

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
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San Francisco, CA 94105

August 31, 2004

Mark Yachmetz  
Associate Administrator of Railroad Development  
Federal Railroad Administration  
1120 Vermont Avenue, NW, MS 20  
Washington, D.C. 20590

Subject: California High Speed Train System Draft Programmatic Environmental Impact Report/Environmental Impact Statement (CEQ# 040056)

Dear Mr. Yachmetz:

The Environmental Protection Agency (EPA) has reviewed the Draft Programmatic Environmental Impact Report/Environmental Impact Statement (Draft PEIS) for the California High Speed Train System. Our review is pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and Section 309 of the Clean Air Act. EPA provided comments to the Federal Railroad Administration (FRA) and the California High Speed Rail Authority (CHSRA) regarding a portion of this Draft PEIS in a previous letter dated February 27, 2004. Our detailed comments on the entire Draft PEIS are enclosed.

EPA is supportive of a high speed train system for California and the potential for this project to reduce motor vehicle and airplane emissions. EPA requested to be a cooperating agency in this NEPA process and has been working with FRA and CHSRA to address the potential environmental impacts of the project as outlined in an April 2003 Interagency Memorandum of Understanding (MOU). According to the MOU, the Draft PEIS is a "Tier 1," or programmatic environmental review document, providing a landscape-level analysis of the potential environmental impacts. The Tier 1 process is expected to eliminate alternatives from further consideration. Future "Tier 2," or project-level analyses, will address site-specific environmental impacts of the remaining alternatives. EPA's comments focus on issues we would like addressed before a Tier 1 Record of Decision is signed and seek to alert FRA to the potential consequences of these decisions on future Tier 2 analyses.

The MOU also outlines a process for integrating the requirements of NEPA and Clean Water Act (CWA) Section 404 to streamline the environmental review process. A federal permit from the Army Corps of Engineers under CWA Section 404 will be required for this project at Tier 2 due to anticipated fill of waters of the United States. The MOU seeks to ensure that the alignments advanced to Tier 2 are most likely to contain the "least environmentally damaging practicable alternative," a determination that is required for a CWA Section 404

permit. FRA and CHSRA must also demonstrate avoidance and minimization of impacts to waters of the United States prior to obtaining a CWA Section 404 permit. EPA and the Army Corps of Engineers have been working with FRA and CHSRA to provide guidance regarding the least environmentally damaging practicable alternatives and will continue to work with both agencies through the project-level analysis for the high speed train system.

Through this coordination and review, EPA has identified a potential for significant adverse effects within some portions of the proposed high speed train system that could be corrected by project modification or other feasible alternatives, as well as additional information and analyses that should be included in the Final PEIS. EPA has identified potential impacts to aquatic resources of national importance (CWA Section 404(q), 33 U.S.C. 1344(q)), wetlands and water quality, wildlife habitat, and endangered species that would result from the alternative alignments presented for the Diablo Direct and Pacheco alignments within the Bay Area to Merced region. The proposal for a high speed train route following the Diablo Direct alignments presents federal permitting challenges because it would fragment the Diablo Range, bisect aquatic resources of national importance (including Orestimba Creek), and impact state parks, wilderness, and private, state, and federal conservation and mitigation lands. Based on the information available to date, EPA would have difficulty concurring on a Diablo Direct alignment as the least environmentally damaging practicable alternative. The Draft PEIS identifies that a proposed route through the Pacheco Pass may result in significant impacts to waters of the United States, resulting in similar permitting difficulties. Because of the potentially adverse impacts from the Diablo Direct and Pacheco alignments, we recommend deferring a decision on an alignment connecting the Bay Area to Merced until the information in this analysis can be supplemented to demonstrate to the public and the decision-maker that all variations of an Altamont Pass alternative have been fully evaluated in keeping with the CWA Section 404(b)(1) Guidelines. As a cooperating agency, we look forward to meeting with you to discuss whether this new information would best be presented in a supplemental document or in the Final Tier 1 PEIS. This will help to ensure that the alignment moved forward for future Tier 2 project-level study is most likely to contain the least environmentally damaging practicable alternative connecting the Bay Area to Merced region.

Significant impacts to biological resources are also expected from the high speed train system alignments connecting Bakersfield to Los Angeles (Interstate-5 and Soledad Canyon). The Soledad Canyon alignment requires more miles of track, with greater impacts to sensitive biological resources and wildlife movement corridors. If aligned next to the Santa Clara River, this alternative would require substantial cut-and-fill within the sensitive Soledad Canyon region.

These significant environmental impacts can be avoided by more closely aligning the high speed train route with existing transportation networks.

The high speed train system in the Central Valley includes a series of community bypasses to be constructed in addition to alignments proposed through communities. The extra tracks and system requirements related to the additional bypasses more than doubles the number of acres of converted farmland, increases severance of farm parcels, adds noise and visual

impacts from additional tracks, and increases impacts to water and biological resources. Because of the potentially significant impacts that would result from the extra tracks required from community bypasses, we recommend that Final PEIS commit to future Tier 2 project-level analysis comparing the high speed train system with and without bypasses.

