UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

OCT 13 2011

David Valenstein
Federal Railroad Administration
Office of Passenger and Freight Programs
1200 New Jersey Avenue, SE
Mail Stop 20, W38-219
Washington, DC 20590

Subject: Draft Environmental Impact Statements (DEISs) for the California High-Speed Rail System - Merced to Fresno Section (CEQ #20110257) and Fresno to Bakersfield Section (CEQ#20110256)

Dear Mr. Valenstein:

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced documents pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), Section 309 of the Clean Air Act, and Section 404 of the Clean Water Act. EPA previously provided feedback on the statewide high-speed rail project through coordination with Federal Railroad Administration (FRA) and California High-Speed Rail Authority (CHSRA) and formal comment letters on the Tier 1 Programmatic Environmental Impact Statements. EPA recognizes the potential benefits, including reduced vehicle emissions, an alternative transportation choice like high-speed rail can provide if planned well. Through this letter, we identify our agency's concerns regarding potential environmental impacts that may result from implementation of the project without adoption of additional design, construction, and operation commitments in the Final Environmental Impact Statement (FEIS). Based on these concerns, we have rated the project as *Environmental Concerns – Insufficient Information (EC-2)*. Please see the enclosed Summary of EPA Rating Definitions. The scope and extent of our detailed comments (enclosed) on the two DEISs are commensurate with a project of this magnitude and complexity.

Aquatic and Biological Resource Impacts
EPA coordinated with FRA and CHSRA during the development of the DEISs and followed a process that is intended to integrate NEPA and Clean Water Act (CWA) Sections 404 and 408 requirements. The process is outlined in an agreement document entitled *National Environmental Policy Act/Clean Water Act Section 404/408 Integration Process for the California High-Speed Train Program Memorandum of Understanding* (NEPA/404 MOU). Our letter identifies concerns with aquatic resource impacts and additional steps and data needs required to integrate these regulatory requirements. Because only the least environmentally damaging practicable alternative (LEDPA) can be permitted pursuant to the Clean Water Act, we recommend FRA and CHSRA continue efforts to 1) protect water quality and sensitive species; 2) ensure high value resources are not significantly degraded; and 3) avoid, minimize, and mitigate unavoidable

impacts to aquatic resources, and other environmental resources. We look forward to continuing coordination and providing feedback on the alternative that is most likely to be considered the LEDPA. In addition, because the high-speed train system will include a completely grade-separated corridor, we encourage FRA and CHSRA to continue to refine measures to maintain wildlife connectivity and movement throughout the length of the project.

Community, Agriculture, and Health Impacts
Reducing the project's impacts to communities and farms and protecting the health of people living and working next to proposed corridors are critical to the success of the high-speed train system between Merced and Bakersfield. EPA is concerned with potential air quality impacts resulting from nearly 10 years of construction activities, including emissions that may exceed National Ambient Air Quality Standards and affect public health near construction sites and the proposed heavy maintenance facility. While the project may ultimately reduce the number of vehicles on Central Valley roadways, thereby improving air quality, it will result in localized farming and community impacts that require mitigation commitments to maintain functioning agricultural programs and quality of life along the project footprint. As a recipient of federal funding, reducing impacts to communities is critical. We recommend that the FEISs be improved to include commitments for 1) additional mitigation measures to reduce localized impacts, and 2) specific timing, locations, and responsible parties for mitigation implementation. Committing to measures to reduce diesel emissions at the heavy maintenance facility, such as adoption of a more efficient switcher locomotive, is critical to reducing emissions at the source.

Creating a Sustainable Train System
We note that in September 2011 FRA and CHSRA signed the *Memorandum of Understanding for Achieving an Environmentally Sustainable High-Speed Train System in California* with EPA and other federal and state partners, committing to collaboratively promote environmental sustainability of the high-speed rail system (enclosed). EPA commends FRA and CHSRA for recognizing, through the MOU, the need to "plan, site, design, construct, operate, and maintain a HST System in California using environmentally preferable practices in order to protect the health of California's residents, preserve California's natural resources, and minimize air and water pollution, energy usage, and other environmental impacts." Now that this commitment has been formalized, we recommend including it in the FEIS.

We appreciate the opportunity to review these two DEISs and continue to be available to discuss measures available to design a sustainable high-speed train system for California. When the FEISs are released for public review, please send four hard copies and two electronic copies (on CD) of each to the address above (mail code: CED-2). If you have any questions, please contact me at 415-972-3843 or Connell Dunning, the lead reviewer for this project at 415-947-4161 or dunning.connell@epa.gov.

Sincerely,

Enrique Manzanilla, Director
Communities and Ecosystems Division

Enclosures: Summary of EPA Rating Definitions
EPA's Detailed Comments
Memorandum of Understanding for Achieving an Environmentally Sustainable High-Speed Train System in California

Cc via email:

Roelof Van Ark, CHSRA
Colonel Michael C. Wehr, U.S. Army Corps of Engineers
Colonel Mark Toy, U.S. Army Corps of Engineers
Colonel William J. Leady, U.S. Army Corps of Engineers
Colonel Torrey A. DiCiro, U.S. Army Corps of Engineers
Dave Castanon, U.S. Army Corps of Engineers
Mike Jewell, U.S. Army Corps of Engineers
Jane Hicks, U.S. Army Corps of Engineers
Leslie Rogers, Federal Transit Administration
Ophelia B. Basgal, U.S. Department of Housing and Urban Development
Dan Russell, U.S. Fish and Wildlife Service
Mike Thomas, U.S. Fish and Wildlife Service
Robert Tse, U.S. Department of Agriculture
Michelle Banonis, U.S. Bureau of Reclamation
Ken Alex, Governor's Office of Planning and Research
Heather Fargo, Strategic Growth Council
Matt Rodriguez, California EPA
Kurt Karperos, California Air Resources Board
Seyed Sadredin, San Joaquin Valley Air Pollution Control District
Traci Stevens, Business Transportation and Housing
Garth Fernandez, California Department of Transportation
Diana Dooley, California Health and Human Services
John Laird, California Natural Resources
Julie Vance, California Department of Fish and Game
Brian R. Leahy, California Department of Conservation
Paul Romero, California Department of Water Resources
Bruce Fujimoto, State Water Resources Control Board
Bill Orme, State Water Resources Control Board
Mayor William Spriggs, City of Merced
Mayor Ashley Swearengin, City of Fresno
Mark Scott, City of Fresno
Mayor Dan Chin, City of Hanford
Mayor Harvey Hall, City of Bakersfield

EPA'S DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENTS FOR THE CALIFORNIA HIGH-SPEED RAIL SYSTEM - MERCED TO FRESNO AND FRESNO TO BAKERSFIELD SECTIONS OCTOBER 13, 2011

I. CHARACTERIZATION OF SIGNIFICANT IMPACTS

Both the Fresno to Bakersfield Draft Environmental Impact Statement (DEIS) and Merced to Fresno DEIS include a section titled "National Environmental Policy Act (NEPA) Impacts Summary" for each resource area assessed. However, the summary section does not clearly indicate conclusions regarding potential significance. Rather than state whether or not the project would result in significant impacts, the DEISs state whether or not the project would result in "substantial" impacts and it is unclear what significant impacts the project will cause. Introduction of the term "substantial" rather than "significant" is confusing. Further, the DEISs are internally inconsistent in the use of both terms. As an example, in the Cumulative Impacts Section (Section 3.19, Fresno to Bakersfield), the DEIS uses the term "significant" to characterize the high-speed train contribution to cumulative impacts for some resource areas (Station Planning/Land Use; Cultural), and "substantial" for other resource areas (Agriculture;Parks/Open Space).

We appreciate the conversation held between EPA and FRA (October 12, 2011) regarding this issue, and we understand that the intent of using the term "substantial" was to describe thresholds developed to determine significance. However, without clarification, it could be interpreted that each reference of the term "substantial" is synonymous with "significant", as defined by Council on Environmental Quality. We note that an EIS "shall provide full and fair discussion of significant environmental impacts (40 CFR Part 1502.1)" and shall "include a discussion of direct effects and their significance" and "indirect effects and their significance" (40 CFR 1502.16).

Recommendations:

- The Final Environmental Impact Statement (FEIS) should clearly and consistently indicate, in each "NEPA Impacts Summary", whether the anticipated impacts of the proposed project are significant, as defined by Council on Environmental Quality in 40 CFR Part 1508.27.

2. AQUATIC RESOURCES and CLEAN WATER ACT SECTION 404

The proposed high-speed train system will pass through miles of wildlife habitat and natural aquatic ecosystems including riverine, slope and depressional wetlands. These aquatic resources provide a wide range of functions that are critical to the health and stability of the aquatic environment. As described in the DEISs, a substantial cumulative extent of existing waters would be eliminated, reduced and/or degraded by the projects. Wildlife and hydrologic functions of natural riverine and depressional aquatic resources could be significantly degraded or lost by their direct and indirect alteration. Integrating measures that both maintain and improve aquatic resource functions is key to ensuring the long term sustainability of natural resources within this new transportation corridor. Commitments to such measures can be assured through the CWA Section 404 permitting program, which requires impacts to aquatic resources be avoided and minimized to the extent practicable, and unavoidable impacts to be mitigated.

