
Federal Railroad Administration



U.S. Department
of Transportation
**Federal
Railroad
Administration**

CALIFORNIA HIGH-SPEED TRAIN PROGRAM EIR/EIS

Sacramento to Bakersfield Section 4(f) and 6(f) Technical Evaluation

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ACRONYMS

AUTHORITY	CALIFORNIA HIGH-SPEED RAIL
CEQA	CALIFORNIA ENVIRONMENTAL QUALITY ACT
COG	COUNCIL OF GOVERNMENTS
EIR	ENVIRONMENTAL IMPACT REPORT
EIS	ENVIRONMENTAL IMPACT STATEMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
FAA	FEDERAL AVIATION ADMINISTRATION
FHWA	FEDERAL HIGHWAY ADMINISTRATION
FRA	FEDERAL RAILROAD ADMINISTRATION
FTA	FEDERAL TRANSIT ADMINISTRATION
MTA	METROPOLITAN TRANSPORTATION AUTHORITY
NRHP	NATIONAL REGISTER OF HISTORIC PLACES
RTP	REGIONAL TRANSPORTATION PLAN

1.0 INTRODUCTION

The California High-Speed Rail Authority (Authority) was created by the Legislature in 1996 to develop a plan for the construction, operation, and financing of a statewide, intercity high-speed passenger train system.¹ After completing a number of initial studies over the past six years to assess the feasibility of a high-speed train system in California and to evaluate the potential ridership for a variety of alternative corridors and station areas, the Authority recommended the evaluation of a proposed high-speed train system as the logical next step in the development of California's transportation infrastructure. The Authority does not have responsibility for other intercity transportation systems or facilities, such as expanded highways, or improvements to airports or passenger rail or transit used for intercity trips.

The Authority adopted a *Final Business Plan* in June 2000, which reviewed the economic feasibility of a 1,127-kilometer-long (700-mile-long) high-speed train system. This system would be capable of speeds in excess of 321.8 kilometers per hour (200 miles per hour [mph]) on a dedicated, fully grade-separated track with state-of-the-art safety, signaling, and automated train control systems. The system described would connect and serve the major metropolitan areas of California, extending from Sacramento and the San Francisco Bay Area, through the Central Valley, to Los Angeles and San Diego. The high-speed train system is projected to carry a minimum of 42 million passengers annually (32 million intercity trips and 10 million commuter trips) by the year 2020.

Following the adoption of the Business Plan, the appropriate next step for the Authority to take in the pursuit of a high-speed train system is to satisfy the environmental review process required by federal and state laws which will in turn enable public agencies to select and approve a high speed rail system, define mitigation strategies, obtain necessary approvals, and obtain financial assistance necessary to implement a high speed rail system. For example, the Federal Railroad Administration (FRA) may be requested by the Authority to issue a *Rule of Particular Applicability*, which establishes safety standards for the high-speed train system for speeds over 200 mph, and for the potential shared use of rail corridors.

The Authority is both the project sponsor and the lead agency for purposes of the California Environmental Quality Act (CEQA) requirements. The Authority has determined that a Program Environmental Impact Report (EIR) is the appropriate CEQA document for the project at this conceptual stage of planning and decision-making, which would include selecting a preferred corridor and station locations for future right-of-way preservation and identifying potential phasing options. No permits are being sought for this phase of environmental review. Later stages of project development would include project-specific detailed environmental documents to assess the impacts of the alternative alignments and stations in those segments of the system that are ready for implementation.

The decisions of federal agencies, particularly the Federal Railroad Administration (FRA) related to high-speed train systems, would constitute major federal actions regarding environmental review under the National Environmental Policy Act (NEPA). NEPA requires federal agencies to prepare an Environmental Impact Statement (EIS) if the proposed action has the potential to cause significant environmental impacts. The proposed action in California warrants the preparation of a Tier 1 Program-level EIS under NEPA, due to the nature and scope of the comprehensive high-speed train system proposed by the Authority, the need to narrow the range of alternatives, and the need to protect/preserve right-of-way in the future. FRA is the federal lead agency for the preparation of the Program EIS, and the Federal Highway Administration (FHWA), the U.S. Environmental Protection Agency (EPA), the U.S. Corps of Engineers (USACE), the Federal Aviation Administration (FAA), the U.S. Fish and Wildlife Service (USFWS), and the Federal Transit Administration (FTA) are cooperating federal agencies for the EIS.

¹ Chapter 796 of the Statutes of 1996; SB 1420, Kopp and Costa

A combined Program EIR/EIS is to be prepared under the supervision and direction of the FRA and the Authority in conjunction with the federal cooperating agencies. It is intended that other federal, state, regional, and local agencies will use the Program EIR/EIS in reviewing the proposed program and developing feasible and practicable programmatic mitigation strategies and analysis expectations for the Tier 2 detailed environmental review process which would be expected to follow any approval of a high speed train system.

The statewide high-speed train system has been divided into five regions for study: Bay Area-Merced, Sacramento-Bakersfield, Bakersfield-Los Angeles, Los Angeles-San Diego via the Inland Empire, and Los Angeles-Orange County-San Diego. This Section 4(f) and 6(f) Technical Evaluation for the Sacramento to Bakersfield region is one of five such reports being prepared for each of the regions on the topic, and it is one of fifteen technical reports for this region. This report will be summarized in the Program EIR/EIS and it will be part of the administrative record supporting the environmental review of alternatives.

1.1 PROJECT ALTERNATIVES

1.1.1. NO-PROJECT ALTERNATIVE

The No-Project Alternative serves as the baseline for the comparison of Modal and High-Speed Train alternatives (Figure 1). The No-Project Alternative represents the state's transportation system (highway, air, and conventional rail) as it existed in 1999-2000 and as it would be after implementation of programs or projects currently programmed for implementation and projects that are expected to be funded by 2020. The No-Project Alternative addresses the geographic area serving the same intercity travel market as the proposed high-speed train (generally from Sacramento and the San Francisco Bay Area, through the Central Valley, to Los Angeles and San Diego). The No-Project Alternative satisfies the statutory requirements under CEQA and NEPA for an alternative that does not include any new action or project beyond what is already committed.

The No-Project Alternative defines the existing and future statewide intercity transportation system based on programmed and funded (already in funded programs/financially constrained plans) improvements to the intercity transportation system through 2020, according to the following sources of information:

- State Transportation Improvement Program (STIP)
- Regional Transportation Plans (RTPs) for all modes of travel
- Airport plans
- Intercity passenger rail plans (California Rail Plan 2001-2010, Amtrak Five- and Twenty-year Plans)

As with all of the alternatives, the No-Project Alternative will be assessed against the purpose and need topics/objectives for congestion, safety, air pollution, reliability, and travel times.

1.1.2 MODAL ALTERNATIVE

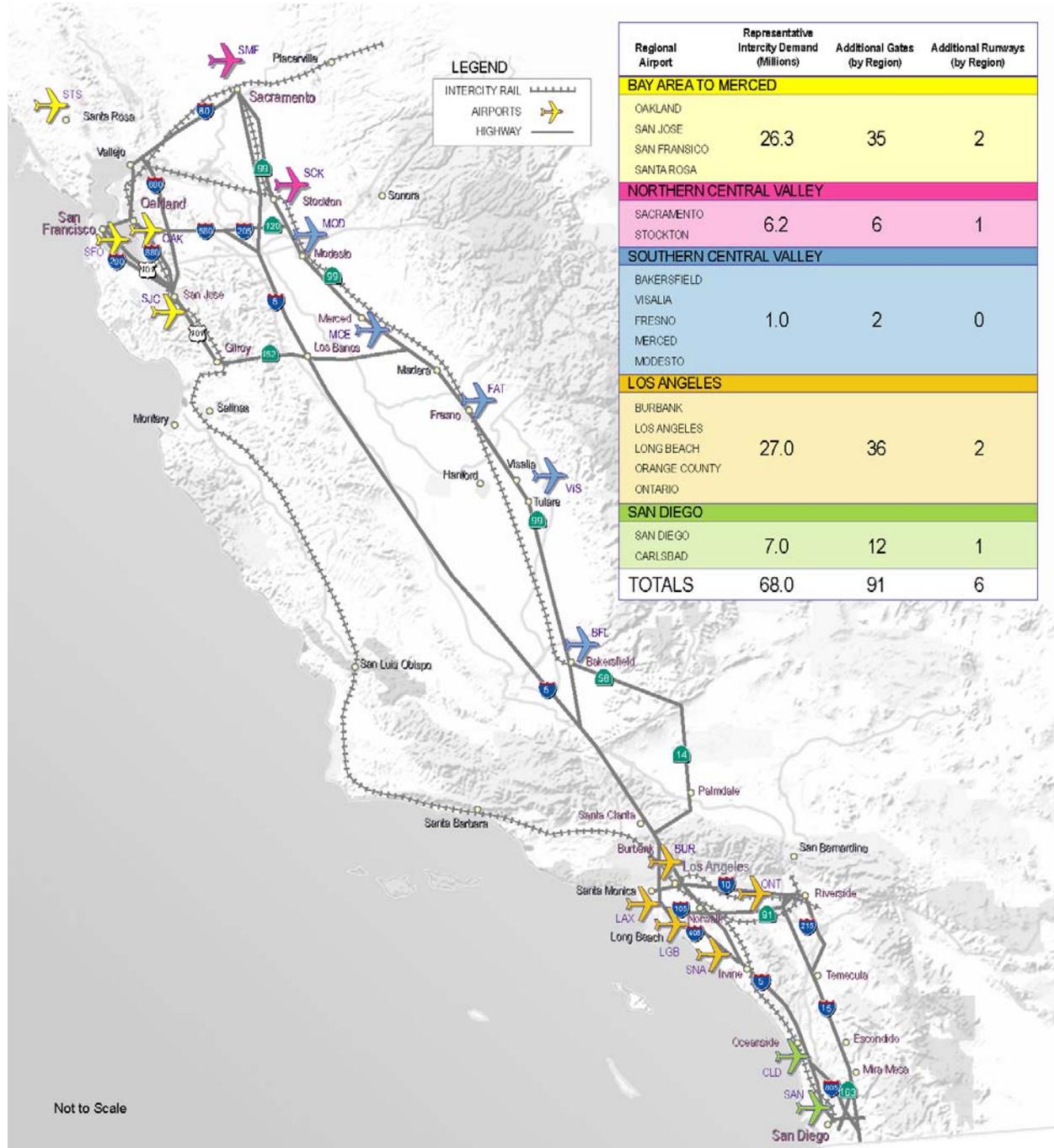
There are currently only three main options for intercity travel between the major urban areas of San Diego, Los Angeles, the Central Valley, San Jose, Oakland/San Francisco, and Sacramento: vehicles on the interstate highway system and state highways, commercial airlines serving airports between San Diego and Sacramento and the Bay Area, and conventional passenger trains (Amtrak) on freight and/or commuter rail tracks. The Modal/System Alternative consists of expansion of highways, airports, and intercity and commuter rail systems serving the markets identified for the High-Speed Train Alternative. (Figures 2 and 3) The Modal Alternative uses the same intercity travel demand (not capacity) assumed

under the high-end sensitivity analysis completed for the high-speed train ridership in 2020. This same travel demand is assigned to the highways and airports and passenger rail described under the No-Project Alternative, and the additional improvements or expansion of facilities is assumed to meet the demand, regardless of funding potential and without high-speed train service as part of the system.