In addition to the potential significant adverse effects identified above, EPA has identified additional information and analyses that should be included in the Final PEIS. The quantities in the Draft PEIS pertaining to impacts to biological and water resources represent an “envelope” approach to estimating impacts. The large values presented do not facilitate an understanding of the potential direct impacts from a high speed train system. As discussed in interagency meetings, this warrants additional information more closely approximating potential direct impacts to biological and water resources. EPA also has concerns regarding the cumulative impacts analysis, potential landscape-level impacts to wildlife species associated with the fully grade-separated portions of the high speed train system, and potential impacts associated with tunneling.

Although EPA is supportive of a high speed train system for California, our rating reflects our specific objections to impacts that would result from the two Bay Area to Merced alignments, an alignment through Soledad Canyon connecting Bakersfield to Los Angeles, and bypasses proposed to supplement routes through communities in the Central Valley. For these reasons, EPA has rated the document as EO-2, Environmental Objections - Insufficient Information. We look forward to working with FRA and CHSRA, as a cooperating agency, to identify ways to address these issues and the other concerns identified in the enclosed detailed comments.

The enclosure further describes the above-listed comments and the additional environmental concerns that EPA identified following our review of the Draft PEIS. A "Summary of Rating Definitions" for further details on EPA's rating system is also provided. We appreciate the opportunity to review the Draft PEIS and believe that a well planned high speed train system can offer great economic and environmental benefits for California's future. We look forward to continuing our coordination with FRA and CHSRA as a cooperating agency and are available to discuss the issues addressed in this letter during upcoming interagency meetings. If you have any questions, please feel free to call me at (415) 972-3843. You can also contact Tim Vendlinski, Wetlands Regulatory Office Supervisor at (415) 972-3464 or Lisa Hanf, Federal Activities Office Manager, at (415) 972-3854.

Sincerely,

//s//  
Enrique Manzanilla, Director  
Cross Media Division

Enclosures: EPA's Detailed Comments

Summary of Rating Definitions

cc:

Mehdi Morshed, California High Speed Rail Authority

Colonel Alex Dornstauder, Los Angeles Army Corps of Engineers

Wayne White, U.S. Fish and Wildlife Service

Crawford Tuttle, California Resources Agency

James Branham, California Environmental Protection Agency

EPA DETAILED COMMENTS ON THE CALIFORNIA HIGH SPEED TRAIN SYSTEM DRAFT  
PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT, AUGUST 31, 2004

### **Clean Water Act Section 404**

The Clean Water Act Section 404(b)(1) Guidelines (Guidelines) at 40 CFR Part 230.10(a) state that “. . . no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.” A practicable alternative is one “available and capable of being done after taking into consideration cost, existing technology and logistics in light of overall project purposes.” Alternatives from the NEPA documents (including this Tier 1 Draft PEIS) can serve as the basis for the Section 404 alternatives analysis (40 CFR 230.10(a)). As described in the Interagency Memorandum of Understanding (MOU), EPA and the Army Corps of Engineers are committed to working with the Federal Railroad Administration (FRA) and the California High Speed Rail Authority (CHSRA) to cooperate at the Tier 1 programmatic level to streamline decision-making at the Section 404 permitting phase. As such, it is critical that high speed train alternative alignments moved forward to the Tier 2 stage are most likely to contain the least environmentally damaging practicable alternative and that no alternatives are eliminated without this determination. In addition, prior to obtaining a CWA Section 404 permit, FRA and CHSRA will have to demonstrate that potential impacts to waters of the United States have been avoided and minimized to the maximum extent practicable (40 CFR 230.10(a) and 230.10(d)).

#### *Northern Mountain Crossings*

#### **Diablo Direct Alignments**

EPA has objections to the Diablo Direct alignments because they may cause significant adverse effects to the health of the aquatic ecosystem in the Diablo Mountain Range, including the Henry Coe State Park and Orestimba Wilderness. The Diablo Direct alignments would bisect the Diablo Range, resulting in substantial habitat fragmentation, disruption of important wildlife corridors, and impacts to State and Federal mitigation lands established pursuant to permitting and enforcement agreements with the Diablo Grande Resort. EPA recognizes that tunneling is proposed to mitigate habitat fragmentation in this area; however, it is unclear how effective tunneling would be in minimizing fragmentation. During the permitting process for the Diablo Grande Resort, EPA designated the federally regulated waters in Del Puerto Creek, Salado Creek, Crow Creek, and Orestimba Creek watersheds of the Diablo Range, as *aquatic resources of national importance* under our Memorandum of Agreement (MOA) with the Department of the Army, pursuant to CWA Section 404(q) (33 U.S.C. 1344(q)). (This information has been provided to FRA and CHSRA during our interagency meetings.) These creeks and their surrounding watersheds are characterized by high food-web productivity and physical habitat for fish and wildlife, and also support adjacent wetlands and riffle and pool complexes. Orestimba Creek, in particular, has one of the few remaining Sycamore Alluvial Woodlands in California. As a result, projects requiring a CWA Section 404 permit that would result in unacceptable adverse effects to federally regulated waters within these watershed of the Diablo Range could be candidates for elevation using procedures detailed in the MOA.