The high-speed rail (HSR) project is being evaluated under CWA Section 404 through an Interagency Memorandum of Understanding (NEPA/404 MOU) aimed at integrating the requirements of the National Environmental Policy Act (NEPA) and CWA Section 404 into a single review and permitting process. One objective of this integration is for the DEISs to serve as the environmental document for NEPA purposes for both FRA, the lead federal agency, and the U.S. Army Corps of Engineers (Corps), the CWA permitting authority. To accomplish this integration, an EIS must meet the provisions of the CWA 404(b)(1) Guidelines at 40 CFR Part 230 (the Guidelines), thereby allowing the Corps to adopt the NEPA document for their CWA Section 404 permitting decision, rather than having to supplement the analysis with their own NEPA decision document. The information presented in the DEISs is neither detailed nor complete enough to meet the substantive requirements of the Guidelines, and EPA is providing recommendations below to advance the objective of allowing the FEISs to fulfill this purpose.

The purpose of CWA Section 404 is to restore and maintain the chemical, physical, and biological integrity of the nation's waters by prohibiting avoidable discharges of dredged or fill material, or discharges that would result in significant adverse impacts on the aquatic environment. Fundamental to the Guidelines is the principle that dredged or fill material cannot be discharged into the aquatic ecosystem, unless it can be demonstrated that there is no less environmentally damaging practicable alternative that achieves an applicant's project purpose. In addition, no discharge can be permitted if it will cause or contribute to significant degradation of waters of the U.S. (waters). To obtain a permit, applicants must demonstrate compliance with the Guidelines by specifically addressing its four independent requirements:

1. **Alternatives Analysis**: Section 230.10(a) prohibits a discharge if there is a less environmentally damaging practicable alternative. Alternatives are presumed to exist for non-water dependent activities in special aquatic sites such as wetlands.
2. **Protecting Water Quality and Sensitive Species:** Section 230.10(b) prohibits discharges that will result in a violation of water quality standards or toxic effluent standards, jeopardize a threatened or endangered species, or violate requirements imposed to protect a marine sanctuary.
3. **Significant Degradation**: Section 230.10(c) prohibits discharges that will cause or contribute to significant degradation of waters. Significant degradation may include individual or cumulative impacts to human health and welfare; fish and wildlife; ecosystem diversity, productivity and stability; and recreational, aesthetic or economic values.
4. **Mitigation**: Section 230.10(d) prohibits discharges unless all appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem. This is further described in 2008 regulations describing specific expectations for the timing and content of mitigation plans.

To help ensure the FEISs meet permit-level information requirements, as intended under the NEPA/404 MOU, we offer the following recommendations related to meeting aspects of the above substantive regulatory requirements.

2.1Alternatives Analysis

Only the Least Environmentally Damaging Practicable Alternative (LEDPA) can be permitted under the Guidelines (40 CFR 230.10(a)). Based on the information currently available, the

DEISs do not appear to adequately compare the direct, indirect, and cumulative impacts to jurisdictional waters resulting from an appropriate range of practicable alternatives. "Practicable" is defined by regulation as alternatives that meet the project purpose and are "available and capable of being done in light of costs, logistics and existing technology." The LEDPA is the practicable alternative with the fewest impacts to aquatic resources, so long as it does not have other significant adverse environmental consequences.

Recommendations:

Analyze a range of alternatives appropriate to the Guidelines. While EPA supports the project objective to use existing transportation corridors, to meet this objective, it is critical to demonstrate that less damaging alternatives are not present outside of such corridors. During previous coordination with FRA and CHSRA during a milestone outlined in the NEPA/404 MOU (Checkpoint B - Identification of the range of alternatives to be analyzed in the DEISs), the Corps and EPA identified that the proposed elimination of the Western Madera and West Hanford alignment alternatives was premature. Although EPA does not advocate for these or any particular alternatives as the preferred alignments, sufficient information has not been presented at that time to rule out either alignment as part of a LEDPA determination. The DEISs did not bring these alternatives forward for analysis, and no supplemental information has been presented to EPA in order to revisit the Corps and EPA assessment at Checkpoint B. Should FRA and CHSRA continue to strive for merging the NEPA and CWA Section 404 processes, the next milestone in the NEPA/404 MOU process (Checkpoint C – Identification of the LEDPA) and the FEISs should document that these two alignments are either impracticable (as a matter of costs, logistics and/or technology), or that they would be more environmentally damaging to the aquatic environment than the other alternatives. To do so, both the quantity (acres, linear feet) and quality (functional status) of waters that these alternatives would impact must be compared with the other alternatives. If these alignments are both practicable and less damaging to the aquatic ecosystem, permitting a different alignment would be difficult absent "other significant adverse environmental consequences."

Provide an accurate assessment of impacts to aquatic resources. EPA has concerns with uncertainty in the DEISs regarding quantity and quality of the aquatic resource impacts, as well as with the format and consistency with which impact estimates were presented. *Example: Merced to Fresno. To date, EPA has been presented with conflicting estimates of acres impacted. The Corps Public Notice states 32-48 acres of waters would be impacted, including 5-16 acres of wetlands; and the DEIS reports "project period" impacts between 28-52 acres. Each alternative alignment also has a range of impacts to waters (e.g., BNSF: 35-52 acres), which is problematic because a LEDPA determination cannot be made on a range.*

- Refine impact totals to estimate a sum, rather than a range, of acres of impacts. Differentiate these totals by each aquatic resource type, rather than "lumping" impacts (for example, rare vernal pools should not be combined with other, more common "seasonal wetlands"). The tables in the DEISs do not describe the types of aquatic resources impacted by each alternative.

- Once the Corps' preliminary jurisdictional determination has been finalized, include those values in the Checkpoint C packages and the FEISs.
- Ensure that impact numbers are presented consistently within the document (Summary Tables, Technical Appendices) and between supporting documents (US Army Corps of Engineer CWA Section 404 permit application and future Checkpoint C package to determine the LEDPA).
- Include descriptions of the major watercourses that traverse the project area with maps depicting the location of aquatic resources in the study area.
- Analyze the spatial patterns, density and type of waters within the larger landscape as well as in relationship to lands already protected (e.g., the Great Valley Conservation Bank, and Camp Pashayan within the San Joaquin River Ecological Reserve, Tulare Lakebed Mitigation Site, Pixley National Wildlife Refuge, and Allensworth Ecological Reserve). Describe these aquatic resources in context to one another and adjacent land uses (for example, how overall watershed health and ecosystem services are affected by water quality impairments, planned or active rehabilitation efforts, and connectivity to adjacent or nearby preserves or sensitive resource areas).

Quantify indirect impacts. The DEISs do not quantify indirect impacts to aquatic resources, and qualitative data is lacking. An assessment of indirect impacts from the proposed project is critical to determining the LEDPA because the level of environmental damage of a given alternative may depend on indirect impacts if, for example, direct impacts are similar. *Example: While section 3.7.3 of the DEISs states that indirect impacts occur within the 250-foot buffer around project elements, no further mention is made of any methodology for characterizing indirect impacts or calculating quantitative indirect impact totals. Throughout the DEISs there are descriptions of permanent indirect impacts, but there is no corresponding quantified data.*

- Provide updated analyses clearly indicating the estimated acreage of indirect impacts, per each expected discharge activity, to aquatic resources. Include the methodology and assumptions used.

Revise and clarify the assessment of "permanent" and "temporary" impacts. The DEISs state, "impacts associated with construction activities would result in temporary impacts, whereas activities during the project period would result in permanent impacts on biological resources." This assessment is not accurate, as many of the permanent impacts to biological resources and wetlands may also occur during construction. EPA is also concerned the analysis of impacts as presented underestimates the extent of permanent impacts to wetlands, particularly vernal pools. Permanent loss clearly occurs when a wetland is filled, but permanent functional loss (degradation) also occurs when there are indirect (non-fill) impacts to a portion of a wetland, or when drilling and excavation activities alter the hydrology within its surrounding drainage basin. *Example: Vernal pools and other seasonal wetlands that lie completely or partially within the 60-foot wide fill embankment within elevated segments would be directly and permanently impacted by the project. However, pools or portions of pools within the remaining construction footprint (i.e., additional 20 feet) of an elevated segment are incorrectly*

considered only temporarily impacted from ground disturbing activities, even though a permanent degradation of functions may occur. (pg. 3.7-46).

- Clearly differentiate permanent and temporary impacts based not only on fill footprint, but on aquatic resource functions. Where construction will result in permanent impacts, including functional degradation, this should be noted and estimates of permanent and temporary impacts should be revised.
- Revise the various tables in Chapter 3.7 that summarize Construction Period and Project Period impacts to aquatic resources to clearly present direct, indirect, temporary and permanent impacts from construction and project operation.

Confirm that impact values presented include all connected actions. In addition to the Heavy Maintenance Facility (HMF), the proposed project alternatives include several other project elements (e.g., maintenance of way facilities, traction stations, switching stations, paralleling stations, access roads and road widening).

- Ensure that impacts from these project features have been included in impact totals and are presented clearly in the FEISs.
- Present aquatic resource impacts anticipated from Merced Station.

Include a functional assessment of aquatic resource impacts. The health of wetlands and riparian habitats can be assessed through standardized tools such as the California Rapid Assessment Method. The DEISs present no assessment information on the condition of wetlands/waters on the project site based on the field application of such tools, as outlined in the NEPA/404 MOU. The FEISs should incorporate functional assessment information into impact characterization, so that current and impacted resource conditions can provide context to acreage numbers.