Figure 2
Modal Alternative-Highway Component



Figure 3
Modal Alternative-Aviation Component



1.1.3 HIGH-SPEED TRAIN ALTERNATIVE

The Authority has defined a statewide high-speed train system capable of speeds in excess of 200 miles per hour (mph) (320 kilometers per hour [km/h]) on dedicated, fully grade-separated tracks, with state-of-the-art safety, signaling, and automated train control systems. State of the art high-speed steel-wheel-on-steel-rail technology is being considered for the system that would serve the major metropolitan centers of California, extending from Sacramento and the San Francisco Bay Area, through the Central Valley, to Los Angeles and San Diego (Figure 4).

The High-Speed Train (HST) Alternative includes several corridor and station options. A steel-wheel on steel-rail, electrified train, primarily on exclusive right-of-way with small portions of the route on shared track with other rail is planned. Conventional “non-electric” improvements are also being considered along the existing LOSSAN rail corridor from Los Angeles to San Diego. The train track would be either at-grade, in an open trench or tunnel, or on an elevated guideway, depending on terrain and physical constraints.

For purposes of comparative analysis, the HST corridors are described from station-to-station within each region, except where a by-pass option is considered when the point of departure from the corridor defines the end of the corridor segment. The Sacramento to Bakersfield region has been divided into six corridors: Corridor A runs generally from Sacramento to Stockton; Corridor B, from Stockton to Modesto; Corridor C, from Modesto to Merced; Corridor D, from Merced to Fresno; Corridor E, from Fresno to Tulare; and Corridor F, from Tulare to Bakersfield. Within any given corridor, various alignment options have been developed. Each alignment option is named with an alpha-numeric designation: the letter corresponds to the corridor, and the number refers to a specific route within that corridor. The corridors and alignment routes for HST for this region are defined and presented in Appendix A.

Figure 4
HST Alternative – Corridors and Stations for Continued Investigation



2.0 SECTION 4(F) AND 6(F) EVALUATION METHODOLOGY

The Section 4(f) and 6(f) evaluation methodology for this program-level EIR/EIS is focused on a review of the potential impacts to historical, cultural and wildlife resources that are identified from existing information along corridors for each of the alternatives (Modal and HST) and around HST stations. The potential Section 4(f) and 6(f) impacts for each of these alternatives are compared with the No-Project Alternative. For this programmatic document the primary goal of this analysis is the identification of resources, not the assessment of the severity of the use or constructive use of Section 4(f) and 6(f) resources. The following table (Table 1) outlines the study areas for each type of Section 4(f) and 6(f) resource.

Using the study area defined above for possible resources, the Section 4 (f) and 6(f) analysis:

- Identified Section 4(f) and 6(f) resources that have the potential to be used by the alternatives. A use would occur if the physical features of a proposed alignment (i.e., track work) directly intersected with a portion or all of a 4(f) or 6(f) resource and require the use of property from that resource. Construction impacts could also directly use Section 4(f) and 6(f) resources, if the temporary construction areas require the use of property from an identified Section 4(f) or 6(f) resource. For the purpose of this programmatic document, any resource that is within 150' of the centerline will be considered to be used by that alternative. This 150-foot distance from the centerline represents the most likely area that would constitute the right-of-way and construction disturbance areas for the alternatives. Although this 150-foot-wide area may vary by alternative or along a segment, it is a sufficient representation for this analysis.
- Identified Section 4(f) and 6(f) resources that have the potential to be indirectly impacted, which is defined as a constructive use. A constructive use would occur if a resource were affected as a result of its proximity to the proposed alignment to the extent that the impacts substantially adversely affect the values that define the Section 4(f) or 6(f) resource. Possible constructive uses could occur as a result of increased noise, dust, or vibration at the location of the Section 4(f) or 6(f) resource. For this programmatic document, it is assumed that potential noise impacts will be the predominant determinant of a potential constructive use. Consequently, any resource that is between 150 and 900 feet from the centerline of an alternative will be considered to experience a constructive use as a result of that alternative. However, on roads, noise levels are a function of the number of vehicles and the speed at which those vehicles are traveling. As the numbers of vehicles increase, noise levels increase. As a result, proposed improvements may not result in a substantial increase at a resource if the traffic volumes are low or travel speeds are low. In addition, the area of potential constructive use would not apply in tunnel sections if there are no surface features or surface construction on those sections that could result in adverse noise impacts on a Section 4(f) or 6(f) resource.
- Identified probable (obvious) measures to minimize harm or avoid a Section 4(f) and 6(f) resource.

The use and/or constructive use of a resource would constitute a Section 4(f) and 6(f) use and would have the potential to be temporary (limited to the construction period) or permanent.

To assess whether an alternative would potentially result in direct and/or constructive use of Section 4(f) or 6(f) parkland and biological resources, the rankings of potential for impacts listed in Table 2 were used. The rankings of potential impacts to cultural resources under Section 4(f) are defined in the same manner used in the Cultural Resources Technical Evaluation for the Sacramento to Bakersfield region, prepared by Applied Earthworks, March 2003.

The results of the analysis are summarized in the text and detailed tables in Section 6.0 for the Sacramento to Bakersfield region.

Table 1
Study Areas for Section 4(f) and 6(f) Analysis

Discipline	4(f) and 6(f) Resources	HSR Study Area	No-Project/Modal Alternative
Potential for National Register listed and eligible cultural resources (prehistoric, historic archaeological and historic resources)	Potential for National Register listed and eligible cultural resources to occur. (Given the level of detail required for this programmatic document, these resources will be identified as "areas" and not as individual resources.)	500 feet from each side of centerline in non-urban areas. 100 feet from each side of the centerline in urban areas.	100 feet from existing highways and existing airport property boundaries
Land Use	Parks, recreational lands	0.25 mile from each side of the centerline.	0.25 mile from each side of the centerline
Biological	Refuges and conservation lands	1,000 feet around stations and on both sides of the corridor in developed areas. 0.25 mile around stations and on both sides of corridor in undeveloped areas. 0.5 mile around stations and on both sides of the corridors in sensitive areas (lagoons and wildlife corridors).	1,000 feet around stations and on both sides of the corridor in developed areas. 0.25 mile around stations and on both sides of corridor in undeveloped areas. 0.5 mile around stations and on both sides of the corridors in sensitive areas (lagoons and wildlife corridors).

Table 2
Rankings for Potential for Direct Use and Constructive Use Impacts
on Section 4(f) and 6(f) Parkland and Biological Resources

Distance of Resource from Centerline or Station Footprint	Ranking of Potential for Direct and Constructive Use
0 to 150 feet	High potential of use. High potential for constructive use.
150 to 450 feet	Medium potential of constructive use.
450 to 900 feet	Low potential of constructive use.

3.0 SACRAMENTO TO BAKERSFIELD REGION SECTION 4(F) AND 6(F) ANALYSIS

3.1 IDENTIFICATION OF SECTION 4(F) AND 6(F) RESOURCES

Table 3 contains a summary of the Section 4(f) and 6(f) resources within the study areas of both the Modal and HST alternatives that could be affected. The number of cultural resources is based on archival research at the California Historical Resources Information Centers covering the Central Valley. The list of parklands and wildlife refuges is not meant to be exhaustive but is based on an examination of Thomas Brothers Maps – California Road Atlas & Driver's Guide (1999) and California State Automobile Association maps for communities in the Sacramento to Bakersfield region.

Table 3
Sacramento to Bakersfield Region
Summary Analysis/Comparison Table of
Section 4(f) And 6(f) Resources (1)

	Potential Impacts on Section 4(f) Recreation Resources (H, M, L, No Impact)	Potential Impacts on Section 6(f) Recreation Resources (H, M, L, No Impact)	Potential Impacts on Section 106 (Cultural) Resources (H, M, L, No Impact)
NO-PROJECT ALTERNATIVE			
Highways			
I-5 in Sacramento County (interchange improvement in the City of Sacramento)	1 Section 4(f) recreation resources. No potential for use: 1 resource. Medium potential for constructive use: 1 resource.	Not applicable: there are no Section 6(f) recreation resources within 0.25 mile of this segment.	Low potential for impacts on NRHP listed or eligible resources.
I-5 in San Joaquin County (roadway widening in the City of Stockton)	2 Section 4(f) recreation resources. High potential for use: 1 resource. Low potential for constructive use: 1 resource.	Not applicable: there are no Section 6(f) recreation resources within 0.25 mile of this segment.	Low potential for impacts on NRHP listed or eligible resources.
SR 99 in San Joaquin County (roadway widening in the City of Manteca)	1 Section 4(f) recreation resources. No potential for use: 1 resource. Medium potential for constructive use: 1 resource.		
all other improvements	Not applicable: there are no identifiable Section 4(f) recreation resources within 0.25 mile of this segment.	Not applicable: there are no identifiable Section 6(f) recreation resources within 0.25 mile of this segment	Low potential for impacts on NRHP listed or eligible resources.

	Potential Impacts on Section 4(f) Recreation Resources (H, M, L, No Impact)	Potential Impacts on Section 6(f) Recreation Resources (H, M, L, No Impact)	Potential Impacts on Section 106 (Cultural) Resources (H, M, L, No Impact)
MODAL			
HIGHWAYS			
Sacramento to Stockton Corridor			
I-5: widen 2 lanes	17 Section 4(f) recreation resources. High potential for use: 9 resources. No potential for use: 8 resources. Medium potential for constructive use: 1 resource. Low potential for constructive use: 4 resources. No potential for constructive use: 3 resources.	2 Section 6(f) resources. High potential for use: 2 resources.	Medium potential for constructive use impacts on NRHP listed and eligible resources.
SR 99: widen 2 lanes	15 Section 4(f) recreation resources. High potential for use: 6 resources. No potential for use: 9 resources. Medium potential for constructive use: 6 resources. Low potential for constructive use: 3 resources.	2 Section 6(f) resources. No potential for use: 2 resources. Medium potential for constructive use: 1 resource. Low potential for constructive use: 1 resource.	High potential for use and constructive use impacts on NRHP listed and eligible resources.
Stockton to Modesto Corridor			
I-5: widen 2 lanes	1 Section 4(f) recreation resources. High potential for use: 1 resource.	Not applicable: there are no identifiable Section 6(f) recreation resources within 0.25 mile of this segment	Low potential for use and constructive use impacts on NRHP listed and eligible resources.
SR 99: widen 2 lanes	5 Section 4(f) recreation resources. No potential for use: 5 resources. Medium potential for constructive use: 1 resource. Low potential for constructive use: 4 resources.	Not applicable: there are no identifiable Section 6(f) recreation resources within 0.25 mile of this segment	Low/Medium potential for use and constructive use impacts on NRHP listed and eligible resources.
Modesto to Merced Corridor			
I-5: widen 2 lanes	Not applicable: there are no identifiable Section 4(f) recreation resources within 0.25 mile of this segment.	Not applicable: there are no identifiable Section 6(f) recreation resources within 0.25 mile of this segment	Low potential for constructive use impacts on NRHP listed and eligible resources.