The Diablo Direct alignments bisect the Diablo Range, encompassing approximately two million acres of relatively intact watersheds in a state where the majority of waterways have been degraded. The streams, wetlands, springs, and surrounding watersheds of the Diablo Range provide intact habitat that protects and supports a collection of plants and animals considered to be part of a biodiversity hotspot of global significance (Myers 2000). Non-governmental organizations and government organizations at all levels have been investing in large-scale acquisitions totaling approximately 300,000 acres for conservation and consider this area to be the last significant unprotected open space between the San Francisco Bay Area and the Central Valley (The Nature Conservancy 2003). Decreasing the aquatic functions directly through discharges to waters in the Diablo Range, or indirectly through degrading upland resources, are impacts that EPA will consider carefully in determining whether any of the Diablo Direct alignments comply with the CWA Section 404(b)(1) Guidelines.

The impacts of the Diablo Direct alignments may be considered significant adverse environmental impacts under the Guidelines. Considering the high value aquatic resources and large-scale habitat fragmentation, the Diablo Direct alignments do not appear to exhibit characteristics of the “least environmentally damaging practicable alternative,” the only alternative that can be permitted under the binding CWA Section 404 regulations (40 CFR 230.10 (a) and (c)). Therefore, EPA anticipates that there may be significant permitting challenges to these alignments

### Pacheco Pass Alignments

As disclosed in the Draft PEIS, the Pacheco Pass alignments may result in substantial impacts to wetlands and other waters and may result in great impacts to jurisdictional waters. EPA has environmental objections to these impacts. The Draft PEIS identifies a potential for over 1,000 acres of impact to wetlands within a 2,000-foot corridor (App. 3.15-D-2). We recognize this overestimates the potential direct impacts that will occur within the 100- or 50-foot high speed train project footprint. A screening tool prepared to determine which alignments would be studied in the Draft PEIS identifies that the Pacheco Pass alignments may impact between 289 and 394 acres of wetlands (Table 2-H-4e, p. 6). The loss of wetlands associated with Pacheco Pass alignments, as well as the impacts to wildlife corridors and habitat fragmentation, are not consistent with the substantive binding requirements of CWA Section 404(b)(1) Guidelines (40 CFR 230.10 (a) and (c)). Specifically, the magnitude of impacts to special aquatic sites may cause or contribute to significant degradation of waters of the United States (40 CFR 230.10(c)). If the FRA chooses to advance the Pacheco Pass alignments to Tier 2, substantial alignment and design modifications would be important to reduce impacts consistent with the Guidelines.

#### Recommendations:

Based on the information available to date, EPA would have difficulty concurring on a Diablo Direct alignment as the least environmentally damaging practicable alternative.

Also, in light of the potentially significant impacts to waters resulting from the Pacheco Pass alignment, additional measures to avoid and minimize impacts to waters should be evaluated.

### **Altamont Pass Alignment**

Because the Diablo Direct and Pacheco Pass alignments, as proposed, may have significant adverse impacts to waters of the United States and could be inconsistent with the Guidelines, it is important to fully evaluate other viable alternatives in Tier 1. The Altamont Pass Alternative in the Bay Area to Merced region was not fully evaluated in the Draft PEIS. Page 2-38 states that Altamont Pass would result in considerable system operational constraints, would not permit high-frequency service to the major Bay Area markets, and would require a new San Francisco Bay Crossing. A new crossing of the San Francisco Bay, as well as a route through the Don Edwards National Wildlife Refuge, could result in impacts to important aquatic resources and habitat for multiple species. While EPA understands that an Altamont Pass alignment with a Bay Crossing may have significant environmental impacts, an analysis of an Altamont Pass alignment with and without a Bay crossing should be completed to determine which Bay Area to Merced alignment is most likely to contain the least environmentally damaging practicable alternative. Through interagency meetings, EPA has stated that information presented in the Draft PEIS supporting the elimination of Altamont Pass is not sufficient in light of: (1) the significant impacts associated with the only other alternatives for connecting the Bay Area to Merced, and (2) the potential for practicable design variations of the Altamont Pass alternative to meet the stated purpose and need for the project.

Recommendations:

FRA and CHSRA should establish why Altamont Pass should be eliminated and provide supporting documentation regarding relevant technical studies, market share estimates, ridership (intercity and commute trips) analysis data, and operational constraints. The analysis should clearly demonstrate and support why all variations of an Altamont Pass alternative (including an alignment without a Bay Crossing and with destinations to San Jose and San Francisco with service to Oakland on existing light-rail) are not practicable in light of the entire high speed train system and logistical constraints that must be addressed in other urban centers.