2.2 Water Quality

The proposed projects will result in a variety of unquantified erosion and construction-related impacts to the quality of waters found throughout the study area from what is likely to be a lengthy, multi-phased project build-out. According to the DEISs, several waters within the project study area are listed on the CWA Section 303(d) list as impaired water bodies. The Guidelines prohibit discharges that will result in a violation of water quality standards or toxic effluent standards (40 CFR 230.10(b)). Post-construction green infrastructure and LID (low impact development) techniques, such as bioretention areas, porous pavement, and vegetated swales, can improve water quality, as well as provide a variety of additional benefits, including long-term economic savings and visual enhancement. More information on green infrastructure and LID techniques can be found at: http://cfpub.epa.gov/npdes/home.cfm?program_id=298.

Recommendations:

- Confirm with supporting information in the FEISs that the proposed projects will not further impair 303(d)-listed water bodies and will not increase pollutants from stormwater runoff, nuisance flows and groundwater drawdown. In the FEISs, identify a set of low impact development techniques (LID) for the construction and post-construction stage of the project to retain, infiltrate, and treat stormwater runoff.

EPA understands from discussions with the State Water Board that the Board is considering permitting stormwater discharges from the drainage system serving the HST as a municipal separate storm sewer system (MS4) under the National Pollutant Discharge Elimination System (NPDES) stormwater permit program. The municipal permit would cover discharges from the entire drainage system of the project, including the tracks. The DEISs (section 3.8.2) discuss the regulatory framework for the project, including the applicability of the NPDES stormwater permit program, but do not identify CHSRA as the operator of an MS4 permit. Further, although there are references to the State Water Board's industrial general stormwater permit in the DEISs (e.g., Section 3.8.6), the permit is not mentioned in section 3.8.2 which summarizes the regulatory framework for the project.

Recommendations:

- The FEISs should acknowledge the potential applicability of the MS4 permit program to the CHSRA and the potential mitigation stemming from the requirement of an MS4 permit to reduce pollutants in discharges from the drainage system to the maximum extent practicable.
- Identify and discuss the basic requirements of the State Water Board's industrial general stormwater permit (Water Quality Order No. 97-03-DWQ) in section 3.8.2. Include a discussion of the stormwater pollution prevention plan (SWPPP) and the monitoring requirements.
- Describe the State Water Board's current effort to reissue this general permit. Include a description of the State Water Board's 2011 draft permit and its requirements and potential impacts to the project.

The DEISs (Section 3.8.5) indicate that the impacts of increased stormwater runoff would be minor because the discharges would be directed to either the local stormwater system in urban areas or to the local drainage system via swales in rural areas. There is little information provided to support this conclusion. The DEISs further state that runoff from the HMF would be contained onsite via infiltration, and therefore there would be no impacts to surface water. However, Section 3.8.6 indicates the runoff would be contained onsite, if feasible. Other references in the DEISs provide yet other descriptions of how the runoff would be handled.

Recommendations:

- Include a quantitative assessment of the anticipated impacts and runoff from the various project components (including train tracks) to existing hydrology, downstream waterbodies, and impervious.
- Describe and confirm the availability of adequate space for mitigation via measures such as infiltration (as indicated in Section 3.8.6).
- Clarify and be internally consistent concerning how the runoff from heavy maintenance facilities would be handled. If there would be any discharges, the nature of the potential pollutants should be described along with the risks and impacts to surface water bodies.

The DEISs (section 3.8.5) indicate that the HST does not require large amounts of lubricants or hazardous materials for operation. However, the nature and quantities of these materials are not

provided. Further, the runoff from the tracks is assumed to be less than a significant source of pollutants, but no supporting documentation is provided for this assumption.

Recommendations:

- As discussed in the Hazardous Materials Section below, describe the quantity and content of lubricants and hazardous materials that will be used for operation.
- Provide supporting information to justify the conclusion that the runoff from the tracks would be less than a significant source of pollutants. For example, provide runoff monitoring data from existing or similar railroads along with a description on how ongoing maintenance activities will be implemented to avoid runoff of lubricants and hazardous materials.

2.3 Significant Degradation

Without clear commitments from FRA and CHSRA to minimize and avoid impacts to aquatic resources, and a clear plan to mitigate impacts that cannot be avoided, the proposed projects could cause and/or contribute to significant degradation of aquatic resources. The Guidelines prohibit permit issuance for discharges causing or contributing to significant degradation (40 CFR 230.10 (c)).

Recommendations:

- Present a reasoned, specific and detailed argument that the project will neither cause nor contribute to significant degradation of waters. Drawing on watershed data, including the projects' potential for both positive and negative impacts on existing water quality and habitat functions, this analysis should be based upon reliable data on (a) the extent of unavoidable direct and indirect fill impacts, (b) the condition of the aquatic resources in their watershed context, and (c) measures to mitigate the project's adverse impacts.

2.4 Mitigation for Impacts to Aquatic Resources

The DEISs provide no details on specific avoidance and minimization strategies, and no overall strategy for compensatory mitigation for unavoidable impacts to waters (Chapter 3.7). Identifying mitigation opportunities in advance of the FEISs, as identified in the NEPA/404 MOU, should be a key priority for FRA and CHSRA, as it will help to avoid potential delays during project permitting. We note that compensatory mitigation is intended only for unavoidable impacts to waters after the LEDPA has been determined (40 CFR 230.10(d)), so EPA does not expect to review and approve a final compensatory mitigation plan prior to having clarity on compliance with the Alternatives portion of the Guidelines. However, it is appropriate for applicants to look for opportunities to compensate for likely unavoidable impacts in a watershed context, and to establish a framework for mitigation planning (e.g., identifying likely partners, and opportunities for watershed improvement and restoration, etc). The mitigation measures presented in the DEISs consist primarily of commitments to implement best management practices and to develop habitat mitigation and monitoring plans.

Checkpoint C, the next milestone in the NEPA/404 MOU, provides an opportunity for EPA agreement on a preliminary LEDPA and draft mitigation plan. EPA anticipates receiving updated estimates for aquatic resource impacts and corresponding practicable avoidance measures

commensurate with these regulatory decision points. Because the release of the FEISs follows Checkpoint C, the FEISs should include a draft mitigation plan that meets all requirements of the Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (40 CFR Part 230, subpart J of the Guidelines).

Recommendations:

- Identify specific avoidance and minimization measures for impacts to waters of the U.S. (e.g. complete spanning of waterways, elevating tracks above sensitive wetland areas, use of bottomless arch culverts, etc.)
- The draft mitigation plan for Checkpoint C should describe the processes that FRA and CHSRA will use, and commitments it will make, to maximize opportunities for successful mitigation including: identifying potential mitigation sites; options available for creation, restoration, enhancement and preservation of waters (e.g., land dedication, acquisition of conservation easements, mitigation banks); opportunities to integrate with existing or planned conservation efforts; potential for improvements to existing infrastructure to enhance aquatic system and wildlife use; and instruments for long-term management of mitigation sites (e.g., established maintenance endowments).
- The Mitigation Rule (Subpart J of the Guidelines at 40 CFR Part 230) includes 12 elements required of final compensatory mitigation plans. Since this will be a permit requirement, we recommend each of these elements be detailed in the FEISs to facilitate 404 permitting.

3. SPECIAL STATUS SPECIES AND WILDLIFE MOVEMENT

The DEIS states that all proposed crossings of the San Joaquin River will have potential impacts to essential fish habitat for federally listed Central Valley spring-run Chinook salmon (pg 3.7-36). Subpart D of the CWA Section 404 regulations (40 CFR 230.30) emphasizes the importance of protection of "aquatic habitat which are particularly crucial to the continued survival of some threatened or endangered species including adequate good quality water, spawning and maturation areas…" In addition, no CWA Section 404 permit may be issued if the proposed discharges would jeopardize the continued existence of an endangered species (40 CFR 230.10(b)). EPA is concerned that the DEIS contains little analysis and disclosure of specific likely impacts of river crossings on listed species. For example, it will be important for the project to demonstrate that it will not pose unacceptable risks to listed salmonids.

Recommendations:

- Fully analyze potential impacts of the project on the San Joaquin River, including specific areas affected and permanent vs. temporary impacts.
- Provide information on San Joaquin River crossing design options.
- Continue to coordinate on plans for crossing designs and share information on predicted impacts with the San Joaquin River Restoration Project federal and state leads, U.S. Bureau of Reclamation and Department of Water Resources.
- Ensure implementation of the best available methods for river crossings that maintain and enhance wildlife habitat.

The DEISs recognize that wildlife linkages are essential to the health and viability of natural ecosystems, and note that a significant study commissioned by Caltrans and California Department of Fish and Game was conducted to identify essential landscape linkages for wildlife movement and genetic dispersal. The DEISs also provide descriptions of the major wildlife linkage areas that will be impacted by the HST alternatives, including Eastman Lake-Bear Creek, Berenda Slough, Fresno River, Kings River, St. John's River-Cross Creek, SR 43/SR 155, Deer Creek-Sand Ridge, Poso Creek, and Kern River. However, the DEISs do not demonstrate how the HST alternative alignments could adversely affect these corridors or how impacts to these corridors will be addressed.

Recommendations:

- Provide additional qualitative information on any unavoidable impacts to wildlife movement corridors
- Document coordination with Fish and Wildlife Service and California Department of Fish and Game regarding appropriate avoidance, wildlife crossings, and mitigation measures to address these impacts
- Include specific high-speed train design commitments that: 1) remove wildlife movement barriers; 2) enhance use of modeled wildlife corridors; 3) provide crossings with suitable habitat and topography to accommodate multiple species.
- Describe specific project elements that would be constructed to enable wildlife connectivity for Merced to Fresno HSR alternatives, including types of features and approximate locations. This should be integrated into the description of alternatives in Section 2 of the Merced to Fresno DEIS, following the example of the Fresno to Bakersfield DEIS.