	Potential Impacts on Section 4(f) Recreation Resources (H, M, L, No Impact)	Potential Impacts on Section 6(f) Recreation Resources (H, M, L, No Impact)	Potential Impacts on Section 106 (Cultural) Resources (H, M, L, No Impact)
SR 99: widen 2 lanes	3 Section 4(f) recreation resources. High potential for use: 0 resources. No potential for use: 3 resources. Low potential for constructive use: 1 resource. No potential for construction use: 2 resources.	Not applicable: there are no identifiable Section 6(f) recreation resources within 0.25 mile of this segment	High potential for use and constructive use impacts on NRHP listed and eligible resources.
Merced to Fresno Corridor			
I-5: widen 2 lanes	Not applicable: there are no identifiable Section 4(f) recreation resources within 0.25 mile of this segment.	Not applicable: there are no identifiable Section 6(f) recreation resources within 0.25 mile of this segment	Low potential for use and constructive use impacts on NRHP listed and eligible resources.
SR 99: widen 2 lanes	3 Section 4(f) recreation resources. High potential for use: 2 resources. No potential for use: 1 resource. Low potential for constructive use: 1 resource.	Not applicable: there are no identifiable Section 6(f) recreation resources within 0.25 mile of this segment	Medium/High potential for use and constructive use impacts on NRHP listed and eligible resources.
Fresno to Tulare Corridor			
I-5: widen 2 lanes	Not applicable: there are no identifiable Section 4(f) recreation resources within 0.25 mile of this segment.	Not applicable: there are no identifiable Section 6(f) recreation resources within 0.25 mile of this segment	Low potential for use and constructive use impacts on NRHP listed and eligible resources.
SR 99: widen 2 lanes	4 Section 4(f) recreation resources. High potential for use: 1 resource. No potential for use: 3 resources. Medium potential for constructive use: 1 resource. No potential for constructive use: 2 resources.	Not applicable: there are no identifiable Section 6(f) recreation resources within 0.25 mile of this segment	Low potential for use and constructive use impacts on NRHP listed and eligible resources.
Tulare to Bakersfield Corridor			
I-5: widen 2 lanes	Not applicable: there are no identifiable Section 4(f) recreation resources within 0.25 mile of this segment.	Not applicable: there are no identifiable Section 6(f) recreation resources within 0.25 mile of this segment	Low potential for use and constructive use impacts on NRHP listed and eligible resources.
SR 99: widen 2 lanes	5 Section 4(f) recreation resources. High potential for use: 2 resources. No potential for use: 3 resources. Medium potential for constructive use: 2 resources. No potential for constructive use: 1 resource.	Not applicable: there are no identifiable Section 6(f) recreation resources within 0.25 mile of this segment	Low potential for use and constructive use impacts on NRHP listed and eligible resources.

	Potential Impacts on Section 4(f) Recreation Resources (H, M, L, No Impact)	Potential Impacts on Section 6(f) Recreation Resources (H, M, L, No Impact)	Potential Impacts on Section 106 (Cultural) Resources (H, M, L, No Impact)
HST CORRIDOR AND STATION OPTIONS			
Sacramento to Stockton Corridor			
	40 Section 4(f) recreation resources. High potential for use: 7 resources. No potential for use: 33 resources. Medium potential for constructive use: 16 resources. Low potential for constructive use: 9 resources. No potential for constructive use: 8 resources.	2 Section 6(f) recreation resources. No potential for use: 2 resource. Low potential for constructive use: 1 resource. No potential for constructive use: 1 resource.	25-54 known cultural resources. Low - High potential for use and constructive use impacts on NRHP listed and eligible resources, depending on the particular alignment option.
Stockton to Modesto Corridor			
	15 Section 4(f) recreation resources. High potential for use: 3 resources. No potential for use: 12 resources. Medium potential for constructive use: 3 resources. Low potential for constructive use: 5 resources. No potential for constructive use: 4 resources.	2 Section 6(f) recreation resources. High potential for use: 2 resources.	14-16 known cultural resources. Low – Medium potential for use and constructive use impacts on NRHP listed and eligible resources, depending on the particular alignment option.
Modesto to Merced Corridor			
	7 Section 4(f) recreation resources. High potential for use: 3 resources. No potential for use: 4 resources. Medium potential for constructive use: 2 resources. Low potential for constructive use: 2 resources.	Not applicable: there are no identifiable Section 6(f) recreation resources within 0.25 mile of this segment.	1-101 known cultural resources. Low - High potential for use and constructive use impacts on NRHP listed and eligible resources, depending on the particular alignment option.
Merced to Fresno Corridor			
	4 Section 4(f) recreation resources. No potential for use: 4 resources. Low potential for constructive use: 3 resources. No potential for constructive use: 1 resource. Some potential for use or constructive use but parkland boundaries not well defined: 2 resources.	1 Section 6(f) recreation resource. No potential for use: 1 resource. Medium potential for constructive use: 1 resource.	5-16 known cultural resources. Low - Medium potential for use and constructive use impacts on NRHP listed and eligible resources, depending on the particular alignment option.

	Potential Impacts on Section 4(f) Recreation Resources (H, M, L, No Impact)	Potential Impacts on Section 6(f) Recreation Resources (H, M, L, No Impact)	Potential Impacts on Section 106 (Cultural) Resources (H, M, L, No Impact)
Fresno to Tulare Corridor			
	8 Section 4(f) recreation resources. No potential for use: 8 resources. Medium potential for constructive use: 2 resources. Low potential for constructive use: 5 resources. No potential for constructive use: 1 resource.	2 Section 6(f) recreation resources. High potential for use: 1 resource. No potential for use: 1 resource. Medium potential for constructive use: 1 resource.	5-18 known cultural resources. Low – High potential for use and constructive use impacts on NRHP listed and eligible resources, depending on the particular alignment option.
Tulare to Bakersfield Corridor			
	8 Section 4(f) recreation resources. High potential for use: 5 resources. No potential for use: 3 resources. Medium potential for constructive use: 1 resource. Low potential for constructive use: 2 resource.	Not applicable: there are no identifiable Section 6(f) recreation resources within 0.25 mile of this segment.	12-42 known cultural resources. Low – Medium potential for use and constructive use impacts on NRHP listed and eligible resources, depending on the particular alignment.

(1) The potential (high, medium, low, no) for direct use and constructive use impacts are shown for each resource.

3.2 PUBLICLY OWNED PARKS, RECREATIONAL LANDS AND WILDLIFE AND WATERFOWL REFUGES

Existing and planned publicly owned parks, recreation lands and wildlife and waterfowl refuges (collectively “recreation” resources) along the alignments of the alternatives in the Sacramento to Bakersfield region were identified based on the following sources:

- Mapping available from the HSR land use data files.
- General Plans from the local jurisdictions through which the alignments pass or in which project components are located.
- Mapping in the 1999 Thomas Brothers Maps – California Road Atlas & Driver’s Guide.
- Mapping in the local jurisdictions from the California State Automobile Association.

Sections 4(f) and 6(f) recreation resources in the Sacramento to Bakersfield region include:

- Federally owned/managed property including National Forests.
- State owned/managed property including State Parks.
- County owned/managed property including regional parks, trails, community centers and other resources serving countywide needs.

- Local jurisdiction (city) resources including mini or pocket parks, neighborhood parks, community centers and other publicly owned and operated recreation facilities and resources.

Based on the data sources and mapping, existing and planned publicly owned parks, recreation lands and wildlife and waterfowl refuges along the alignments and in the vicinity of project features are summarized in Table 4. Table 4 lists the project segments and features, the Sections 4(f) and 6(f) recreation resources within 900 feet of those project components, and the potential for use or constructive use of those resources. There are no Section 4(f) or 6(f) recreational or biological resources in the vicinity of the proposed airport improvements. Accordingly, the inventory of Section 4(f) and 6(f) resources are those along either the highway component of the Modal Alternative or the HST alignment options. The Section 4(f) and 6(f) resources are organized by the six corridors that comprise the Sacramento to Bakersfield region. The HST alignment options in Table 4 are described in Appendix A.

In addition, Table 4 lists probable measures to minimize harm to the potentially impacted Section 4(f) and 6(f) resources. The probable measures focus on the potential use and constructive use impacts. Use of property from a Section 4(f)/6(f) resources can potentially be mitigated by realignment; shifting the centerline and the facility away from the resource; redesign to narrow the construction and right-of-way limits near the resources and implementation of retaining walls to reduce the need for grading and soil remediation. These are referred to in Table 4 as “avoidance” measures because they result in physically avoiding the direct use of property from a Section 4(f)/6(f) resource. However, it should be noted that shifting a rail alignment is not a simple process because of the design constraints and considerations such as turning radii and other features that make “minor” shifts or realignments unrealistic or very difficult.

For any resource where the use cannot be avoided, compensation to the property owner would be required. For all resources potentially impacted by a direct use, the avoidance and compensation measures would apply. The measures for constructive use impacts focus on measures to reduce noise, consistent with the findings of the noise study, and to reduce visual impacts, consistent with the aesthetics and visual quality report. Measures to avoid or reduce a constructive use of a Section 4(f)/6(f) resource could include noise walls and/or visual screening. However, these measures could result in adverse impacts on those resources. For example, noise walls could result in adverse visual impacts on Section 4(f)/6(f) resources. The identification and implementation of measures to minimize harm at each resource need to be conducted in consultation with the owners of the resources to ensure that measures to minimize harm do not adversely affect the values of the resources.

3.2.1 No-Project Alternative

The No-Project Alternative involves only those transportation improvements that have been programmed and funded. They include localized changes to the transportation system – a new or improved interchange, installation of carpool or high occupancy lanes, selective highway widenings, expansions of airport passenger terminals and parking, and track and station upgrades on the conventional passenger rail system. Given the nature of these improvements, the impacts to 4(f) and 6(f) resources, if any, would be geographically and really limited. Compared to the more extensive Modal and HST Alternatives, the No-Project Alternative would trigger less environmental impact. Nonetheless, this statement is not intended to suggest that the No-Project would not have adverse effects. In fact, it is anticipated that collectively the various improvements programmed and funded in the State Transportation Improvement Program, Regional Transportation Plans, Airport Master Plans, and intercity passenger rail plans would have impacts, many of which will require mitigation measures to reduce the effects. Section 4(f) and 6(f) properties that appear to be in the vicinity of the programmed interchange or roadway widening projects in the Regional Transportation Plans for the communities in the Sacramento to Bakersfield region are noted in Table 4.

3.2.2 Modal Alternative

To supplement the inventory of individual parks identified in Table 4, acreage tabulations of parklands within the study area have been made using the GIS mapping. The acreage tabulations do not distinguish between use and constructive use but offer a relative idea of the areas potentially affected. The Modal Alternative has the potential to affect about 7,980 acres of Section 4(f) or Section 6(f) parklands. This acreage consists of 810 acres of local, city, and county parklands spread among 55 different parks; 4,520 acres of state and/or federal parklands spread among 30 facilities; and 2,650 acres of the Stone Lakes National Wildlife Refuge along I-5 in Sacramento County. Table 5 presents the detailed acreage of potentially affected parklands.

Sacramento to Stockton Corridor

In the Sacramento to Stockton Corridor, Modal Alternative improvements occur along I-5, SR 99, and at the Sacramento Metropolitan Airport. Within this corridor, roadway widenings would have the potential to affect about 2,885 acres of possible Section 4(f) and Section 6(f) parklands, of which 2,820 acres occur along I-5 and 55 acres occur along SR 99. This corridor has the second greatest amount of potentially affected parklands and wildlife refuges of all the corridors comprising the Sacramento to Bakersfield region. The vast majority of the potentially affected acreage in this corridor is associated with the Stone Lakes National Wildlife Refuge between I-5 and the Sacramento River, south of Laguna West. The roadway widening of I-5 could take or involve constructive use of eight different local, city, or county parks.

Stockton to Modesto Corridor

In the Stockton to Modesto Corridor, the Modal Alternative proposes widening of I-5 and SR 99. A total of nearly 70 acres of among seven local, city, or county parks would be potentially affected. Two of the parks, totaling nearly 25 acres, are along I-5, and the remaining five parks, totaling nearly 45 acres, are along SR 99.

Modesto to Merced Corridor

In this corridor, the Modal Alternative proposes widening SR 99. Twenty-seven parks, encompassing nearly 275 acres, could be taken or constructively used as a result of the roadway changes. All of the parks are smaller local, city, or county parks serving the communities in Stanislaus and Merced Counties along SR 99.