Alternatively, FRA and CHSRA should analyze a full range of reasonable alternatives, including an Altamont Pass alignment with and without a Bay Crossing, so that an equal comparison between all the Bay Area to Merced alternatives can be made. The analysis should include Tier 1 landscape-level data, such as a complete list of water bodies, wetlands, and streams that are mapped on USGS 7.5 minute maps (even if these water ways are not digitized or available electronically), as well as broad “edge-area” analysis to quantify fragmentation.

## *Southern Mountain Crossings*

### **Interstate-5 and State Route 58/Soledad Canyon**

The Draft PEIS identifies that data gaps exist for both the Interstate-5 (I-5) and the State Route 58 (SR-58)/Soledad Canyon route. The high speed train alternative will traverse “more undeveloped (and possibly more unsurveyed) area” than the modal alternative and that the high speed train alternative may impact a larger number of special-status species and habitat than has been estimated in the document (p. 3.15-24).” The I-5 route would provide a more direct connection between Northern and Southern California and would require fewer miles of track (87 versus 120 miles) and less overall conversion of land from open space to transportation uses than the SR-58/Soledad Canyon alignment. It would also impact fewer biological resources (p. 3.15-25). The SR-58/Soledad Canyon route would be even more damaging if it parallels the Santa Clara River and utilizes cut-and-fill techniques in this sensitive region. The Santa Clara River and Soledad Canyon provide wildlife corridors and contain sensitive plant communities and essential habitat for an endangered native fish, the unarmored threespine stickleback, as indicated in the Draft PEIS (BLM, 2000). EPA would not support an alignment that causes significant adverse impact to this major regional resource for wildlife. The Draft PEIS indicates that a wider corridor, including a route that would avoid Soledad Canyon and the Santa Clara River, is also being considered; however, there is no information presented regarding the environmental impacts associated with a route that avoids these areas.

#### Recommendations:

Clarify the extent of underestimated impacts for the Interstate-5 (I-5) and State Route 58(SR-58)/Soledad Canyon routes. As mentioned above, Tier 1 landscape-level analysis should include a complete list of water bodies, wetlands, and streams that are mapped on USGS 7.5 minute maps (even if these water ways are not digitized or available electronically), as well as broad “edge-area” analysis to quantify fragmentation. If substantial data gaps cannot be addressed in the Final PEIS, defer elimination of either Bakersfield to Los Angeles alignments until sufficient information is available in order for Army Corps of Engineers and EPA to conclude that the alignment being moved forward to the Tier 2 analysis is most likely to contain the least environmentally damaging practicable alternative.

The Final PEIS should disclose the impacts from an alignment from Bakersfield to Los Angeles through the Antelope Valley that would not follow Soledad Canyon and the Santa Clara River and would not degrade existing and proposed conservation areas. The Final PEIS should include a mapped alignment of such a route and correlate the modified route with impacts that would be avoided by moving the alignment out of the canyon.

### **Express Loops and Bypasses in the Central Valley**

The Draft PEIS proposed several potential express loops/bypasses to circumvent the more congested urban areas, reduce costs, and reduce potential urban impacts such as noise. The Draft

PEIS indicates that “some areas require the development of an express loop and mainline alignment (p. 3.8-14).” Although other corridor alignments in the train system are proposed to pass through urbanized areas (Los Angeles to San Diego, Bay Area to Merced, etc.), the only city bypasses proposed are located in the Central Valley. The justification for bypassing communities is critical in light of the additional impacts to resources that would result from bypassing each community in the Central Valley.

The Tier 1 Draft PEIS estimates the “lowest potential impacts” associated with the proposed express loops and “mainline” high speed train system through the Sacramento to Bakersfield corridor, assuming a 100-foot-wide corridor. As shown in Table 3.8-2, the “mainline” train system would impact far fewer acres of farmland than a train system with a network of both bypasses and mainline routes. For example, the Modesto “mainline” route would impact 49 acres of prime farmland, while the bypass would impact an additional 141 acres of prime farmland. EPA recognizes that the impacts to farmlands can be minimized by reducing the size of the right-of-way to 50 feet and sharing track, where feasible. We also recognize that providing bypasses around cities offers a method to increase speed throughout the entire route and to reduce noise within established communities. However, the introduction of express bypasses throughout the Central Valley would significantly increase farmland severances, acres of farmland impacted, and introduce an additional source of noise and visual impacts to adjacent communities. EPA has objections with the proposal to route the high speed train network both through and around communities in the Central Valley and recommends reducing the impacts that the train system will have in this region by minimizing total miles of train track required for system operation.

#### Recommendations:

Clarify why express loop construction is warranted in each community in light of additional farmland impacts and noise and visual impacts. Because the bypasses are proposed to circumvent the more congested urban areas, reduce costs, and reduce potential urban impacts such as noise, the Final PEIS should examine additional less-damaging measures, other than city bypasses, to reduce urban impacts. Identify the operational constraints in the Central Valley that require the train system to bypass communities in the context of the other regions of the train system where no bypasses are proposed.