4. AIR QUALITY

While the high-speed train could potentially have great long term benefits to air quality in California by reducing vehicles miles traveled and reducing the need to expand airports and highways, the project would also result in increased emissions from construction of the system and operation of the HMF and support vehicles. Depending on the energy source for powering the electric train, emissions may also result from the increased electricity demand required for powering the train system. Because the San Joaquin Valley Air Basin has some of the worst 8-hour ozone and PM2.5 problems in the nation, it is important to reduce emissions of ozone precursors and particulate matter from this project to the maximum extent.

4.1 General Conformity

The FEISs should ensure that direct and indirect emissions from both the construction and the operational phases of the project conform to the approved State Implementation Plan and do not cause or contribute to violations of the National Ambient Air Quality Standards (NAAQS). The DEISs note that impacts affecting air quality plan compliance would last the entire construction period of nearly 10 years and would increase nonattainment pollutant emissions, which would conflict with the ultimate goal of the air quality plan to bring the air basin into compliance (Merced to Fresno p. 3.3-42 and Fresno to Bakersfield p. 3.3-41). For Merced to Fresno, with mitigation, the annual construction emissions would "exceed the San Joaquin Valley Air Pollution Control District (SJVAPCD) California Environmental Quality Act (CEQA) thresholds for volatile organic compounds (VOC), nitrous oxides (NOx), and particulate matter less than 2.5

microns (PM2.5) for the entire construction duration and the particulate matter less than 10 microns (PM10) SJVAPCD CEQA threshold for half of the construction duration" (Merced to Fresno p.3.3-42). For the Fresno to Bakersfield section, "with mitigation, the annual construction emissions would exceed the SJVAPCD CEQA thresholds for VOC, NOx, PM10, and PM2.5 for the entire construction duration" (Fresno to Bakerfield p. 3.3-41). Both DEISs conclude that project construction may impede implementation of the 8-hour SJVAPCD 2007 Ozone Plan, the 2004 Extreme Ozone 1-hour Attainment Demonstration Plan3, the 2007 PM10 Maintenance Plan, and 2008 PM2.5 Plan.

Recommendations:

- Confirm that direct and indirect emissions from both the construction and the operational phases of the project conform to the approved State Implementation Plan and do not cause or contribute to violations of the National Ambient Air Quality Standards (NAAQS). Include a letter from SJVAPCD supporting that this project will meet conformity requirements.
- Identify additional mitigation measures for project construction by continuing to coordinate with the San Joaquin Valley Air Pollution Control District and California Air Resources Board. These may include:
    - Participate in the Voluntary Emission Reduction Agreement program to establish a suite of mitigation measures to reduce air quality impacts in the vicinity of the project.
    - Work with local government and agricultural community to generate possible opportunities to offset emissions from the project and include a list in the FEIS. Potential opportunities could include renewable energy production from local farming practices and measures to reduce truck traffic through freight improvements.
- While EPA supports the commitment to reduce criteria exhaust emissions from Construction Equipment by requiring use of Tier 4 engines (mitigation measure AQ-MM#4; p.3.3-71 in both DEISs), we are concerned that a lack of Tier 4 engines in the available construction equipment fleet may result in increased emissions.
- Identify additional mitigation measures for operation of the HMF. Partner with San Joaquin Valley Air Pollution Control District (District) to identify applicable technologies, and consider the following:
    - Use electric or hybrid trucks to serve the facility.
    - Commit to adjusting the facility operations and orientation (through staging, operation schedules, ingress/egress routes, etc.) to reduce localized impacts to surrounding sensitive receptors.
    - Identify an alternative orientation of the facility to move emission activities or release points to areas where impacts to surrounding sensitive areas are lessened.
    - Commit to use of a electric or Clean Switcher Locomotive and revise the analysis of potential air impacts to reflect emissions reductions.[1]

[1] The District has funded one such project and the locomotive is currently being built. The modification involves retrofitting a Tier 2 locomotive engine (3005 hp single engine) to result in 91% NOx emissions reductions (compared with a pre-1973 diesel locomotive) making the switcher the cleanest possible . For more information on

4.2 Transportation Conformity

The DEISs state that neither project is a "Project of Air Quality Concern", therefore no further analysis of PM10 or PM2.5 impacts is required. However, there is no discussion of interagency consultation. Since the HST project is not yet in the area's Transportation Improvement Plan (TIP), it has not been documented that required consultation has occurred.

Recommendation:

- Confirm the Project of Air Quality Concern determination by documenting that an interagency consultation process has been completed. Caltrans currently leads an interagency consultation process for such determinations in the San Joaquin Valley.

4.3 Air Quality Impacts on Health

Sections 3.3 and 3.19 of the DEISs discuss how project construction and operation will impact local and regional air quality. The project is located in non-attainment areas for ozone and $PM_{2.5}$. Research has shown that these air pollutants may exacerbate asthma conditions. Fresno and Merced Counties, as well as the San Joaquin Valley region in general, have high rates of asthma in adults and children. Childhood asthma prevalence and emergency department visits due to asthma are higher than the statewide average in all six San Joaquin Valley counties where the project would be located. It does not appear that the DEISs considered how local air quality impacts from construction and operation of the project may impact those with asthma or other respiratory diseases.

Recommendations:

- Assess how local air quality impacts during project construction and operation may affect health and exacerbate asthma or other respiratory conditions in children and adults in the FEISs. This discussion should include qualitative as well as quantitative information, and a discussion of mitigation options for those most impacted. Respiratory Hazard Indices should be provided for each alternative.
- Add measures to wash all trucks and equipment before exiting the construction site and measures to suspend dust generating activities when wind speeds exceed 25 mph to Air Quality Mitigation Measure #3, which includes actions to reduce fugitive dust from material hauling.
- Revise Air Quality Mitigation Measure #6 in the Merced to Fresno FEIS (so that it applies to all heavy maintenance facility alternatives, rather than only those specified in the DEIS) by limiting idling and instituting a minimum buffer distance of 1,300 feet away from diesel emission sources. Or, alternatively, commit to preparing a detailed health risk assessment for all heavy maintenance facilities considered.
- Commit to locating concrete batch plants at least 1,000 feet away from other sensitive receptors, including daycare centers, senior care facilities, residences, parks, and other areas where children may congregate. Air Quality Mitigation Measure #8 includes actions to reduce concrete batch plant emission impacts to nearby sensitive

---

the clean switcher, please contact Kevin McCaffery with the District's Strategies and Incentives department (559) 230-5831.

receptors by locating concrete batch plants at least 1,000 feet away from sensitive receptors, such as school and hospitals.

- Specify other control measures that will be used for the concrete batch plants to minimize pollution from these plants, including dust control measures for operations and trucks.
- Provide an estimate of increased bus traffic and associated air quality impacts near proposed stations to supplement the conclusion that there would not be a significant number of diesel vehicles congregating at a single location near the HSR stations. (page 3.3-67 of the Merced to Fresno DEIS). Include a discussion of coordination efforts with local transit agencies to promote best practices for reducing bus-related emissions impacts.

5. AGRICULTURAL IMPACTS

The various alternatives discussed in the DEISs would involve trade-offs between impacts to developed land and communities, agriculture, and other resources. The DEISs address impacts to agriculture, including direct conversion of agricultural land to transportation uses, severance of parcels, and impacts to onsite utilities (irrigation systems, access roads, and power supplies). Multiple impacts to agriculture and EPA's associated recommendations are included below and in subsequent growth, land use, and community impacts sections of this letter.

5.1 Agricultural Land Valuation and Compensation

Impacts that are not documented in the DEISs are potential increases in operational expenses due to smaller field sizes and resulting loss of efficiency in field management operations. In addition, the DEISs don't specify the methodology for calculating "non-economic" parcels or the appraised parcel value, although the DEISs reference relevant factors, including infrastructure access and proximity issues, and include commitments to compensate landowners for infrastructure as well as land.

Recommendations:

- Include a discussion of potential increases in operational expenses due to smaller field sizes and resulting loss of efficiency in field management operations.
- Describe the land valuation methodology used for determining which parcels were determined to be "non-economic". Include assumptions for analysis and source of data used.
- Describe the compensation methodology and how it was developed. Address how the methodology 1) calculates the present value of lost future earnings, and 2) assesses the decreased efficiency of operations on remaining land. Clarify assumptions used regarding land staying in the same cropping system and/or changing to another system more amenable to smaller sites, such as truck farming for local consumption.
- Address whether the proposed mitigation to compensate property owners for parcels needed for the alignment adequately compensates owners for all reasonably foreseeable potential impacts to their financial viability.

5.2 Impacts to Dairies

The Merced to Fresno DEIS states that the proposed project could result in the closure of several dairies, and acquisition of property from several other dairies. The DEIS states that CHSRA

would work with each affected dairy to address issues of concerns and attempt to resolve conflicts to preserve operational capacity. Although this is deemed a negligible impact, EPA is concerned that the complexity of siting and permitting dairies could make the closure of dairies a more significant impact.

Recommendation:

- Avoid impacts to dairies as feasible and work with dairy owners to mitigate unavoidable impacts.