Merced to Fresno Corridor

This corridor has the potential to affect the greatest acreage of Section 4(f) and Section 6(f) properties of all corridors in the Sacramento to Bakersfield region. About 4,475 acres of mostly state and federal parklands lie in this corridor, with the largest acreage (3,975 acres) along State Highway 152, which connects I-5 and SR 99 through Merced and Madera Counties. About 475 acres, evenly split between local and state/federal parklands, lie alongside the proposed widening of US Highway 101.

Table 4
Sacramento to Bakersfield Region
Summary of Potential Impacts and Probable Measures to Minimize Harm
to Section 4(f) and 6(f) Recreation Resources (1)

Sections 4 (f) and 6(f) Recreation Resources Within Study Area	Distance from Centerline in Feet	Potential for Use (within 150 feet)	Potential for Constructive Use (greater than 150 and less than 900 feet)	Probable Measures to Minimize Harm	
NO-PROJECT ALTERNATIVE					
Highways					
I-5 in Sacramento County (interchange improvement at Richards Boulevard in the City Of Sacramento)	Captain Tiscornia Park	>150 feet from I-5.	No potential for use.	Medium potential for constructive use because resource is near to I-5.	Noise walls and visual screening, as appropriate.
I-5 in San Joaquin County (roadway widening from Monte Diablo Avenue undercrossing to Hamer Lane in the City Of Stockton)	Swenson Park Golf Course	>450 feet from I-5.	No potential for use.	Low potential for constructive use because resource is near I-5.	Noise walls and visual screening, as appropriate.
SR 99 in San Joaquin County (roadway widening from Arch Road to Highway 120 in the City of Manteca)	Springtime Park	>150 feet from I-5.	No potential for use.	Medium potential for constructive use because resource is near SR 99.	Noise walls and visual screening, as appropriate.
MODAL ALTERNATIVE					
Highways					
Sacramento to Stockton Corridor					
I-5: widen 2 lanes	American River Parkway (6f) - Sacramento	Resource is adjacent to existing I-5.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures. Noise walls and/or visual screening, as appropriate.
	Captain Tiscornia Park - Sacramento	>150 feet from I-5.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Sacramento River Parkway - Sacramento	Resource is adjacent to existing I-5.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Stone Lake Wildlife Refuge	Resource is adjacent to I-5.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as

	Sections 4 (f) and 6(f) Recreation Resources Within Study Area	Distance from Centerline in Feet	Potential for Use (within 150 feet)	Potential for Constructive Use (greater than 150 and less than 900 feet)	Probable Measures to Minimize Harm
					appropriate.
	Crocker Park - Sacramento	Resource is adjacent to I-5.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	William Land Park - Sacramento	Resource is adjacent to I-5.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Bahnfleth Park - Sacramento	>450 feet from I-5.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Reichmuth Park - Sacramento	>450 feet from I-5.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Zberg Park - Sacramento	>900 feet from I-5.	No potential for use.	No potential for constructive use.	None.
	Marriott Park - Sacramento	Resource is adjacent to I-5.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Freeport Shores Youth Sports Complex - Sacramento	Resource is adjacent to I-5.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Bartley W. Cavanaugh Golf Course – Unincorporated Sacramento County	Resource is adjacent to I-5.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.

Sections 4 (f) and 6(f) Recreation Resources Within Study Area		Distance from Centerline in Feet	Potential for Use (within 150 feet)	Potential for Constructive Use (greater than 150 and less than 900 feet)	Probable Measures to Minimize Harm
	Oak Grove Regional Park (6f) - Stockton	Resource is adjacent to I-5.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Garrigan Neighborhood Park - Stockton	>450 feet from I-5.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Swenson Park Golf Course - Stockton	>450 feet from I-5.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Victory Park - Stockton	>900 feet from I-5.	No potential for use.	No potential for constructive use.	None.
	Morelli Boat Ramp Park – Stockton	Resource is adjacent to I-5.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Columbus Park - Stockton	>900 feet from I-5.	No potential for use.	No potential for constructive use.	None.
	Van Buskirk Park - Stockton	Resource is adjacent to I-5.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
SR 99: widen 2 lanes.	South Side Park - Sacramento	>150 feet from SR 99.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	O'Neil Park - Sacramento	>150 feet from SR 99.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	McClatchy Park (6f) - Sacramento	>450 feet from SR 99.	No potential for use.	Low potential for constructive use.	None.
	Mini Park - Sacramento	Resource is adjacent to SR 99.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.

Sections 4 (f) and 6(f) Recreation Resources Within Study Area		Distance from Centerline in Feet	Potential for Use (within 150 feet)	Potential for Constructive Use (greater than 150 and less than 900 feet)	Probable Measures to Minimize Harm
	Pacific Park - Sacramento	Resource is adjacent to SR 99.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Bowling Green - Sacramento	Resource is adjacent to SR 99.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Nicholas Park - Sacramento	>450 feet from SR 99.	No potential for use.	Low potential for constructive use.	None.
	Crofoot Park - Sacramento	Resource is adjacent to SR 99.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Hampton Park - Sacramento	>150 feet from SR 99.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Sheldon Park - Sacramento	>150 feet from SR 99.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Florin Creek Park (6f) - Sacramento	>150 feet from SR 99.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Colton Park – Unincorporated Sacramento County	>450 feet from SR 99.	No potential for use.	Low potential for constructive use.	None.
	Elk Grove County Park – Unincorporated Sacramento County	Resource is adjacent to SR 99.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Raymus Village County Park – Unincorporated Sacramento County	>450 feet from SR 99.	No potential for use.	Low potential for constructive use.	None.

Sections 4 (f) and 6(f) Recreation Resources Within Study Area		Distance from Centerline in Feet	Potential for Use (within 150 feet)	Potential for Constructive Use (greater than 150 and less than 900 feet)	Probable Measures to Minimize Harm
	San Joaquin County Regional Sports Complex – Unincorporated San Joaquin County	Resource is adjacent to SR 99	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Springtime Park - Manteca	>150 feet from SR 99.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Shasta Park - Manteca	>150 feet from SR 99.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
Stockton to Modesto Corridor					
I-5: widen 2 lanes	Mossdale County Park – Unincorporated San Joaquin County	Resource is adjacent to I 5.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
SR 99: widen 2 lanes	Highway Village Park - Modesto	>450 feet from SR 99.	No potential for use.	Low potential for constructive use.	None.
	West Side Park - Modesto	>450 feet from SR 99.	No potential for use.	Low potential for constructive use.	None.
	Tuolumne Municipal Golf Course - Modesto	>450 feet from SR 99.	No potential for use.	Low potential for constructive use.	None.
	Independence Park - Ceres	>150 feet from SR 99.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Whitmore Park - Ceres	>450 feet from SR 99.	No potential for use.	Low potential for constructive use.	None.
Modesto to Merced Corridor					
I-5: widen 2 lanes	None.				
SR 99: widen 2 lanes	Rancho Del Rey Golf Course - Atwater	>900 feet from SR 99.	No potential for use.	No potential for constructive use.	None.
	McNamara Park - Merced	>450 feet from SR 99.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Merced County Fairground – Unincorporated Merced County	>900 feet from SR 99.	No potential for use.	No potential for constructive use.	None.

Sections 4 (f) and 6(f) Recreation Resources Within Study Area		Distance from Centerline in Feet	Potential for Use (within 150 feet)	Potential for Constructive Use (greater than 150 and less than 900 feet)	Probable Measures to Minimize Harm
Merced to Fresno Corridor					
I-5: widen 2 lanes	None.				
SR 99: widen 2 lanes	Highway City Neighborhood Park - Fresno	>450 feet from SR 99.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Roeding Park - Fresno	Resource is adjacent to SR 99.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Fink White Park - Fresno	Resource is adjacent to SR 99.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
Fresno to Tulare Corridor					
I-5: widen 2 lanes	None.				
SR 99: widen 2 lanes	Pioneer Village Park - Selma	Resource is adjacent to SR 99.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Sal M. Salazar Park and Community Center - Selma	>150 feet from SR 99.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Bicentennial Park - Kingsburg	>900 feet from SR 99.	No potential for use.	No potential for constructive use due to distance from I-5.	None.
	City Park - Kingsburg	>900 feet from SR 99.	No potential for use.	No potential for constructive use due to distance from I-5.	None.
Tulare to Bakersfield Corridor					
I-5: widen 2 lanes	None.				
SR 99: widen 2 lanes	Blain Park - Tulare	>150 feet from SR 99.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Pixley County Park – Unincorporated Tulare County	>900 feet from SR 99.	No potential for use.	No potential for constructive use due to distance from I-5.	None.
	Beach Park - Bakersfield	>150 feet from SR 99.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.

Sections 4 (f) and 6(f) Recreation Resources Within Study Area		Distance from Centerline in Feet	Potential for Use (within 150 feet)	Potential for Constructive Use (greater than 150 and less than 900 feet)	Probable Measures to Minimize Harm
	Yokuts Park - Bakersfield	Resource is adjacent to SR 99.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Saunders Park - Bakersfield	Resource is adjacent to SR 99.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
HST CORRIDOR AND STATION OPTIONS (2)					
Sacramento to Stockton Corridor					
A1-A8	Zapata Park - Sacramento	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Muir Park - Sacramento	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Grant Park - Sacramento	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Stanford Park - Sacramento	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	River Park - Sacramento	Resource is adjacent to UP alignment.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Betty Way Park - Sacramento	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	American River Parkway (6f) - Sacramento	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Tahoe Tallac Park - Sacramento	Resource is adjacent to UP alignment.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.

Sections 4 (f) and 6(f) Recreation Resources Within Study Area	Distance from Centerline in Feet	Potential for Use (within 150 feet)	Potential for Constructive Use (greater than 150 and less than 900 feet)	Probable Measures to Minimize Harm
Granite Regional Park - Sacramento	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
17 th Avenue Park - Sacramento	>900 feet from UP alignment.	No potential for use.	No potential for constructive use.	None.
21st Avenue Park - Sacramento	>450 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
Baer Park - Sacramento	>900 feet from UP alignment.	No potential for use.	No potential for constructive use.	None.
Olde Florin Park – Unincorporated Sacramento County	>450 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
Southwoods Park – Unincorporated Sacramento County	>900 feet from UP alignment.	No potential for use.	No potential for constructive use.	None.
Cottonwood Park – Unincorporated Sacramento County	Resource is adjacent to UP alignment.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
Vintage Park (6f) – Unincorporated Sacramento County	>900 feet from UP alignment.	No potential for use.	No potential for constructive use.	None.
Tillotson Parkway – Unincorporated Sacramento County	Resource is adjacent to UP alignment.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
Hardester Park - Unincorporated Sacramento County	>150 feet from alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
Illa Collin Park – Unincorporated Sacramento County	Resource is adjacent to UP alignment.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
Mix Park – Elk Grove	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.

Sections 4 (f) and 6(f) Recreation Resources Within Study Area	Distance from Centerline in Feet	Potential for Use (within 150 feet)	Potential for Constructive Use (greater than 150 and less than 900 feet)	Probable Measures to Minimize Harm
Mendoza Park – Elk Grove	Resource is adjacent to UP alignment.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
Russell Park – Elk Grove	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
Smedberg Park – Elk Grove	>900 feet from UP alignment.	No potential for use.	No potential for constructive use.	None.
Matt Equinda Park - Stockton	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
Valverde Park – Stockton	>900 feet from UP alignment.	No potential for use.	No potential for constructive use.	None.
Panella Park – Stockton	Resource is adjacent to UP alignment.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
S.L. Fong Park – Stockton	>900 feet from UP alignment.	No potential for use.	No potential for constructive use.	None.
Rue Park - Stockton	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
Oak Park – Stockton	>900 feet from UP alignment.	No potential for use.	No potential for constructive use.	None.
Constitution Park - Stockton	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
Independence Park - Stockton	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
Union Square - Stockton	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
Liberty Square - Stockton	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
McKinley Park - Stockton	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.