EPA recommends that FRA and CHSRA commit to analyzing Central Valley routes with and without bypasses in the Tier 2 Environmental Impact Statement in order to disclose to decision makers the full impact of bypasses and to provide flexibility in determining the best mix of bypass and mainline routes. In the Final PEIS, identify strategies to pursue agreements with existing rail operators to share right-of-way to further minimize impacts to farmlands.

## **Impact Analysis Methodology**

The “envelope” approach used to estimate the potential impacts to biological and water resources attempts to address effects that may occur at a distance from the direct impacts of the project. The width of the envelope was altered depending on the sensitivity of the particular location associated with the train route. The Draft PEIS does not, however, clearly identify what specific portions of each alignment are deemed sensitive and what characteristics support the sensitivity rating. A sensitivity rating is not applied consistently across regions.

### Recommendations:

For the analysis of impacts to biological and water resources, define “sensitive” areas and justify why specific areas within the high speed train alternative alignment were determined to be sensitive by describing the characteristics that support this designation. Apply the sensitivity designations consistently across all regions. Provide a figure or map depicting where sensitive areas are and where other modifications to the envelope approach are provided (i.e., developed and undeveloped areas, p. 3.15-4). Overlay this map with sensitive species occurrences and waters of the United States, so that it is clear which areas are considered sensitive and granted a wider study area.

The “envelope” approach and method of reporting impact values results in values that are quite large and not useful for decision making (e.g., 9,627 acres of impact to wetlands along the San Jose to San Francisco alignment for the high speed train alternative alone). EPA recognizes that the values presented offer a basis for understanding the existing environment and potential indirect impacts, rather than the direct impacts of a proposed train system. However, because these large impact values obscure an understanding of potential direct impacts resulting from the project, quantified estimates that more accurately reflect potential direct impacts to biological and water resources are necessary to understand potential impacts.

### Recommendations:

Distinguish direct and indirect impacts to biological and water resources in the Final PEIS (see 40 CFR 1508.8(b)). Discuss which resources are indirectly impacted by the project footprint and how they are affected (e.g., reduced hydrologic connectivity, habitat fragmentation, headcutting and downcutting from culverts, changes in sediment transport capacity, etc.). As discussed in previous interagency meetings, EPA recommends including an additional analysis of the potential direct impacts to resources by assuming impacts to all resources within a potential 50-foot right-of-way and compare these values to potential indirect impacts already presented.

## **Water Resources**

As described above, the Clean Water Act Section 404(b)(1) Guidelines at 40 CFR Part 230.10(a) state that “. . .no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.” FRA and CHSRA should demonstrate that each alignment moved forward to the Tier 2 stage is most likely to contain the least environmentally damaging practicable alternative, consistent with our Interagency MOU.

Recommendations:

Identify all protected resources with special designations and all special aquatic sites and waters within state, local, and federal protected lands. If these resources cannot be avoided, the Draft PEIS should clearly demonstrate how cost, logistical, or technological constraints preclude avoidance and minimization of impacts for alternatives that are advanced to Tier 2.

### *March Air Reserve Base to Mira Mesa*

EPA is concerned with potential impacts to the Santa Margarita Ecological Reserve and the Santa Margarita River. The river is not listed on p. 3.15-14 as a water resource, although it is listed on p. 3.15-17 as a wildlife corridor. The Draft PEIS does not disclose what impacts the proposed route would have on the Santa Margarita River and other habitat and wildlife movement corridors between March Air Reserve Base and Mira Mesa.

Recommendations:

Describe the impact of the proposed high speed train alignment to the Santa Margarita River and Ecological Reserve and to the wildlife habitat and movement corridors in this region. Identify techniques and design variations to avoid these resources.

### *Carroll Canyon and Miramar Road*

The two inland routes proposed for connecting Mira Mesa to San Diego may affect downstream lagoons. A high speed train route through Carroll Canyon will affect the ability of this floodplain to absorb seasonal and annual flooding, will increase erosion and sedimentation, and may negatively impact the water quality of the downstream Los Penasquitos Lagoon. P. 3.15-28 states that the Carroll Canyon route would affect more vernal pools and more non-wetlands waters than the Miramar Road route. Each Mira Mesa to San Diego route has the potential to impact multiple rare vernal pools in San Diego County. Because of the rarity of the vernal pools, these impacts are an important factor for eliminating alignments in Tier 1.

#### Recommendations:

EPA recommends avoiding placement of a high speed train route in canyons due to the significant permitting challenges such alternatives may face as a result of large amount of cut and fill, increased erosion and sedimentation, and downstream impacts.

Disclose the number and location of individual vernal pools and larger vernal pool complexes that would be affected by each remaining alignment.