5.3 Loss of road access

The DEISs state that over- or undercrossings will be provided every two miles. EPA is concerned about this reduction of transportation access and its impacts on agricultural operations. The DEISs state that the right-of-way acquisition process provides additional opportunities to reduce hardships caused by access severance, and that the CHSRA would work with each affected property owner to address issues of concern, attempt to resolve conflicts, and potentially arrange for additional grade-separated crossings. EPA is supportive of continued efforts to work directly with affected farmers to mitigate impacts to access and agricultural operations.

Recommendations:

- Work with each affected property owner to address issues of concern, attempt to resolve conflicts, and arrange for additional grade-separated crossings following meetings with affected farmers.
- Consider providing remainder parcels on a subsidized basis to beginning and disadvantaged farmers willing to use small-farm practices to supply the local market.

6. REGIONAL AND LOCAL INDUCED GROWTH

EPA believes that a HSR system has the potential to encourage transit-oriented development (TOD) that could revitalize urban centers, support economic development, and help preserve agricultural land. Based on historic development trends in California, however, the land use and development impacts of a proposed HSR system on station cities and other communities in the vicinity of the project remain uncertain at this time.

6.1 Regional Growth and Development Patterns

Land use and regional growth discussions in the DEISs do not acknowledge the possibility that the HSR system could significantly induce growth, or the uncertainty surrounding growth estimates. Acknowledging uncertainty and providing a range of likely impacts could help affected communities to better plan for HSR induced regional growth.

In discussing regional growth, both DEISs conclude that the HSR project "would only slightly raise the projected population." EPA understands that transportation improvements, including HSR, can affect the location, pattern, timing, and intensity of development. It is unclear if the project's potential to attract new commuters living near Merced, Fresno, Hanford/Visalia, or Bakersfield and traveling to Los Angeles or San Francisco was fully assessed. EPA recognizes that many commuters living in the San Francisco Bay Area and the Greater Los Angeles Metropolitan Area currently experience commute times in excess of the projected HSR travel

time from Central Valley cities, making it seem that HSR system could potentially induce growth more than "slightly" beyond the "no project" scenario, as the documents state.

In discussing land use, the DEISs state that communities within the region have adequate space within their spheres of influence to allow for development to accommodate additional population growth, and therefore the HSR would not induce unplanned growth. Given historic development patterns in California and the uncertainty of future development, EPA believes that this conclusion is misleading and strong measures are needed to avoid inducing unplanned growth.

While EPA acknowledges FRA and CHSRA's past and current efforts to coordinate with proposed station cities in planning for station areas, we emphasize that future coordination efforts during the design and construction phases will be critical to achieving higher-density, mixed-use development around stations. Coordination will also be necessary to maintain rural character near a Kings/Tulare regional station.

Recommendations:

- Revise the induced growth and land consumption analysis to fully acknowledge historic development trends and include commitments to avoid and minimize impacts.
- Clearly acknowledge uncertainty in future induced growth projections and provide a range of potential impacts, with reference to location, pattern, timing, and intensity of growth.
- Discuss the potential for considerable growth to occur from commuters living in the Central Valley and working in Los Angeles or San Francisco, and include an explanation of the range of potential regional and local growth impacts, with reference to location, pattern, timing, and intensity of growth.
- Coordinate throughout the design and construction phases with non-station communities that may experience development pressure due to access to HSR, and support efforts to develop planning documents, land use regulations, and municipal development policies to inhibit low-density development in these areas. Ensure that information and resources are available for planning in these communities.
- Commit to continuing to work with the HUD/DOT/EPA Partnership for Sustainable Communities and the State of California Strategic Growth Council under the *Memorandum of Understanding for Achieving an Environmentally Sustainable High-Speed Train System in California* (Sustainability MOU) to avoid, minimize and mitigate HSR induced growth impacts.

Fresno to Bakersfield

EPA is particularly concerned about the potential for induced growth in the vicinity of the proposed Kings/Tulare Regional station. The DEIS states that "given the Urban Reserve and agricultural land use designations surrounding the station area, the availability of appropriately designated land on the west side of Hanford that could be developed, and the potential for the CHSRA to purchase conservation easements around the station, and the CHSRA's vision for the Kings/Tulare Regional Station to act as a transit hub, the potential for indirect effects on land use is low." Given historic growth patterns in California, EPA believes that there is potential for

significant growth-related indirect impacts and strong measures will be needed to minimize indirect effects.

The DEIS states that the proposed station area is located adjacent to, but north of, a Blueprint Urban Growth Area. Given that the Kings County Association of Governments has developed a Kings County Blueprint for Urban Growth to emphasize city-centered urban growth and agricultural preservation, the decision to site a station location outside of the planned Urban Growth Area does not appear to be compatible with local goals.

The DEIS also states that it is possible that the CHSRA could seek to locate agricultural easements directly surrounding the Kings/Tulare Regional Station footprint. EPA supports this proposed mitigation to reduce the potential for induced growth, as discussed in the next section.

Recommendations:

- Revise the indirect effects analysis associated with the Kings/Tulare Station to accurately reflect historic trends and potential risks to surrounding lands.
- Commit to specific measures to avoid, minimize, and mitigate impacts to the area surrounding the proposed Kings/Tulare Regional Station.
- Discuss in the FEIS why the proposed station location was not sited in the designated Urban Growth Area.
- Work with Kings County and other local governments with land use authority in the vicinity of the proposed Kings/Tulare Regional Station to promote policies to help ensure that infrastructure will not be provided to support development in areas beyond current planned growth areas.

6.2 Managing Induced Growth in Rural Areas

EPA supports plans for higher-density development around the Merced, Fresno, and Bakersfield stations, and FRA and CHSRA's efforts to support TOD planning in these station areas. We remain concerned, however that development pressures from HSR at urban fringes could induce changes in zoning codes and conversion of agricultural lands and open space to other uses, such as residential or commercial development. Lower-density development near urban fringes could cause additional impacts to agriculture and natural resources, beyond what is described in the DEISs. EPA is particularly concerned with the potential for induced growth near the rural Kings/Tulare Regional Station and sees farmland conservation easements as a valuable mitigation tool.

The DEISs state that FRA and CHSRA will work with the California State Department of Conservation to purchase and establish agricultural conservation easements to mitigate for the loss of agricultural land that will result from miles of tracking throughout farming communities. It is unclear if FRA and CHSRA are also committed to promoting conservation easements as a tool avoid and minimize unplanned induced development. Further, it is unclear if FRA and CHSRA would target conservation efforts on specific parcels based on project-induced development risk, and what criteria would be used to assess this risk.

EPA emphasizes that the success of area station planning efforts will likely be directly related to complementary planning and coordination at the urban fringes and neighboring communities.

We also recognize that strong coordination with counties and other stakeholders will be needed to accomplish these planning efforts and get conservation tools implemented, such as easements.

Recommendations:

- Establish criteria (such as proximity to stations and maintenance facilities) and apply the criteria to identify which agricultural and rural lands are most vulnerable to induced growth impacts from the proposed train system. This "high-impact" land should then be targeted for agricultural land conservation easements.
- Commit to promote and support agricultural land conservation easements for high quality agricultural land most at risk for conversion due to the project as a means to mitigate potential induced growth impacts.
- Include a specific commitment to promote agricultural easements directly surrounding the rural Kings/Tulare Regional Station.
- FRA and CHSRA should work with the California State Department of Conservation and/or local land trusts to facilitate identification of potential conservation areas and support of future easements.

7. LAND USE AND PLANNING

7.1 Station Area Planning

The location of the HSR stations and the layout of facilities (transit plazas, parking, etc) will have a significant influence on the success of TOD in these areas. The DEISs reference the *Transit Oriented Development Design Report for Fresno Final Report* (UC Berkeley 2010) and *Transit Oriented Development for High-Speed Rail in the Central Valley, California: Design Concepts for Stockton and Merced* (UC Berkeley 2008). In addition, the DEISs state, "The [CHSRA] is committed…to working cooperatively with local government, transit agencies, public interest groups, and the development community to realize a shared vision for land use and transit development around HSR stations consistent with the [CHSRA]'s Development Policies, to the maximum extent possible" (Merced to Fresno p. 2-95 and Fresno to Bakersfield p. 2-94). Details, however, are not provided regarding coordination efforts to achieve this commitment or what, if anything, communities have committed to implementing.

The DEISs state that FRA and CHSRA are providing funding to assist station cities in undertaking studies, research, and planning for station areas. EPA understands that proposals from station cities for activities to be funded by this program are currently being reviewed by FRA and CHSRA. Adding details about these proposals to FEISs would enable readers to better understand how stations areas could change as a result of the project.

Recommendations:

- Commit to continued coordination with station cities throughout the design and construction phases of the project and support efforts to develop planning documents, land use regulations, and municipal development policies that encourage higher density, mixed-use development around Merced, Fresno, and Bakersfield stations.
- Clarify whether FRA, CHSRA, and cities where stations will be located have committed to the planning and design concepts discussed in the referenced documents, which identify opportunities for downtown revitalization in the station

cities through urban design, higher densities, mixed-use development, and multimodal transportation options.