Sections 4 (f) and 6(f) Recreation Resources Within Study Area		Distance from Centerline in Feet	Potential for Use (within 150 feet)	Potential for Constructive Use (greater than 150 and less than 900 feet)	Probable Measures to Minimize Harm
	Peterson Park - Stockton	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Grey Stone Park – Manteca	>900 feet from UP alignment.	No potential for use.	No potential for constructive use.	None.
	Library Park - Manteca	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Mini Park - Manteca	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Wilson Park - Manteca	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	South Side Park - Manteca	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Baccillieri Park - Manteca	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Lincoln Park - Manteca	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
Stockton to Modesto Corridor					
B1	Salida Park - Salida	>900 feet from UP alignment.	No potential for use.	No potential for constructive use.	None.
	County Park - Salida	Resource is adjacent to UP alignment.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Highway Village Park - Modesto	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	J.M. Pike Park - Modesto	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Tuolumne River Regional Park (6f) – Unincorporated Stanislaus County	Resource is adjacent to UP alignment.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.

Sections 4 (f) and 6(f) Recreation Resources Within Study Area		Distance from Centerline in Feet	Potential for Use (within 150 feet)	Potential for Constructive Use (greater than 150 and less than 900 feet)	Probable Measures to Minimize Harm
	Riverdale Fishing Access Park – Unincorporated Stanislaus County	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Independence Park - Ceres	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Whitmore Park - Ceres	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Redwood Park - Ceres	>900 feet from UP alignment.	No potential for use.	No potential for constructive use.	None.
B2	Walter Hogan Park - Escalon	>900 feet from BNSF alignment.	No potential for use.	No potential for constructive use.	None.
	Mainstreet Park – Escalon	Resource is adjacent to BNSF alignment.	High potential for use because proposed improvements are potentially within this resource.	High potential for constructive use.	Avoidance and compensation measures Noise walls and/or visual screening, as appropriate.
	Latta Park - Escalon	>900 feet from BNSF alignment.	No potential for use.	No potential for constructive use.	None.
	Jacob Meyer Regional Park (6f) - Unincorporated San Joaquin County	Resource is adjacent to BNSF alignment.	High potential for use.	High potential for constructive use.	Avoidance and compensation measures. Noise walls and/or visual screening, as appropriate.
	Pioneer Park - Riverbank	>150 feet from BNSF alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Zerillo Park - Riverbank	Resource is adjacent to BNSF alignment.	High potential for use.	High potential for constructive use.	Avoidance and compensation measures. Noise walls and/or visual screening, as appropriate.
	Staley Park - Riverbank	>150 feet from BNSF alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Don Whorton Park - Riverbank	>150 feet from BNSF alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.

Sections 4 (f) and 6(f) Recreation Resources Within Study Area		Distance from Centerline in Feet	Potential for Use (within 150 feet)	Potential for Constructive Use (greater than 150 and less than 900 feet)	Probable Measures to Minimize Harm
Modesto to Merced Corridor					
C1-C4, C9-C10	Stanislaus County Fairgrounds - Turlock	Resource is adjacent to UP alignment.	High potential for use.	High potential for constructive use.	Avoidance and compensation measures. Noise walls and/or visual screening, as appropriate.
	Broadway Park - Turlock	Resource is adjacent to UP alignment.	High potential for use.	High potential for constructive use.	Avoidance and compensation measures. Noise walls and/or visual screening, as appropriate.
	Central Park - Turlock	Resource is adjacent to UP alignment.	High potential for use.	High potential for constructive use.	Avoidance and compensation measures. Noise walls and/or visual screening, as appropriate.
C5-C6, C11-C16	Bloss Park - Atwater	>450 feet from BNSF alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Ball Park - Atwater	>450 feet from BNSF alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Castle Park - Atwater	>150 feet from BNSF alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Joe Herb Park - Merced	>150 feet from BNSF alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
Merced to Fresno Corridor					
D1-D8	Highway City Neighborhood Park - Fresno	>450 feet from alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Dog Park - Fresno	>450 feet from alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Roeding Park (6f) - Fresno	>150 feet from BNSF alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Fink White Park - Fresno	>900 feet from alignment.	No potential for use.	No potential for constructive use.	None.

Sections 4 (f) and 6(f) Recreation Resources Within Study Area		Distance from Centerline in Feet	Potential for Use (within 150 feet)	Potential for Constructive Use (greater than 150 and less than 900 feet)	Probable Measures to Minimize Harm
	Fulton Mall - Fresno	>450 feet from alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
Fresno to Tulare Corridor					
E1	Pioneer Village Park - Selma	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	W.H. Shafer Park (6f) - Selma	Resource is adjacent to UP alignment.	High potential for use.	High potential for constructive use.	Avoidance and compensation measures. Noise walls and/or visual screening, as appropriate.
	Lincoln Center Park - Selma	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Berry Park - Selma	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	City Park - Kingsburg	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
E2	Laton-Kingston (6f) - Laton	>150 feet from BNSF alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Kings Country Club – Unincorporated Tulare County	>450 feet from BNSF alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Kingston Regional Park – Unincorporated Tulare County	>450 feet from BNSF alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Cob Park - Hanford	>900 feet from BNSF alignment.	No potential for use.	No potential for constructive.	None.
	Hidden Valley Park - Hanford	>450 feet from BNSF alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
Tulare to Bakersfield Corridor					
F1-F10, F13-F22	Centennial Park - Tulare	Resource is adjacent to UP alignment.	High potential for use.	High potential for constructive use.	Avoidance and compensation measures. Noise walls and/or visual screening, as appropriate.

	Sections 4 (f) and 6(f) Recreation Resources Within Study Area	Distance from Centerline in Feet	Potential for Use (within 150 feet)	Potential for Constructive Use (greater than 150 and less than 900 feet)	Probable Measures to Minimize Harm
	Topham Park - Tulare	>150 feet from UP alignment.	No potential for use.	Medium potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Riverview Park – Bakersfield	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.
	Metropolitan Recreation Center - Bakersfield	Resource is adjacent to UP alignment.	High potential for use.	High potential for constructive use.	Avoidance and compensation measures. Noise walls and/or visual screening, as appropriate.
	Weill Park - Bakersfield	Resource is adjacent to UP alignment.	High potential for use.	High potential for constructive use.	Avoidance and compensation measures. Noise walls and/or visual screening, as appropriate.
F11-F12, F23-F24	Colonel Allensworth State Historical Park – Unincorporated Tulare County	Resource is adjacent to BNSF alignment.	High potential for use.	High potential for constructive use.	Avoidance and compensation measures. Noise walls and/or visual screening, as appropriate.
	Pixley National Wildlife Refuge – Unincorporated Tulare County	Resource is adjacent to BNSF alignment.	High potential for use.	High potential for constructive use.	Avoidance and compensation measures. Noise walls and/or visual screening, as appropriate.
	Greenacres Park – Unincorporated Kern County	>450 feet from UP alignment.	No potential for use.	Low potential for constructive use.	Noise walls and/or visual screening, as appropriate.

- (1) All these recreation resources are Section 4(f) resources. Section 6(f) resources are noted as (6f) in parentheses. All resources within 0.25 of the centerline or project feature are listed; resources more than 900 feet from the centerline or feature are assumed not to be used or constructively used as noted in this table.
- (2) The HST alignment options for each of the six corridors making up the Sacramento to Bakersfield region are described in Appendix A.

Table 5
Sacramento to Bakersfield Region
Section 4(f) and Section 6(f) Parkland and Wildlife Refuge Impacts

	Acreages			Occurrences		
	City/County Parks	State/Federal Parks	National Wildlife Refuge	City/County Parks	State/Federal Parks	National Wildlife Refuge
Modal						
Sacramento to Stockton	151.8	75.0	2,645.9	9	3	1
Stockton to Modesto	67.4	0.0	0.0	7	0	0
Modesto to Merced	273.7	0.0	0.0	27	0	0
Merced to Fresno	251.8	4,223.2	0.0	3	26	0
Fresno to Tulare	29.2	0.0	0.0	5	0	0
Tulare to Bakersfield	39.5	218.0	0.0	4	1	0
HST Corridor & Station Options (1)						
Sacramento to Stockton						
Alignments						
A1	125.9	0.0	0.0	52	0	0
A2	116.2	0.0	0.0	79	0	0
A3	57.1	0.0	0.0	39	0	0
A4	47.4	0.0	0.0	66	0	0
A5	125.9	0.0	0.0	36	0	0
A6	115.8	0.0	0.0	35	0	0
A7	57.1	0.0	0.0	23	0	0
A8	47.0	0.0	0.0	22	0	0
Stations						
Sacramento Downtown Depot	0.0	6.6	0.0	0	1	0
Power Inn Road Station (BNSF Option)	0.0	0.0	0.0	0	0	0
Power Inn Road Station (UPRR Option)	0.0	0.0	0.0	0	0	0
Stockton ACE Downtown Station	6.1	0.0	0.0	2	0	0
Maintenance Facilities						
Sacramento Maintenance Facility BNSF Alt	0.0	0.0	0.0	0	0	0
Sacramento Maintenance Facility UPRR Alt	0.0	0.0	0.0	0	0	0

	Acreages			Occurrences		
	City/County Parks	State/Federal Parks	National Wildlife Refuee	City/County Parks	State/Federal Parks	National Wildlife Refuee
Stockton to Modesto						
Alignments						
B1	80.5	0.0	0.0	18	0	0
B2	26.7	0.0	0.0	11	0	0
Stations						
Modesto Downtown Station	1.2	0.0	0.0	1	0	0
Modesto Briggsmore Station	0.0	0.0	0.0	0	0	0
Modesto to Merced						
Alignments						
C1	201.7	5.9	0.0	5	2	0
C2	201.7	5.9	0.0	5	2	0
C3	201.7	5.9	0.0	5	2	0
C4	201.7	5.9	0.0	5	2	0
C5	337.3	0.0	0.0	10	0	0
C6	337.3	0.0	0.0	10	0	0
C7	337.3	0.0	0.0	10	0	0
C8	337.3	0.0	0.0	10	0	0
C9	201.7	5.9	0.0	5	2	0
C10	201.7	5.9	0.0	5	2	0
C11	334.0	0.0	0.0	4	0	0
C12	334.0	0.0	0.0	4	0	0
C13	336.8	0.0	0.0	5	0	0
C14	340.0	0.0	0.0	11	0	0
C15	336.8	0.0	0.0	5	0	0
C16	340.0	0.0	0.0	11	0	0
Stations						
Merced Downtown Station	1.2	0.0	0.0	1	0	0
Merced Municipal Airport Station	0.0	0.0	0.0	0	0	0
Castle Air Force Base Station	0.0	0.0	0.0	0	0	0
Merced to Fresno						
Alignments						
D1	3.8	0.0	0.0	3	0	0
D2	3.8	0.0	0.0	3	0	0
D3	3.8	0.0	0.0	3	0	0
D4	3.8	0.0	0.0	3	0	0
D5	2.2	0.0	0.0	2	0	0
D6	2.2	0.0	0.0	2	0	0
D7	2.2	0.0	0.0	2	0	0
D8	2.2	0.0	0.0	2	0	0
Stations						
Fresno Downtown Station	0.0	0.0	0.0	0	0	0