#### *Designated Impaired Waters*

Under Section 303(d) of the Clean Water Act, the State of California has developed a list of impaired water bodies and a categorization of the reasons for their impairment. Direct and indirect impacts from the construction and operation of the high speed train system and additional road, station, and electrification infrastructure may add to current water quality problems and further impair beneficial uses.

#### Recommendations:

The Final PEIS should:

- Identify all 303(d) listed streams that are within the area of potential impact of the proposed project and identify the impairments to beneficial uses.
- Disclose whether the filling of these waters, or the project's "temporary" construction impacts, will aggravate impairments to these water bodies.
- Provide an estimate of the linear feet/acres of impaired streams and waterbodies that would be affected by the project.
- Outline the methods that FRA and CHSRA will use to limit further impairment of waters.

#### Cumulative Impacts Analysis

##### *Context for Understanding Cumulative Impacts*

The cumulative impacts analysis provided in the Draft PEIS is, essentially, a summation and comparison of the direct and indirect impacts of the proposed alternatives. The cumulative impacts analysis should provide the context for understanding the magnitude of the impacts of the alternatives by analyzing the impacts of other past, present, and reasonably foreseeable projects or actions and then considering those cumulative impacts in their entirety. Where adverse cumulative impacts are identified, the Draft PEIS should disclose the parties that would be responsible for avoiding, minimizing, and mitigating those adverse impacts (CEQ's Forty Most Frequently Asked Questions #19). For some resources, the Draft PEIS identifies opportunities to avoid or minimize impacts through future project-level modifications. At the program-level, however, the Draft PEIS should focus on identifying landscape-level opportunities to avoid and minimize impacts, which may include working with other entities.

## Recommendations:

### For each resource analyzed:

- Identify the current condition of the resource as a measure of past impacts. For example, the percentage of wetlands lost to date.
- Identify the trend in the condition of the resource as a measure of present impacts. For example, the health of the resource is improving, declining, or stasis.
- Identify the future condition of the resource based on an analysis of the cumulative impacts of reasonably foreseeable projects or actions added to existing conditions and current trends.
- Assess the cumulative impacts contribution of the proposed alternatives to the long-term health of the resource, and provide a specific measure for the projected impact from the proposed alternatives. For example, the Draft PEIS identifies the Modal alternative as having a "high potential impact on air quality" (p. 3.17-3). The qualitative description of "high" should be correlated with specific measure of air quality (e.g. atmospheric concentration of criteria pollutants) and placed within discrete categories defined using these measurements.
- Disclose the parties that would be responsible for avoiding, minimizing, and mitigating those adverse impacts.
- Identify landscape-level opportunities to avoid and minimize impacts, including working with other entities.

### *Projects Considered in the Cumulative Impacts Analysis*

The Draft PEIS correctly cites the 40 CFR Section 1508.8 definition of a cumulative impacts analysis as one that analyzes the direct and indirect effects of the proposed project or action added to the impacts of other past, present, and reasonably foreseeable projects/actions, regardless of what agency or person undertakes such projects or actions (p. 3.17-1). However, the Draft PEIS primarily considers other transportation projects and only a few non-transportation infrastructure projects and a single development project (Appendix 3.17-A). Other reasonably foreseeable development activities by public or private entities are not considered in this analysis. As an example, for the Merced region, the Draft PEIS currently only considers the development of the new University of California campus in Merced in the analysis. Other reasonably foreseeable projects identified within and around the City of Merced, as indicated in city and county planning documents, should be included in the analysis.

## Recommendations:

Include other reasonably foreseeable development activities identified in relevant city and county planning documents in the cumulative impacts analysis. For example, use the General Plan "projection" approach described in the Draft PEIS (p. 3.17-1) to project the environmental impacts of development activities in communities and counties traversed by the proposed alternatives.

### *Study Area and Methodology*

The cumulative impacts analysis provides an assessment of impacts on a statewide basis only. While a macro approach to cumulative impacts is appropriate at this program-level, the inclusion of General Plan information should allow FRA and CHSRA to differentiate the severity of cumulative impacts to some resources by region.

With the exception of the Air Quality section (p. 3.17-2), the cumulative impacts analysis does not disclose the study areas or methodologies used to analyze cumulative impacts by resource. The Council on Environmental Quality handbook Considering Cumulative Effects Under the National Environmental Policy Act (1997) provides direction on the establishment of cumulative impacts study areas by resource and the selection of appropriate methodologies for the analysis.

#### Recommendations:

Where possible, provide cumulative impacts assessments at the regional level, as well as the statewide level. For each resource, clearly identify the cumulative impacts study area and methodology utilized in the analysis. If the study areas and methodologies are the same as utilized elsewhere in the Draft PEIS, please provide a reference, as well as support for using the same study area and methodology in the project analysis as in the cumulative impacts analysis.