- Include more specific information on how communities are being engaged in station area planning.
- Provide more details about what specific activities will be funded under the station area planning program, what the timeline is for the funded activities, how FRA and CHSRA will work with the communities on these activities, and how the results of the activities will be incorporated into station design.
- Revise maps of station study areas in Section 3.13 of the Merced to Fresno DEIS so that proposed station locations are clearly delineated, following the example of maps in Section 3.13 of the Fresno to Bakersfield DEIS.
- Consider best practices for station area planning provided in Section 2 of the American Public Transportation Association March 2011 Transit Sustainability Guidelines and adopt relevant recommendations. Guidelines are available at http://www.apta.com/resources/hottopics/sustainability/Pages/default.aspx

7.2 Multimodal Connectivity

As stated in our scoping comments, a substantial benefit of a proposed HSR corridor connecting Merced to Bakersfield is the opportunity to generate improved local transit services and to reduce vehicle miles traveled (VMT). EPA strongly supports including project elements that will reduce VMT, such as features that promote local transit use, walking and biking.

The DEISs describe FRA and CHSRA's vision for HSR stations to serve as multimodal hubs with strong transit connectivity. EPA recognizes that transit connectivity is vital to achieving the land use patterns discussed in DEISs. Achieving strong connectivity with local transit systems requires early and robust coordination with local transit agencies, which is not described in DEISs.

For example, the Fresno to Bakersfield DEIS states that "[t]he FRA's and [CHSRA]'s goals for Kings/Tulare station include creating a station that serves as a regional transportation hub to provide quick transit connections from the station to the downtown areas of Hanford and Visalia; the CHSRA and FRA have approved $600,000 in planning funds to assist local jurisdictions around the Kings/Tulare station to plan to make these goals a reality." EPA is aware of an Expanded Light Rail Connectivity Plan for the City of Visalia that is being funded through the Department of Housing and Urban Development's Sustainable Communities Regional Planning Grant to the Smart Valley Places Consortium. The DEIS does not provide details on how FRA and CHSRA are engaging the local authorities in Visalia to coordinate with this project.

Recommendations:

- Commit to collaborate with local transit agencies to develop transit connectivity plans for HSR station areas and neighboring communities where high HSR ridership is expected.
- As part of coordination with the City of Visalia and other communities on local transit planning efforts, ensure that transit plans are developed to maximize connectivity with the HSR system.

- As part of transit connectivity plans, commit to working with local agencies to develop features to facilitate easy transfers between local transit and HSR, such as shared ticketing, wayfinding for local transit within HSR stations, and other features.
- Include a summary of coordination with local transit agencies to date and a discussion of how existing and planned transit services would connect with the HSR system.
- Commit in the FEISs to design and construct stations to be pedestrian and bicycle-friendly by incorporating features such as bike lockers, changing rooms, and showers.
- Commit to coordinate with car share organizations and promoting use of shared vehicles at HSR stations to provide an additional alternative to car ownership.

7.3 Parking

EPA acknowledges that the DEISs were developed to capture the footprint of the maximum parking demand to give FRA and CHSRA flexibility in future decision making. EPA also recognizes that decisions made on parking quantity, location, and type (surface, structures, shared) will greatly impact whether station areas are walkable and integrated into surrounding neighborhoods, and will influence surrounding development patterns.

Parking is discussed in several places throughout the DEISs and in guidance documents created by FRA and CHSRA. For example, the Fresno to Bakersfield DEIS lists goals including, "Limit the amount of parking to that which is essential for system viability," and "place parking in structures with retail and other land uses." In addition, CHSRA's Urban Design Guidelines offers information on best practices.

Within the DEISs, however, the FRA and CHSRA's plan for parking appears inconsistent. For example, the Merced to Fresno DEIS displays an image of a potential layout for the Mariposa Street Station in Fresno with surface parking lots surrounding the station. EPA has not seen a clear parking policy, and it is unclear if FRA and CHSRA are coordinating with local jurisdictions for implementing parking policies.

Recommendations:

- Include a clear parking policy in the FEISs, containing a clear commitment to work with local jurisdictions and following the Urban Design Guidelines and best practices.
- Commit to minimize the number of parking spaces to the greatest extent possible at stations in order to facilitate the use of transit, and construct multi-level parking structures as opposed to large expansive parking lots to minimize impacts.
- Revise the FEIS so that stations are not proposed to be surrounded by surface parking lots, such as the Figure 2-42b in the Merced to Fresno DEIS and other similar figures.

Fresno to Bakersfield

The DEIS states that at the Kings/Tulare Regional Station, approximately 19 acres would support 1,600 spaces in a surface parking lot, or a portion of parking would be provided on-site and a portion in shuttle lots located in downtown Hanford, Visalia, or Tulare. EPA encourages the use of parking structures at the station location and parking structures in nearby downtowns, as the DEIS states, to "allow for more open space areas around the station, discourage growth at the station, encourage revitalization of the downtowns and reduced the development footprint of the station."

Recommendation:

- Commit in the FEIS to constructing parking structures rather than surface parking at the Kings/Tulare Regional Station, and using parking structures in the downtown areas of Hanford, Visalia, and Tulare to accommodate a significant percentage of parking demand from the Kings/Tulare Regional Station.

7.4 Equitable Development

EPA supports FRA and CHSRA's efforts to promote well-planned, multi-modal, mixed-use station areas. An integral component of station area planning includes plans to avoid the potentially adverse consequences that urban revitalization can have on established communities and low-income residents. Without sufficient planning and outreach, urban revitalization efforts risk "pricing-out" historic residents and harming existing cohesion of established communities. Similarly, the siting of the HMF has the potential to disrupt communities and disproportionately impact low-income and minority populations if not planned well. FRA and CHSRA should identify specific commitments to help ensure that station areas and HMFs are developed in an equitable manner.

Recommendations:

- Commit to working with cities and other stakeholders to help ensure that an appropriate percentage of low-income housing is integrated into station area developments.
- Commit to take proactive and thorough efforts to engage low income and minority community members, community groups, and community development organizations in the station area planning process.
- Commit to augmenting CHSRA's "HSR Station Area Development: General Principles and Guidelines" document and "Urban Design Guidelines" document so that they include equity as a key principle and includes guidelines for promoting equity.
- Commit to the following criteria for selecting a heavy maintenance facility (HMF) location: 1) consideration of impacts to low-income and minority communities; 2) future potential for smart growth development patterns; 3) transit connectivity; 4) transit service and/or ride-sharing to connect HMF sites to population centers, to provide an alternative to single-occupant vehicles for employees' commutes. Identify if auxiliary services, such as restaurants or other retail, are planned to be sited near or within the HMF.

7.5 Brownfield Redevelopment

The DEISs state that there are underutilized and vacant properties surrounding potential stations. It is currently unclear if identification, assessment, and reuse of browfield sites will be addressed through the assistance FRA and CHSRA are providing to cities.

Recommendations:

- Include identification and assessment of brownfield sites within .5 mile of the stations as a part of FRA and CHSRA funded station area planning activities.

- Support redevelopment and TOD by funding assessment and clean-up of brownfield sites with the requirement that redevelopment on these sites be consistent with FRA and CHSRA station area planning guidelines.
- Commit to assessment and clean-up of underutilized and vacant properties if any are present around the selected HMF site for worker amenities and/or housing.
- Consider whether station and HMF sites offer the opportunity for beneficial reuse of brownfield sites when selecting preferred location.

7.6 Safety in Station Areas

According to the National Crime Prevention Council, *Crime Prevention Through Environmental Design* is based on the principle that the design of buildings and the layout of public spaces can lead to a reduction in feelings of fear and actual occurrences of crime, and an improvement in the quality of life for residents and visitors. The American Public Transportation Administration developed guidance specifically for mass transportation providers, which is available at http://www.aptastandards.com/Portals/0/Security_pdfs/APTA-SS-SIS-RP-007-10_CPTED.pdf.

Recommendation:

- Commit to implementing Crime Prevention Through Environmental Design principles for stations in Section 3.11, Safety and Security, of the FEISs.

7.7 Visual Impacts

Aesthetic and visual impacts are discussed in Section 3.16, and adverse impacts on visual quality are reported for select areas under all alternatives. EPA understands that visual impacts from fences, elevated structures, maintenance facilities, and other system components have the potential to alter the character and cohesion of communities. Through working with local stakeholders, CHSRA has the opportunity identify design elements to best meet local needs. This may include incorporation of landscaping screening, integration of public art, and adding color to enable infrastructure to better blend into backgrounds, among several other options.

Recommendations:

- Add VQ-MM#4b from page 3.6-82 of the Fresno to Bakersfield DEIS, entitled, "Provide Offsite Landscape Screening Where Appropriate," to the list of related mitigation measures on page 3.16-58 of the Merced to Fresno DEIS.
- Commit to conducting outreach once the preferred alignment has been selected to obtain input on the future use of the area beneath the rail guideway and identify design options compatible with community character for all elevated portions of the alignment located near communities, as committed to for the Northeast District of Bakersfield on page 3.12-84 of the Fresno to Bakersfield DEIS.

8. CHILDREN'S HEALTH

Executive Order 13045 on Protection of Children from Environmental Health Risks and Safety Risks directs each Federal agency to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children, and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health or safety risks.

8.1 Analysis of Risks to Children

Because children are more susceptible to environmental exposures than adults, analysis of environmental health impacts on children is critical to understanding project impacts and identifying appropriate mitigation. Chapter 3 of the DEISs identifies sensitive receptors and areas where children may congregate (e.g., schools, parks, daycare centers) within the project area. In addition, the DEISs identify air quality, noise, and community impacts from the project, as well as the use of hazardous materials.