	Acreages			Occurrences		
	City/County Parks	State/Federal Parks	National Wildlife Refuge	City/County Parks	State/Federal Parks	National Wildlife Refuge
Fresno to Tulare						
Alignments						
E1	60.8	0.0	0.0	8	0	0
E2	48.4	0.0	0.0	7	0	0
Stations						
Visalia Airport Station	0.0	0.0	0.0	0	0	0
Hanford Station	0.0	0.0	0.0	0	0	0
Tulare to Bakersfield						
Alignments						
F1	36.1	186.9	0.0	9	1	0
F2	36.1	186.9	0.0	9	1	0
F3	36.1	186.9	0.0	9	1	0
F4	36.1	186.9	0.0	9	1	0
F5	30.7	189.5	230.5	6	5	1
F6	30.7	189.5	230.5	6	5	1
F7	36.1	186.9	0.0	9	1	0
F8	36.1	186.9	0.0	9	1	0
F9	36.1	186.9	0.0	9	1	0
F10	36.1	186.9	0.0	9	1	0
F11	30.7	189.5	230.5	6	5	1
F12	30.7	189.5	230.5	6	5	1
F13	36.1	186.9	0.0	9	1	0
F14	36.1	186.9	0.0	9	1	0
F15	35.8	186.9	0.0	8	1	0
F16	35.8	186.9	0.0	8	1	0
F17	35.8	186.9	0.0	8	1	0
F18	35.8	186.9	0.0	8	1	0
F19	64.5	186.9	0.0	13	1	0
F20	64.5	186.9	0.0	13	1	0
F21	64.5	186.9	0.0	13	1	0
F22	64.5	186.9	0.0	13	1	0
F23	30.5	189.5	230.5	5	5	1
F24	30.5	189.5	230.5	5	5	1
Stations						
Bakersfield Airport Station	0.0	0.0	0.0	0	0	0
Golden State Station	12.4	0.0	0.0	2	0	0
Truxtun (Union Avenue) Station	0.0	0.0	0.0	0	0	0
Truxtun (Amtrak) Station	0.0	0.0	0.0	0	0	0
Maintenance Facilities						
Main Maintenance Facility BNSF Alt	0.0	0.0	0.0	0	0	0
Main Maintenance Facility UPRR Alt	0.0	0.0	0.0	0	0	0

(1) The HST alignment options for each of the six corridors making up the Sacramento to Bakersfield region are described in Appendix A.

Fresno to Tulare Corridor

This corridor has the fewest acres of potentially affected Section 4(f) or 6(f) properties of all corridors in the Sacramento to Bakersfield region. About 30 acres, dispersed among five local, city, or county parks, could be disturbed by the proposed widening of SR 99 under the Modal Alternative.

Tulare to Bakersfield Corridor

Within this corridor, the Modal Alternative includes widening of I-5 and SR 99. Nearly 260 acres of potential Section 4(f) and Section 6(f) properties could be taken or constructively used, of which 25 acres (in one park) occur along I-5 and over 230 acres (among four parks) occur along SR 99.

3.2.3 High Speed Train Alternative

In contrast to the Modal Alternative which has the potential to affect about 7,980 acres of Section 4(f) or Section 6(f) parklands, the HST Alternative could affect about 1,060 acres of parklands or wildlife refuges. The vast majority of the acreage is local city and county parks, although there are a number of state and federal parks and the Pixley National Wildlife Refuge in the Tulare to Bakersfield Corridor. Table 5, above, provides the details of potential parkland impacts by corridor.

Sacramento to Stockton Corridor

Alignments: In the Sacramento to Stockton Corridor, the HST Alternative has eight different alignment options. The alignment options that connect to the BNSF south of Stockton, rather than the UP (i.e., A3, A4, A7, and A8) have relatively low potential to affect Section 4(f) and Section 6(f) parklands, as the amount of parkland acreage along the train corridor ranges from about 45 to 60 acres. The other alignment options that connect to the BNSF south of Stockton (i.e., A1, A2, A5, and A6) have similar potential Section 4(f) or Section 6(f) effects, with a narrow range of about 115 to 130 acres of parklands near the HST right-of-way. Compared to other alignments within this and other corridors, this acreage is considered to be a medium level for potential impact to Section 4(f) or Section 6(f) properties.

The acreage totals above include the Section 6(f) properties in this corridor, all of which are along the Union Pacific (UP) railroad route. The Section 6(f) parklands include the American River Parkway (potentially affected by A1 through A4), and Vintage Park and possibly the Olde Florin Town Park (both potentially affected by A1, A3, A5, and A7).

Parks adjacent to the alignment that could be affected (a take would be indicated by the criterion used in this report) include River Park and Tahoe Tallac Park in the City of Sacramento; Cottonwood Park and Illa Collin Park in the County; Mendoza Park in Elk Grove; and Panella Park in Stockton. All are along the UP corridor.

Stations: Among the two station options in the City of Sacramento, only the Sacramento Downtown Depot Station has the potential to affect Section 4(f) and Section 6(f) parklands. The station location could disturb enjoyment of one state park (the American River Parkway) as approximately 7 acres of the park lies within the study area. The potential effect would be constructive use of the park. The other possible Sacramento station at Power Inn Road would not take or constructively use any parkland.

The Stockton ACE Station is the only proposed HST station in Stockton. The station location could affect two local parks that together total about 6 acres.

Stockton to Modesto Corridor

Alignments: In the Stockton to Modesto Corridor, the HST Alternative has two alignment options. The UP alignment (B1) has the potential to affect about 18 local parks encompassing 80 acres within the established study area. One of these parks, Tuolumne Regional Park, is funded with Land and Water Conservation Funds and is, therefore, a Section 6(f) parkland. The UP alignment would pass through this park and also possibly take a portion of County Park in Salida. The Burlington Northern Santa Fe (BNSF) railroad alignment (B2) could disturb 11 local parks, totaling nearly 30 acres within the study area. One of these parks, Jacob Meyer Regional Park, is Section 6(f) parkland. Jacob Meyer Regional Park, Mainstreet Park in Escalon, and Zerillo Park in Riverbank meet the distance criterion for a possible take. Compared to all other alignment options in the Sacramento to Bakersfield region, the Stockton to Modesto Corridor alignment options would have a low potential effect on Section 4(f) and Section 6(f) lands.

Stations: There are two potential stations in Modesto, the Downtown Station and the Briggsmore Station. Only the Downtown Station might indirectly affect one local park of about 1.2 acres.

Modesto to Merced Corridor

Alignments: In the Modesto to Merced Corridor, the HST Alternative has 16 different alignment options. The combinations involve the use of the BNSF or the UP corridor to access the Merced Downtown Station, the use of the BNSF or the UP corridor to access the Merced Municipal Airport Station, or the BNSF to access Castle Air Force Base Station. There are then variations depending on which corridor is used south of Merced.

In general, those alignment options that use the UP corridor to access the Merced Downtown or Merced Municipal Airport Stations (i.e., C1, C2, C3, C4, C9, and C10) would affect fewer acres of potential Section 4(f) parklands. These options, compared to other alignment options throughout the Sacramento to Bakersfield region, would have a medium potential to constructively use parklands, based on the presence of about 200 acres of local parklands and less than 10 acres of state/federal parklands along the HST right-of-way. Three parklands in Turlock appear to be close enough to be considered a potential take.

All other alignment options (i.e., those going to any of the three station options via the BNSF) would have similar potential effects. They all have about 340 acres of local parklands along or near the proposed HST tracks and, based on this number of acres, would be considered to have a high potential to affect parklands. The potential effect would be constructive use, since none of the parklands appear to be close enough to the route to be considered a possible take.

There are no known Section 6(f) parklands in this corridor.

Stations: There are three potential stations in the Merced area, but only the Downtown Station might affect Section 4(f) or Section 6(f) properties. In the vicinity of the Downtown Station is one local park, Bob Hart Square.

Merced to Fresno Corridor

Alignments: In the Merced to Fresno Corridor, the HST Alternative has eight alignment options, all of which would have a low potential to disturb Section 4(f) or Section 6(f) parklands, since the total acreage of local city and county parks along either the UP or BNSF corridors is less than 5 acres. The alignments using the UP corridor would all pass Roeding Park, which is a Section 6(f) parkland.

Stations: The Fresno Station would not have any potential Section 4(f) or Section 6(f) parkland effects, since there are no parklands within the defined study area around the proposed station.

Fresno to Tulare Corridor

Alignments: In the Fresno to Tulare Corridor, the HST Alternative has two alignment options: via the BNSF to a proposed station in Hanford and via the UP to a proposed station at the Visalia Airport. The UP corridor has a slightly greater potential to affect Section 4(f) or Section 6(f) parklands than the BNSF corridor based on the acres of parkland along the rights-of-way (about 60 versus 50 acres). North of Hanford, the BNSF route would be near Laton Kingston Park (a Section 6(f) parkland) and in Hanford the alignment would pass Hanford Valley Park and Cob Park. In addition, the UP corridor would run near Kingsburg Park in Kingsburg, Centennial Park and Topham Park in Tulare, and the W.H. Shafer Park in the City of Selma, which is a Section 6(f) parkland. Centennial Park and the W.H. Shafer Park are sufficiently close to the HST alignment to be considered possible takes. Nevertheless, this number of potentially affected acres would be considered a low effect, compared to other alignment options throughout the Sacramento to Bakersfield region.

Stations: Neither the Visalia nor the Hanford Stations would be expected to disturb Section 4(f) or 6(f) lands, since none are known to exist within the station areas.

Tulare to Bakersfield Corridor

Alignments: In the Tulare to Bakersfield Corridor, the HST Alternative has 24 alignment options. The options vary based on their destination station (of which there are four options), the route taken to the station (via UP, via UP around Tulare, or via BNSF), and the southerly connection to either SR 58 or Wheeler Ridge. The greatest number of parkland acreage – about 450 acres - occurs along the alignment options involving the BNSF (i.e., F5, F6, F11, and F12) or UP to the Truxtun (Amtrak) Station with a high-speed loop on the UP. Nearly 200 acres of the total parkland acreage lies in state or federal facilities. The alignment options using the BNSF could affect the Pixley National Wildlife Refuge, of which about 230 acres lies within the BNSF corridor study area; the Colonel Allensworth State Historic Park (a Section 6(f) parkland), of which about 190 acres lies within the BNSF corridor study area, and Greenacres Park, another Section 6(f) property. The BNSF route appears to pass through a portion of the Pixley National Wildlife Refuge, resulting in a potential take. These alignment options are considered to have a high potential for Section 4(f) or Section 6(f) effects, compared to other alignment options throughout the Sacramento to Bakersfield region.

All other alignment options would have a similar amount of parkland acreage along the right-of-way and, thus, a similar potential to take or constructively use Section 4(f) or Section 6(f) parklands. These other options have nearly 40 acres of local parklands and nearly 190 acres of state and federal facilities, for a grand total of about 225 acres. F1 through F14 and F19 through F22 are all near Riverview Park, a Section 6(f) property. This number of acres results in medium potential for Section 4(f) or Section 6(f) effects, compared to other alignment options throughout the Sacramento to Bakersfield region.

Stations: Of the four potential HST stations in the Bakersfield area, only the station location at Bakersfield Golden State might affect Section 4(f) parklands. This station is near two local parks, totaling about 12 acres. The larger of the two, Metro Recreation Center, is adjacent to the station and would be considered a potential take, based on the distance criterion used in this report.