### *Cumulative Impacts to Waters*

The Hydrology and Water Resources Section of the Cumulative Impacts Analysis does not discuss the quality, or values and functions, of waters potentially impacted by the alternatives. This section appears to treat all water resources equally. However, water resources in relatively undeveloped areas tend to be of higher quality. This is an important distinction that needs to be made in the program-level analysis.

#### Recommendations:

Address the cumulative impacts to high quality water resources. The conclusion that the high speed train alternative could have fewer impacts on floodplains and water resources than the Modal alternative through design modifications (p.3.17-8), needs to account for the comparative impact of the high speed train alternative and Modal alternatives on high quality water resources.

### **Indirect Impacts**

EPA commends FRA and CHSRA for focusing attention in the Draft PEIS to growth-inducing effects of the high speed train system and for completing a technical report in 2003 on this subject. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable and may include growth inducing effects

(40 CFR Part 1508.8). The growth inducing effects presented assumed a higher density of development around high speed train stations (p. 5-34). The Draft PEIS should discuss the basis for this land use assumption.

Recommendations:

Identify station locations that are currently zoned for high density development and those that are not. Disclose how, should higher density development not occur as modeled in the Draft PEIS, impacts would differ from those presented in Chapter 5. Discuss the nature of those impacts to environmental resources of concern. Address potential mitigation efforts to avoid and minimize impacts to the communities identified, including incentives for transit-oriented development, measures to increase the capacity of city/county planning efforts, and mechanisms to encourage transit oriented development.

Growth inducing impacts resulting from the different alignment options within the high speed train alternative are sometimes presented as differences on a statewide scale, rather than at a local level. The data presented is not sufficient to differentiate between alignments presented for the high speed train alternative at this Tier 1 level. For example, page 5-32 states that “impacts to biological species from the Palmdale, Diablo Range direct, and Irvine alignment scenarios are projected to exhibit nearly identical levels of potential impact on possible threatened and endangered species habitat” when compared to the other high speed train alignments. A similar summary is provided for wetlands potentially affected by induced growth. For both biological species and wetlands, it is critical to provide more station- and alignment-specific information if the intent of the Draft PEIS is to determine which high speed train alternative alignment option is less environmental damaging.

Recommendations:

Clarify the environmental impacts anticipated from induced growth in and near the Palmdale, Diablo Range Direct Alternative, Irvine, East Bay, and outlying stations scenarios. Present all impacts associated with each station location. Include a table identifying growth-inducing impacts expected from each alignment. Also, where supporting data is lacking, as in the Diablo Direct alignment, the analysis should be conservative and assume presence of all species designated rare, threatened and/or endangered under state and federal laws based on presence of appropriate habitat.

### **Tunneling Methodology and Impacts**

The proposed high speed train system would result in 23 to 43 miles of tunneling for the northern and southern mountain crossings (Section 6.21 and 6.41). This would require extensive earthmoving and result in large amounts of material being removed from mountainous terrain. The Draft PEIS does not disclose an approximate amount of material to be removed per mile of tunnel and where material could be disposed or stored. The Draft PEIS also does not

address the types of tunneling methods and material removal, the need for additional road access, or the need for any exploratory drilling. A general discussion of the methodology to be utilized and the corresponding environmental impacts is appropriate in the Tier 1 Draft PEIS to ensure that the full scope of environmental impacts associated with tunneling are disclosed.

Recommendations:

To the extent that impacts of tunneling is relevant to the selection of alternatives in Tier 1, discuss the methodology proposed for tunneling associated with the high speed train system alternative, including equipment and planned locations for staging tunnel operations. Identify how the tunnel equipment will be transported to each site where tunneling will begin. Identify the amount of material to be removed per mile tunnel. Estimate the number of temporary roads required for each mile of tunnel construction and proposed methods for removal and revegetation of these roads. Estimate the miles of roads required for operation and access for emergency personnel in tunneled areas. Disclose the environmental impacts of the additional information presented regarding tunneling in the appropriate PEIS section.

The Draft PEIS states that the tunnels in the high speed train system “could avoid or substantially reduce surface impacts on sensitive biological resources except at tunnel portal areas (p. 3.15-20).” The impacts of linear transportation projects on wildlife movement are presumed to be minimized in the areas where tunneling will occur. FRA and CHSRA should provide support for the assumption that the length and location of tunneling proposed will be adequate to sustain regional wildlife populations and movement corridors.

Recommendation:

Provide supporting evidence regarding tunneling of the high speed train and associated impacts regarding wildlife movement.

The assumptions that the use of tunnels will “avoid some groundwater resources” and “not substantially affect groundwater resources” are not fully explained (p. 3.14-13, 3.14-16). Discharges of shallow subsurface storm flow and shallow groundwater can be important contributors to surface flows of streams, particularly in the mountainous areas where tunneling for the high speed train system is proposed (Mount 1995, Dunne and Leopold 1978, Atkinson 1978). Should tunneling obstruct these subsurface flows, we would expect to see a reduction in frequency and duration of surface flows and, consequently, in the stream’s capacity to support riparian ecosystems. A decrease in groundwater levels during the growing season in a dry year could intensify the effects of drought on sensitive riparian communities.