Recommendations:

- Evaluate the potential direct, indirect, and cumulative health impacts of the project alternatives (during construction and operation) on children's health. The analysis should consider the following:
  - Potential respiratory impacts, including asthma, from air pollutant emissions and generation of fugitive dust;
  - Potential noise impacts to health and learning, especially in areas where the project is located near homes, schools, daycare centers, and parks; and
  - Potential impacts from the use of chemicals, such as pesticides, dust suppression methods, and hazardous materials, to children's health.
- Identify mitigation measures to reduce the project's impacts to children's health.
- Clearly identify the project alternatives that have the least impact to children and other sensitive receptors, as well as those alternatives that have the least impact on areas already significantly impacted by existing air pollution, high disease rates, and other indicators of social vulnerability.

8.2 Child Safety During Construction Activities

Construction activities may result in temporary heavy truck traffic as well as altered transportation routes. Safety measures that offer additional protection to children who are walking in areas near construction activities should be included in the Construction Mitigation Plan.

Recommendations:

- Identify and assess the potential safety risks of project construction to children, especially in areas where the project is located near homes, schools, daycare centers, and parks.
- Provide mitigation measures that ensure child safety within and near the project area. For example, crossing guards could be provided in areas where construction activities are located near schools, parks, and daycare centers.
- Establish truck traffic routes away from schools, daycares, and residences, or at a location with the least impact if those areas are unavoidable. Notify nearby residences and schools of construction periods and the expected amount of heavy truck traffic.

8.3 Clarification of Study Area for Merced to Fresno

Depending on the definition of study area, the number of schools impacted by the project varies. For example, the number of schools listed in Table 3.12-5 (Facilities within the Study Area) differs from the number of schools listed in Table 3.10-6 (Summary of Significant Hazardous Materials and Wastes Impacts and Mitigation Measures).

Recommendations:

- Clarify why the number of schools identified in Table 3.12-5 differs from Table 3.10-6.
- Define the study area (or buffer zone) in the notes of Tables 3.12-5 and 3.10-6.

8.4 HMF Impacts on Children's Health for Merced to Fresno

Page 3.3-68 indicates that three of the five potential HMF sites would have potentially significant impacts to sensitive receptors for cancer risk and respiratory hazard risk (cancer risk estimates exceed 10 in a million). Likewise, page 3.3-68 implies that three of the HMF sites would have a Respiratory Hazard Index greater than 1.0 but does not explicitly state the Hazard Index for those sites.

Recommendations:

- Consider significant impacts to sensitive receptors in selection of the HMF site.
- Include the estimated cancer risk and the Respiratory Hazard Index if one of the three sites where cancer risk exceed 10 in a million is chosen as the preferred alternative

9. ENVIRONMENTAL JUSTICE AND COMMUNITY IMPACTS

The 1994 Executive Order (EO) 12898 on Environmental Justice addresses disproportionate and adverse impacts of federal actions on minority and low-income populations. In August of this year, several federal agencies, including the U.S. Department of Transportation and EPA, finalized a Memorandum of Understanding (MOU)[2] to advance agency responsibilities under EO 12898. Under the MOU, Federal agencies commit to identifying and addressing the disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations in a number of key areas, including NEPA implementation, implementation of Title VI of the Civil Rights Act, and impacts from climate change. EPA urges FRA, as the lead agency under NEPA, to review and apply the MOU in its FEIS development.

EPA acknowledges the efforts of FRA and CHSRA to analyze impacts to environmental justice communities. Table 3.12-17 in M-F DEIS and Table 3.12-15 in the F-B DEIS present a summary of environmental justice impacts. The analysis indicates that areas along proposed alignments contain higher percentages of environmental justice communities than the region as a whole. The Merced to Fresno DEIS concludes that the majority of impacts (adverse and beneficial) would predominantly be borne by communities of concern in the study area; however, the impacts to communities of concern would not be disproportionately high or adverse. The Fresno to Bakersfield DEIS concludes that there would be some disproportionately high and adverse environmental justice impacts during construction and operation.

9.1 Consistency in Methodology and Analysis

For the Merced to Fresno section, the summary of the project's environmental impacts and their relevance to environmental justice, provided in Table 3.12-17 (Impacts Common to All Alternatives on Communities of Concern), indicates that there are no anticipated adverse air

[2] A copy of the Memorandum of Understanding Environmental Justice and Executive Order 12898 is available on-line at: http://epa.gov/environmentaljustice/resources/publications/interagency/ej-mou-2011-08.pdf .

quality and noise impacts to communities of concern. The information provided in Table 3.3-32 (Summary of Significant Air Quality and Global Climate Change Impacts and Mitigation Measures), however, indicates that significant impacts on air quality would still exist after mitigation measures are implemented. In addition, Table 3.4-27 (Summary of Significant Noise and Vibration Impacts and Mitigation Measures) states that some neighborhoods would still have significant noise and vibration impacts in areas where sound barriers are not fully effective.

For the Fresno to Bakersfield section, although some environmental impacts to communities of concern were determined not to be disproportionately high, Section 3.12 should reference the air quality and noise impacts to communities living near the proposed alignment that are discussed in other sections of the DEIS. Table 3.12-6 concludes that there are no environmental justice impacts resulting from the project's air quality impacts. If the affected community is composed of a higher minority or low-income population than the reference community, then environmental justice impacts exist.

Recommendations:

- Incorporate the conclusions provided in other sections of the DEISs, such as air and noise impacts, into the EJ analysis and discuss localized impacts to community members who may be unable to relocate.
- Clearly identify the reference community used to complete the environmental justice analysis in the FEISs.
- Clearly identify information on the timing of construction of the project for both sections, with updated information where needed due to scheduling changes.
- Include information on cumulative impacts and their relevance to environmental justice in Table 3.12-17 of the Merced to Fresno FEIS.
- Include the "distance covered" by moderate noise impacts and severe noise impacts to Merced to Fresno Tables 3.4-15 and 3.4-16 (similar to how the distances are included in Table 3.4-14 of the Fresno to Bakersfield DEIS).

9.2 Localized Impacts

For both sections, the analysis should better evaluate the localized impacts to minority or low-income communities in the immediate vicinity of the project that could result from construction or operation for each alternative, especially in areas where residents may be unable to relocate.

Recommendations:

- Identify the project alternatives that have the least impact to communities of concern, as well as those alternatives that have the least impact on areas already significantly impacted by existing air pollution, high disease rates, and other indicators of social vulnerability.
- Consider the impact of road closings on environmental justice communities and consider additional over- and undercrossings where significant impacts exist.
- Commit to implementing noise mitigation desired by impacted community members.
- Commit to considering community impacts when selecting a HMF site.
- Review environmental justice concerns raised during the public involvement process to facilitate the identification of highest priority mitigation measures.

9.3 Commercial & Residential Relocation

Both DEISs discuss the disproportionate impacts communities of concern would face as a result of commercial and residential displacement (Merced to Fresno p.3.12-59 & Fresno to Bakersfield p. 3.12-87). EPA believes additional measures are necessary to mitigate impacts.

Recommendations:

- Focus business relocation efforts of neighborhood-serving businesses within their existing neighborhoods to minimize impacts to community cohesion. In particular, due to its role in the community, as discussed in the DEIS, assist the Mercado Latino Tianquis in Bakersfield in relocating to a location where the community it serves can access it.
- Commit to replacement housing options to allow residents to remain in their communities if desired, including rehabilitation of existing housing or construction of new housing in those communities when no replacement housing for displaced residents appears to be available (such as in Fairmead and LeGrand).
- Offer relocation assistance to residents found to be living in motels.
- Revise Table 3.12-46 in the Merced to Fresno FEIS or add an additional table so that residential and business displacements are provided "by community" and then totaled for each alternative, following the example of Table 3.12-9 from the Fresno to Bakersfield DEIS.
- Include a discussion in the Merced to Fresno FEIS of commercial and residential relocations and related socioeconomic impacts by community, following the example of Section 3.12 of the Fresno to Bakersfield DEIS.
- Commit to conducting community workshops in all significantly affected areas to obtain input and identify mitigation measures for residents whose property would not be taken, but whose community would be substantially altered by construction of HSR facilities, including loss of neighbors, following the example of commitments made for the areas northeast of Hanford and Corcoran on page 3.12-83 of the Fresno to Bakersfield DEIS.

9.4 Economic Development

Both DEISs state that the project would create jobs, and that these jobs would not benefit local minority and low-income populations more than the general population without the development of specialized programs and training (Merced to Fresno p. 3.12-64 & Fresno to Bakersfield p. 3.12-82). Mitigation measures in both DEISs include recruitment, training, and job set-aside programs to ensure that study area low-income and minority populations benefit from the jobs created by the project. It is unclear, however, if these programs are still under consideration or if FRA and CHSRA have committed to implementation. EPA suggests that such programs and training are a critical component of fairly compensating affected communities of concern.

Recommendation:

- Commit to developing special recruitment, training, and job set-aside programs for environmental justice communities impacted by the project, as discussed in the DEISs.

9.5 Meaningful Public Involvement during Relocation and Construction

Chapter 7 of the DEISs discusses public and agency involvement. Although outreach activities, including public meetings, have been used to inform the public of the project and its potential impacts on their communities, it is unclear how public feedback was responded to and taken into consideration during the decision-making process. It is also unclear how public concerns raised during the relocation process and construction period will be addressed.

Recommendations:

- Provide more information in the FEISs on community concerns raised during the public involvement process and how concerns were responded to (i.e., Comment and Response Summary).
- Include a community involvement section in the Construction Mitigation Plan with a phone number for people to call with concerns in English or Spanish.
- Provide more information in the FEISs about the mitigation relocation plan, how the public will be involved, how the plan will be implemented, and who community members can contact for more information in English and Spanish.
- Include specific measures to continue outreach to communities of concern.