3.3 NATIONAL REGISTER OF HISTORIC PLACES (NRHP) LISTED AND ELIGIBLE AREAS

3.3.1 No-Project Alternative

The earlier discussion of potential No-Project Alternative effects on Section 4(f) and 6(f) parklands applies to potential effects to cultural resources. Impacts of the No-Project Alternative would be expected both during the construction period and during the long-term operational period. The effects would occur throughout the Sacramento to Bakersfield region, primarily along the highways where the majority of the

funded and programmed improvements are proposed, and at two of the region's airports, Sacramento Metropolitan and Fresno Yosemite International. With respect to the roadway improvements, cultural resource impacts would be greatest in those segments proposed for widening:

- In Sacramento County, SR 99 from I-5 to Elkhorn Boulevard in Sacramento (Sacramento County)
- I-5 from I-80 to North Market Boulevard (for auxiliary lanes in Sacramento County)
- I-5 from Del Paso Road to SR 99 (for auxiliary lanes in Sacramento County)
- I-5 from Monte Diablo to Country Club (for auxiliary lane in Stockton, San Joaquin County)
- I-5 from Monte Diablo undercrossing to Hammer Lane (Stockton, San Joaquin County)
- I-5 from I-205 to SR 120 northbound (San Joaquin County)
- I-5 from Hammer Lane to Eight Mile Road (Stockton, San Joaquin County)
- SR 99 from Hammer Lane to north of Crosstown Freeway (Stockton, San Joaquin County)
- I-580 from Patterson Pass to Alameda/San Joaquin county line (San Joaquin County)
- SR 99 from south of Jensen Avenue to Ventura Street (for auxiliary lane in Fresno County)
- SR 99 from south of South Pacific and Biola Junction Bridge to Fresno/Madera county line (Fresno County)
- SR 99 from Goshen to SR 201 (Fresno/Tulare County)
- SR 99 from SR 201 to Floral (Fresno County).

Impacts are expected to occur whether or not the project build alternatives are constructed and implemented. Each of the proposed intercity travel demand improvements of the No-Project Alternative has been or will be subject to its own environmental clearance process and potential mitigation measures will be identified as part of those individual CEQA and/or NEPA reviews to address substantial impacts.

3.3.2 Modal Alternative

The Modal Alternative has a marked increase in the potential to affect cultural resources compared to the No-Project Alternative. As discussed in greater detail in the Cultural Resources Technical Evaluation for the Sacramento to Bakersfield region (prepared by Applied Earthworks, March 2003), changes to I-5 and SR 152 would have a low potential to disturb historical resources. Along I-5, there are 36 known cultural resources, of which 22 occur in the segment from SR 152 to SR 99. Widening and interchanges along SR 99 have the greatest potential to affect cultural resources because of the high concentration of historic and prehistoric sites, structures, and features (over 150 known cultural resources), especially between SR 120 and Merced. SR 99 parallels the UP rail line - the oldest railway in the Central Valley - and passes through many of the historic areas of the smaller towns between Sacramento and Bakersfield.

Proposed expansions of the Sacramento and Fresno airports possess a moderate to high potential to encounter historical resources. The Yolo River flows just west of the Sacramento Airport; four known historical sites lie east of the river near the airport. Moreover, the presence of a major water source increases the likelihood that prehistoric sites exist nearby. Adjacent to the Fresno Airport is a National Guard encampment known to contain several recorded historical structures.

3.3.3 High Speed Train Alternative

The HST Alternative has the highest potential to affect cultural resources, primarily because of large sections of the alignment options in the Sacramento to Bakersfield region follow existing rail alignments through the oldest part of several cities, including Sacramento, Modesto, Fresno, and Bakersfield. Known cultural resources are found along every alignment option in every corridor. At the high end, as many as 240 known cultural resources occur in the Sacramento to Bakersfield region within the HST corridor. The range of cultural resources affected by the alignment options by corridor is indicated below, along with the portions of the route that pass through areas that developed in specific, pre-defined historical time periods (before 1900, 1900-1929, and 1930 to 1958):

Sacramento to Stockton:	25 to 40 known cultural resources 21% to 33% of the routes pass areas developed during historic periods
Stockton to Modesto:	14 to 26 known cultural resources 29% to 38% of the routes pass areas developed during historic periods
Modesto to Merced:	1 to 101 known cultural resources 19% to 46% of the routes pass areas developed during historic periods
Merced to Fresno:	5 to 16 known cultural resources 17% to 36% of the routes pass areas developed during historic periods
Fresno to Tulare:	5 to 18 known cultural resources 20% to 32% of the routes pass areas developed during historic periods
Tulare to Bakersfield:	12 to 42 known cultural resources 15% to 36% of the routes pass areas developed during historic periods

Sacramento to Stockton Corridor

Summarizing from the *Sacramento to Bakersfield Cultural Resources Technical Evaluation* (Applied Earthworks 2003), A1 through A4 (those alignment options that connect to the Sacramento Downtown Depot Station) would all have high ratings for cultural resources sensitivity, based on the number of known cultural resources and the percentage of the route developed during historic periods.

Both the Sacramento Downtown Station and the Stockton ACE Downtown Station are rated as having a high potential for cultural resources in their vicinities, as both are located in the older parts of their respective cities. The other station and the maintenance facility options are rated as having low cultural resources.

Stockton to Modesto Corridor

The alignment following the UP corridor (B1) and connecting to the Modesto Downtown Station is rated as medium in its degree of cultural sensitivity. A fairly high percentage of this route (38 percent) was developed during historic periods. The alignment following the BNSF corridor (B2) and connecting to the Briggsmore Station passes fewer known cultural resources and has a lesser percentage of the route developed during historic periods. The Modesto Downtown Station is considered to be highly sensitive for cultural resources.

Modesto to Merced Corridor

There is a tremendous variation in the number of known cultural resources along the different alignment options. Those using the BNSF corridor and connecting to the Merced Municipal Airport Station encounter only one known cultural resource. At the other end of the spectrum, those alignments following the UP alignment are rated as medium to high sensitivity for cultural resources.

Merced to Fresno Corridor

All alignment options are rated similarly – low to medium in terms of cultural resource sensitivity. All routes do, however, connect to the Fresno Downtown Station, which is located in a historic district. The entire station area was developed during historic periods and results in a high rating for the station.

Fresno to Tulare Corridor

The alignment option following the UP corridor to the Visalia Airport Station (E1) is rated medium to high in terms of cultural sensitivity. About one-third of this route was developed during historic periods. In contrast, the BNSF corridor (E2) encounters fewer known cultural resources and has a smaller percentage of its route developed during historic periods. As a result, E2 is rated as low to medium in cultural sensitivity. The Hanford Station which is served by E2, however, is medium to high in its ranking.

Tulare to Bakersfield Corridor

All alignment options between Tulare and Bakersfield are similar in their cultural resource sensitivity. Most of the routes are rated medium. On the other hand, the stations are rated medium to high in cultural sensitivity (Bakersfield Airport and both Truxtun Station options) or medium (Golden State).

3.4 LIKELIHOOD OF ADDITIONAL RESOURCES BEING IDENTIFIED AT PROJECT LEVEL (DATA/INFORMATION GAPS)

3.4.1 Existing Park and Wildlife Refuge Resources Not Currently Identified

There are potentially existing publicly owned recreation resources within 0.25 mile of the centerlines or project features such as stations that were not identified in this current study effort. These resources could include small neighborhood and pocket parks that are not documented in the general maps such as Thomas Brothers maps and General Plans used as data sources for this level of effort. There may also be publicly owned open space areas such as within planned communities that are intended to serve recreation and/or resource protection purposes and which may qualify as Section 4(f) resources. In addition, many public trails are not shown on general maps or in General Plans and, therefore, may not have been identified in this current effort. There may be public golf courses that are owned/operated by public agencies which were not identified in this current study effort. In addition, there may be federal lands such as lands owned/managed by the Bureau of Land Management, which are available for public recreation. Some public agencies, such as flood control districts, may manage publicly owned lands that have multiple purposes including flood control, trails and recreation resources.

Some public schools, including state colleges/universities, and high, middle and elementary schools may have school playing fields which are open for public use (non-restricted) which may qualify as Section 4(f) resources. However, not all school playing facilities provide for unrestricted public use and, therefore, may not qualify as Section 4(f) resources. Each school and its relevant policies would need to be researched.

Similarly, it is possible that there are publicly owned recreation lands and/or wildlife and waterfowl refuges in the study area which may not have been identified based on the general mapping and the General Plans. In particular, there may be small mitigation areas that have been dedicated to public

ownership but that are not clearly identified as publicly owned resources in the data sources used for this current effort.

In addition, there are a number of private recreation resources that serve recreation needs in this part of California. It is possible that, in the future, some of the many privately owned and operated recreation resources in this area could be purchased by a public agency and, therefore, qualify as a Section 4(f) resource. The future study should confirm the public/private ownership status of each recreation resources in the study area, to assess whether any previously privately owned facilities have become publicly owned.

Therefore, it is expected that, during the project level planning and environmental phase, the list of existing publicly owned recreation resources will be updated based on additional research and detailed consultations with the jurisdictions through which the project alignments pass or in which project components are located, as described later in Section 6.6.

3.4.2 Planned Resources Not Currently Identified for a Specific Site

The local jurisdictions along the alignments protect existing recreation resources and identify future recreation resources in their General Plans. It is likely by the time the project level environmental and planning phases are underway that some previously planned recreation resources will have advanced through the planning and environmental processes and may have been constructed. It is similarly possible that federally protected lands such as the National Forest could have been expanded and/or their designations modified or new federally protected lands identified.

Therefore, it is expected that, during the project level planning and environmental phases, the list of existing publicly owned recreation resources will be updated based on additional research and detailed consultations with the jurisdictions through which the project alignments pass or in which project components are located, as described below in detail in Section 6.6, to identify previously planned recreation resources which have advanced in planning and/or are operational.

3.4.3 National Register Listed or Eligible Resources

The more detailed analysis that will be conducted in the next phase of environmental study will include surveys and archival research to locate cultural resources, test them for significance and identify measures to avoid or reduce adverse impacts on those resources. Part of these detailed studies will include assessment of resources to identify those already listed on the NRHP and to determine the eligibility of additional resources for listing on the NRHP. Based on the information collected and analyzed for this current effort, it appears likely that additional resources in the APE will be identified as potentially eligible for the NRHP, based on their age, and their association with key prehistoric and historic periods, persons and activities. Therefore, it is likely that the next study phase will identify additional cultural resources that will require assessment under Sections 4(f)/6(f), based on their potential eligibility for the NRHP.

3.5 AVOIDANCE ALTERNATIVES OR REASONS FOR NO PRUDENT OR FEASIBLE ALTERNATIVE FOR 4(F) OR 6(F) USE

As shown in Table 4, there are a number of Section 4(f)/6(f) recreation resources and cultural resources within or immediately adjacent to the proposed alignments of the improvements under the Modal and HRT alternatives. Avoidance of use and/or constructive use of these resources is possible in many cases through minor redesign or narrowing of the disturbance limits, noise walls or visual screening. However, there may be cases where avoidance of use or constructive use cannot be achieved because:

- Shifting the centerline (and the whole facility) to one side or the other to avoid one or more resources could result in greater impacts on other resources. For example, the Pixley Wildlife Refuge and the Colonel Allensworth State Historic Park are located on either side of the BNSF line north of Bakersfield. Avoidance of one would disturb the other Section 4(f) property to a greater extent. There is the option, however, of using the UP alignment which would avoid these resources.
- The HST alignment cannot easily be shifted because of the large turning radii and other design considerations. A “minor” shift in one location along the HST alignment could result in a substantial shift further up or down the alignment, potentially resulting in use and/or constructive use impacts on other Section 4(f)/6(f) resources.
- Measures to reduce harm for constructive use impacts, such as noise walls, could result in adverse visual impacts on Section 4(f)/6(f) resources. The identification and implementation of measures to minimize harm at each resource need to be conducted in consultation with the owners of the resources to ensure that measures to minimize harm do not adversely affect the values of the resources.