Recommendations:

Discuss the potential impacts of tunneling on the maintenance of stream flows. Address

the potential for tunneling to affect riparian habitat, the direction of lateral movement of water through the soil profile, and the recharge of shallow, unconfined aquifers.

### **Biological Resources**

The Draft PEIS does not consistently address wildlife corridor impacts from the high speed train alternative and it does not summarize the overall effect of miles of continuous barrier to animal movement that a fully grade-separated train system would cause. For example, the Draft PEIS states that because a proposed alignment is along existing rail corridors, "little impact on movement/migration routes would be anticipated (p. 3.15-21)." The Draft PEIS does not discuss how proposed restrictions to crossing high speed train tracks (fences, etc.) may limit wildlife movement, even along existing rail corridors (Jackson, 2000).

Recommendations:

Identify landscape-level wildlife movement corridors and discuss proposed methods for protecting these corridors (see Morse, 2003). Outline how FRA and CHSRA plan to mitigate impacts by preserving ecological processes related to landscape continuity. Identify what connections would likely remain after an area is developed following construction of the high speed train system and highlight these areas as "connectivity zones" for future Tier 2 analysis. Disclose how fencing the train route will affect wildlife movement and discuss how fencing for safety purposes will be integrated with wildlife passages identified (culverts, bridges, viaducts, underpasses, overpasses, etc.).

The Draft PEIS indicates that a station at March Air Reserve Base would potentially impact 90 acres of coastal sage scrub habitat (Appendix 3.15.D-13). It is unclear why a station at this location would result in such large impacts and methods to minimize impacts are not discussed. Given the fact that much previously disturbed habitat exists in the area of March Air Reserve Base, it may be possible to locate a station without impacting undisturbed coastal sage scrub.

Recommendations:

Clarify the impacts associated with a proposed station at March Air Reserve Base and describe why this location would result in such large impacts to coastal sage scrub.

### **Noise and Vibration Impacts**

The Draft PEIS assesses noise and vibration exposure to determine high, medium, and low severity of impacts to residences and other locations near the proposed high speed train route. Potential impacts to human health and welfare are important with a project of this magnitude, particularly in light of the maximum speed and resulting sounds and vibrations that the high speed train will produce throughout the train route. While noise impacts are addressed

at a Tier 1 level, the Draft PEIS does not address nocturnal and diurnal impacts to wildlife activities such as foraging, predator avoidance, and nesting that may be affected by new sounds and vibrations introduced to natural habitats.

Recommendations:

Identify anticipated noise and vibration impacts to nocturnal and diurnal wildlife activities and address the impacts of new sounds introduced to natural habitats. Discuss methods utilized to mitigate noise and vibration impacts in countries where high speed trains pass in close proximity to natural areas.

### **Mitigation and Avoidance**

The Draft PEIS provides little discussion of the potential mitigation measures or approaches which could be used to address the significant impacts associated with the proposed actions. While it may be premature to identify specific mitigation actions until a more clear understanding of the impacts is evaluated at the project level, the Final PEIS should propose reasonable mitigation measures or identify a suite of mitigation approaches that FRA and CHSRA could take to address the environmental impacts at the program scale. This programmatic, landscape-level plan provides an opportunity to identify and generally describe potential mechanisms to promote regional and statewide cooperation in identification of methods to avoid and minimize impacts to environmental resources and to mitigate those impacts that cannot be avoided. (See Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, March 23, 1981, Question #19b).

Recommendations:

Outline the strategy that FRA and CHSRA will follow to work with cities and counties to plan landscape-level mitigation strategies as well as site-specific strategies (i.e., transit-oriented development around proposed station locations, and mitigation for community severance). Identify potential partnership opportunities and strategies for Tier 2 project development.

### **Relationship to Other Plans**

EPA understands that a separate Draft EIS for the Los Angeles to San Diego (LOSSAN) corridor and planned improvements will be available for public comment sometime in 2004. EPA will be providing comments on the LOSSAN corridor at that time. The Draft PEIS for the high speed train alternative should be clear in the description of what decisions this Final PEIS and Record of Decision will make regarding LOSSAN improvements and what decisions the subsequent stand-alone Draft EIS for LOSSAN will make.

The Draft PEIS for the high speed train does not fully discuss the magnetic levitation proposal for high speed train service in Southern California and the need for both steel-wheel on steel-rail technology proposed for this project and the magnetic levitation technology proposed for a separate high speed train project in southern California. A full discussion of this issue and potential duplication of efforts and incompatibilities should be included in the Final PEIS.

Recommendations:

Clarify the relationship between the LOSSAN Draft EIS and this Draft PEIS prepared to analyze a high speed train system in California. Discuss other proposals by FRA for magnetic levitation technology high speed train service in California and identify integration and/or incompatibility of both projects.

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