The Sections 4(f)/6(f) resources most at risk for use and/or constructive use impacts which cannot be avoided are those resources closest to the proposed improvements. Table 4 lists those recreation resources, by alternative, which are within 150 feet of the centerline and which are potentially most at risk for use and/or constructive use impacts which cannot be avoided. An estimated 20 Section 4(f)/6(f) recreational properties could be taken. The distance from the centerline for HRHP listed and eligible resources is not provided because this assessment is based on the number of recorded sites and the ages of development along the segment and not on individual resources, as explained in detail in the cultural resources technical report.

3.6 OUTLINE OF FUTURE PROJECT-LEVEL SECTION 4(F) AND 6(F) EVALUATION

The Section 4(f) evaluation process will become more focused at the project specific level. Given the broad level of analysis for the programmatic study, the primary goal for the Tier 2 detailed analysis would be to identify Section 4(f) resources and uses in greater detail, and the appropriate measures to minimize harm (i.e. mitigation measures). The more focused Section 4(f) evaluations at the project specific level would include the following:

- A detailed description of the proposed action in its entirety (plans and profiles) and of alternatives to the proposed action, including the No-Project Alternative.
- Update the list of all Section 4(f) and 6(f) recreation resources within 0.25 mi of the alignment centerlines and project components using the most recent mapping available (such as annually updated Thomas Brothers maps, General Plans, local jurisdictions websites, etc).
- Update the list of cultural resources to include only the NRHP listed and eligible resources. All previously identified potentially eligible resources will be further evaluated to determine if they are eligible for the NRHP, as part of detailed cultural resources studies. Only those cultural resources that are determined to be eligible for the NRHP will be carried forward into the project level Section 4(f)/6(f) Evaluation.
- Prepare descriptions of the uses and functions of each Section 4(f)/6(f) resource, including a location map, size, services and facilities, annual patronage, unique qualities, relationship to other lands in the project vicinity, owner/operator, other relevant information regarding the resource and an explanation of the significance of the properties as determined by the federal, state, or local officials with jurisdiction over the resource.

- A detailed description of the 4(f) use that the federal action proposes to have on the protected properties (constructive or permanent use) and the process followed to identify those uses. Specific project impacts on each resource, including the direct use of Section 4(f)/6(f) property and constructive use of Section 4(f)/6(f) property through indirect impacts on these resources such as noise, air quality, transportation and visual impacts will be identified.
- Identify and refine strategies to avoid or minimize direct use of Section 4(f)/6(f) property through narrowing of rights-of-way/disturbance limits, realignment/relocation of project features and other design options. A description, including location, routing or design, of prudent and feasible alternatives to the proposed action, including the No-Project Alternative, will be provided. Each description should analyze, as appropriate, the technical feasibility, cost estimates (with figures showing percentage differences in-total project costs), the possibility of community or ecosystem disruption, and other significant adverse environmental impacts of each alternative, to show that the financial, social or ecological costs or adverse environmental impacts of each alternative other than the proposed action, would present unique problems or reach extraordinary magnitudes.
- Identify and refine strategies to avoid or minimize indirect use of Section 4(f)/6(f) property through the use of mitigation measures (sound walls, visual buffers/landscaping, modified transportation access to/egress from the resource, etc.). Some of these measures may include design modifications or controls on construction schedules, phasing and activities. A description of all planning efforts undertaken to minimize harm to the 4(f)-protected resources from the proposed action will be provided. This is anticipated to include a description of actions which will be taken to mitigate adverse environmental impacts, such as beautification measures, replacement of land or structures or their equivalents on or near their existing site(s), tunneling, cut and cover, cut and fill, treatment of embankments, planting, screening, installation of noise barriers, or establishment of pedestrian or bicycle paths.
- Conduct detailed consultation with the affected local jurisdictions and owners/operators of the identified Section 4(f) and 6(f) resources. Refer to Section 6.2.7, below, for additional discussion regarding these consultations. This will include providing evidence of concurrence or of efforts to obtain concurrence of the public official or officials having jurisdiction over the Section 4(f)/6(f) resources regarding the proposed action and the planning to minimize its harm the affected resources.
- Prepare the Draft Section 4(f)/6(f) Evaluation for the project level alternatives.

3.7 SECTION 4(F) AND 6(F) CONSULTATION AND COORDINATION

Section 4(f) requires consultation with owners/operators of potentially affected Section 4(f)/6(f) properties. The consultations are anticipated to be multiphase and would include:

- Identification and description of all Sections 4(f) and 6(f) resources within the jurisdiction of each owner/operator. Owners/operators are anticipated to include local jurisdictions (cities and counties) in the Sacramento to Bakersfield region, special interest districts (such as flood control districts who may have multi-use properties or land conservancies), school districts, the State of California Parks Department and the federal government (United States Department of the Interior) and others as appropriate. Each owner/operator would be requested to provide detailed information on resource boundaries, funding sources (for Section 6(f) resources), features and facilities at the resource, existing use of the resource, any planned improvements at the resources and other information that provides a complete understanding of the resources and its values.

- Identification of the facilities and features at each Section 4(f)/6(f) resource which contribute to its value as a Section 4(f)/6(f) resource. These may include passive features such as the serenity provided by trails in open space or the presence of protected species of plants and animals, or active features such as picnic areas and sports fields which serve these recreational needs of the community. For National Register listed or eligible resources, the features may include the setting of the resource, the resource itself (such as an historic structure) or a combination of features.
- Identification of the anticipated direct and constructive uses of the Section 4(f)/6(f) resource as a result of the project alternatives. The direct and constructive uses will be defined based on the detailed designs for the alternatives and the analysis of impacts on the resources, including property acquisition and proximity impacts such as noise, vibration, air quality and visual. Both short-term construction and long term operations related adverse impacts on the Section 4(f) and 6(f) resources would be identified. The identified direct and construction uses of the Section 4(f) and 6(f) resources would be discussed with the resource owner/operator.
- Consultation with the owner/operator regarding possible measures to minimize harm to the Section 4(f)/6(f) resources. Measures to minimize harm could include noise walls and visual buffers between the resource and the project alternative.
- Consultation with the owner/operator regarding the ability of the Section 4(f)/6(f) resource to continue to operate as a Section 4(f)/6(f) resource after implementation of the proposed project alternative. The long-term effects of the alternative on the Section 4(f)/6(f) alternative, with implementation of measures to minimize harm, will be identified in consultation with the owner/operator.

Section 6(f) requires replacement of land acquired from a Section 6(f) resource with land of equal value, location and usefulness. For Section 6(f) properties, the consultation will include discussion of possible replacement land and evaluation of that land relative to its value, location and usefulness and will include consultations with representatives of the National Park Service.

4.0 REFERENCES

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- Sacramento Southern Area
- San Joaquin and Stanislaus Counties
- Stockton
- Oakdale-Riverbank-Escalon
- Modesto-Ceres
- Turlock and Vicinity
- Merced and Vicinity
- Merced/Atwater and Merced County
- Madera, Mariposa, and Merced Counties
- Fresno and Kings Counties
- Fresno-Clovis
- Tulare County
- Bakersfield Area

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APPENDICES

APPENDIX – A

Corridor and Design Options for High-Speed Train Alternative

CORRIDOR AND DESIGN OPTIONS FOR HIGH-SPEED TRAIN ALTERNATIVE

SACRAMENTO TO BAKERSFIELD

Corridor Definition

The Central Valley region has been divided into six discrete corridors:

Corridor A, Sacramento to Stockton

Corridor B, Stockton to Modesto

Corridor C, Modesto to Merced

Corridor D, Merced to Fresno

Corridor E, Fresno to Tulare

Corridor F, Tulare to Bakersfield

Design Options

There are two or more HST alignment alternatives within each Corridor, distinguished by parallel route (UPRR or BNSF), station site served, route connection (UPRR or BNSF) to the south, and station configuration (off-line "loop" or standard). HST alternatives are shown on the alignment exhibits in this Appendix.

Within the Sacramento to Bakersfield region, the HST project would be built primarily at-grade. With the exception of specific and localized grade separations, which may include structures to carry the HST alignment over existing roadway or railroad facilities, proposed aerial structures within the Central Valley would include those listed below. The specific location, number, and length of structures will be determined during the next phase of design.

Aerial Structure Locations			
HST Alignment Option(s)	Aerial Structure Location	Approximate Limits	Length (ft)
Corridor A			
Sacramento Depot alignments: A1 thru A4	Sacramento	Sacramento Downtown Depot to the Elvas Wye	17,000
Sacramento Depot alignments parallel to UPRR north of Stockton: A1, A3	Sacramento	Folsom Blvd to 14 th Avenue	6,000
All alignments: A1 thru A8	Stockton	Harding Way to Mormon Slough	7,000
Corridor B			
Modesto Downtown Station alignment: B1	Modesto	Kansas Avenue to Tuolumne River	9,000
Modesto Briggsmore Station alignment: B2	Escalon	Yosemite Avenue to St. John Road	5,000
Modesto Briggsmore Station alignment: B2	Riverbank	South of Patterson Road to Claribel Road	7,000
Corridor C			
All alignments parallel to UPRR north of Merced: C1, C2, C3, C4, C9, C10	Turlock	Broadway to Berkeley Avenue	12,000

Aerial Structure Locations			
HST Alignment Option(s)	Aerial Structure Location	Approximate Limits	Length (ft)
All alignments parallel to UPRR north of Merced: C1, C2, C3, C4, C9, C10	South of Delhi	High Fine Canal to Merced River	8,000
All alignments parallel to UPRR north of Merced: C1, C2, C3, C4, C9, C10	Atwater	Atwater Canal/Jordan Canal to SR99 Overpass	13,000
Corridor D			
All alignments parallel to UPRR north of Fresno: D5, D6, D7, D8	Madera	Fresno River to Olive Avenue	8,000
All alignments: D1 thru D8	Fresno	Ashlan Avenue to Clinton Avenue	12,000
All alignments: D1 thru D8	Fresno	Belmont Avenue to SR180 Overpass	4,000
Corridor E			
Visalia Airport Station alignment: E1	Selma	Floral Avenue to Nebraska Avenue	8,000
Hanford Station alignment: E2	Hanford	11 th Avenue to south of 3 rd Street	6,000
Corridor F			
All alignments thru Tulare: F1, F2, F7, F8, F13, F15, F16, F19, F20	Tulare	Prosperity Avenue/Avenue 240 to Bardsley Avenue	11,000
All alignments parallel to UPRR north of Bakersfield: F1 thru F4, F7 thru F10, F13 thru F22	Delano	Cecil Avenue to High Street	8,000
All alignments parallel to BNSF north of Bakersfield: F5, F6, F11, F12, F23, F24	Corcoran	Orange Avenue to Pickerell Avenue	6,000
All alignments parallel to BNSF north of Bakersfield: F5, F6, F11, F12, F23, F24	Shafter	Tulare Avenue to Lerdo Highway	4,000
Truxtun (Amtrak) Station (without loop) alignments parallel to UPRR north of Bakersfield: F15 thru F18	Famoso	North of Poso Creek to south of SR99	16,000
Bakersfield Airport Station, Golden State Station, Truxtun (Union Avenue) Station, and Truxtun (Amtrak) Station (with high-speed loop) alignments: F1 thru F6, F7 thru F12 F13, F14, F19 thru F22	Bakersfield	North of Norris Road to Olive Drive	6,000
Bakersfield Airport Station, Golden State Station, Truxtun (Union Avenue) Station, and Truxtun (Amtrak) Station (with high-speed loop) alignments: F1 thru F6, F7 thru F12 F13, F14, F19 thru F22	Bakersfield	Beale Avenue to Mount Vernon Avenue	7,000
Truxtun (Amtrak) Station alignments: F15 thru F24	Bakersfield	North of Mohawk Street to Carrier Canal	8,000
Truxtun (Amtrak) Station alignments: F15 thru F24	Bakersfield	F Street to Truxtun Avenue	14,000