9.6 Communities Considered in Analysis

Communities in station areas and non-station areas located near the corridor all have the potential to be heavily impacted by the HSR project. It is necessary for FRA and CHSRA to assess impacts to all communities within a reasonable distance from the corridor. In the Merced to Fresno DEIS, it is unclear whether smaller towns along the proposed alignments were left out of the assessment, or if they were fully incorporated into the assessment of larger urban cities. It is also unclear if local policies for smaller incorporated areas are not discussed because they do not exist or because they were overlooked.

Recommendations:

- Revise the Merced to Fresno DEIS so that all communities within the HSR study area are explicitly addressed, including smaller communities such as Athlone, Minturn, Fairmead, Le Grand, and Madera Acres.
- Explain whether the same study area parameters were used in both DEISs to assess community resources and revise analysis if needed. It appears the Merced to Fresno DEIS considers community resources within 0.25 mile from the track, while the study area for Fresno to Bakersfield extends 0.5 mile from the track.

10. NOISE & VIBRATION

10.1 Operational Impacts from HMFs

The assessment of noise impacts from HMF operations is not consistent between DEISs (p. 3.4-39 of Merced to Fresno and Fresno to Bakersfield DEISs). The Fresno to Bakersfield DEIS states that sensitive receptors within 900 ft of each proposed HMF site could have severe impacts according to FRA criteria, and sensitive receptors within 900 feet are quantified in Table 3.4-11. The Fresno to Bakersfield DEIS concludes, "Each HMF has residences within the 900-foot contour line and therefore all HMFs have substantial effects under NEPA." The Merced to Fresno DEIS uses a different methodology to assess operational noise from HMFs and concludes

that noise impacts would be "significant" for Castle Commerce Center HMF and no impacts would occur for other HMF alternatives.

Recommendations:

- Revise the DEISs so that analysis, methodology, assumptions, and conclusions are consistently applied throughout the system. For example, revise Merced to Fresno conclusions regarding HMF operational noise impacts following the methodology discussed in Fresno to Bakersfield DEIS p. 3.4-39.
- Identify sensitive receptors within 900 feet of each HMF in the Merced to Fresno section. Use the Fresno to Bakersfield DEIS table 3.4-11 as an example.
- Add measures to mitigate HMF operational noise from the Fresno to Bakersfield DEIS (found on p. 3.4-57 and 3.4-58) to the Merced to Fresno FEIS. All but one of these measures is included in Merced to Fresno Appendix 3.4-A and should also be included in the FEIS document.

10.2 Potential Locations of Noise Barriers

Both Merced to Fresno and Fresno to Bakersfield DEISs provide maps which illustrate potential locations of noise barriers. Details on potential location, height, length, and receptors affected, however, are only provided in the Fresno to Bakersfield DEIS. This level of information is necessary in order for residents to be aware of local impacts and may influence public decisions on whether to become involved in local planning efforts.

Recommendations:

- Include a table in the Merced to Fresno FEIS describing noise barriers with data on potential location, height, length, number of people benefited and number of people adversely affected. Use the Fresno to Bakersfield DEIS Table 3.4-23 as an example.

10.3 Analysis of Traffic Noise

Traffic on streets near HSR stations is expected to increase as a result of the project. This could potentially contribute to increased noise levels near the station and near arterial roadways that feed cars in to the station area. Both DEISs state, "...any changes in traffic near the stations would provide only a minor contribution to the project noise at stations" (Merced to Fresno and Fresno to Bakersfield-F and F-B p. 3.4-15).

Recommendations:

- Reference the specific study that supports FRA and CHSRA's conclusions regarding project impacts on traffic noise levels. In addition, add key summary points from the study to the discussion on traffic noise found on page 3.4-15 of both documents.

10.4 Noise Implications of Track Design

Assumptions for the Merced to Fresno noise analysis are listed on page 3.4-13 and state, "HSR was assumed to be ballast and tie with continuous welded rail, consistent with the FRA guidance manual (FRA 2005). Ballast and tie track is typically 2 to 4 dB quieter than slab track." It is unclear if slab track may potentially be used on the HSR project rather than ballast and tie track. In addition, if slab track is used and slab track is louder than ballast and tie track, it is unclear how may additional receptors could be affected and what additional mitigation might be needed.

Recommendations:

- Clarify whether slab track, or other material, could potentially be used for the project. If slab track could potentially be used, update the Merced to Fresno noise analysis so that it presents a more conservative estimation of noise impacts. In addition, quantify and discuss locations of receptors that would be affected by noise if slab track is selected. Any increases to mitigation that would be needed relative to the ballast track scenario should also be included.
- Indicate whether the Fresno to Bakersfield DEIS noise analysis assumed ballast and tie or slab track in the noise analysis. If the Fresno to Bakersfield DEIS assumed ballast and tie, the bullet point above would apply to both DEISs.

10.5 Vibration Mitigation Measures

The Merced to Fresno DEIS concludes that vibration impacts from operations are projected to be substantial for one alternative, and mitigation might not be feasible. The Fresno to Bakersfield DEIS concludes that vibration impacts from operations are expected to remain substantial for all alternatives even with mitigation. Both DEISs identify and describe measures to mitigate vibration impacts.

While both DEISs include "special track support systems" as a mitigation measure, neither document refers specifically to use of tire derived aggregate (TDA). TDA can act as an energy absorbing layer below tracks. TDA can be far more cost effective than traditional materials, such as rubber mats, special track fasteners, or floating slab track beds. Use of TDA also creates substantial environmental benefits because California is challenged with managing more than 40 million newly generated reusable and waste tires each year in addition to tires remaining in stockpiles, which can pose health risks if not disposed of properly or reused.

Recommendations:

- Include "Operational Changes" as a measure to mitigate vibration impacts in Table 3.2-26 of the Merced to Fresno DEIS, following the example of Table 3.4-27 in the Fresno to Bakersfield DEIS.
- Update the list of vibration mitigation measures in both documents to include use TDA comprised of recycled tires. Refer to the California Department of Resources Recycling and Recovery website for more information.

10.6 Analysis of Cumulative Noise Impacts

Both DEISs discuss cumulative noise impacts in Section 3.19. Screening distances, however, appear to be inconsistent between the two documents. The Merced to Fresno DEIS states that a screening distance of up to 1,300 feet is used to analyze cumulative noise impacts. The Fresno to Bakersfield DEIS states that a screening area of 7,500 feet on either side of the centerline of the HST alternatives was used, and the area was selected because the HSR could increase noise within that area. EPA is concerned that potential noise impacts were not disclosed and mitigated for in the Merced to Fresno project area.

Recommendations:

- Consider whether the screening area utilized in the Merced to Fresno DEIS should be revised in order to provide a consistent assessment of the HSR noise impacts

throughout the Central Valley. Revise the analysis to capture the full extent of potential cumulative impacts and commit to noise analysis methodology that can be applied to future segments of high-speed rail. If differing screening area distances are used, provide supporting information to justify the different methodology applied.

11. SUSTAINABILITY PARTNERSHIP, POLICIES, AND PRACTICES

11.1 Sustainability MOU

In September 2011 FRA and CHSRA signed the *Memorandum of Understanding for Achieving an Environmentally Sustainable High-Speed Train System in California* (Sustainability MOU) with EPA and other federal and state partners, committing to collaboratively promotes environmental sustainability of the HSR project. Focus areas include: (1) Livable, Sustainable Communities, (2) Material Selection, Design and Construction, (3) Renewable Energy and Energy Efficiency, (4) Water Resources Management, (5) Systemwide Sustainability Policy (http://www.cahighspeedrail.ca.gov/sustainabilitypartners.aspx). EPA commends FRA and CHSRA for recognizing, through the MOU, the need to "plan, site, design, construct, operate, and maintain a HST System in California using environmentally preferable practices in order to protect the health of California's residents, preserve California's natural resources, and minimize air and water pollution, energy usage, and other environmental impacts."

Recommendations:

- Include a copy of the Sustainability MOU in the FEIS and reference it throughout the document where applicable.
- Commit to continuing to work with the HUD-DOT-EPA Partnership for Sustainable Communities and the California Strategic Growth Council under the Sustainability MOU throughout the design and construction of the HSR system.
- Include a discussion in the FEISs on the specific steps FRA and CHSRA are taking to incorporate each of the following policies, publications, and programs into development of the HSR project. Include details on outreach to communities and feedback received:
    - FRA publication, *Station Area Planning for High-Speed and Intercity Passenger Rail* (June 2011), as a guide for state transportation departments and local and regional jurisdictions; (http://www.fra.dot.gov/downloads/FRA_Station_Area_Planning_June_2011_c.pdf).
    - Work plans developed as a result of Station Area Planning Funding Program (March 2011); http://www.cahighspeedrail.ca.gov/pr_stationareaplanning.aspx).
    - CHSRA publication, *Urban Design Guidelines* (March 2011), developed to assist cities and communities with station area visioning (http://www.cahighspeedrail.ca.gov/urban_design_guidelines.aspx).
    - CHSRA publication, *Station Area Development Guidelines* (February 2011), developed to establish principles for promoting sustainable development (http://www.cahighspeedrail.ca.gov/highspeedtrain_stationdev_policies.aspx).

- CHSRA Board 100% Renewable Energy goal (September 2008) (http://www.cahighspeedrail.ca.gov/energy_policy_goal.aspx).

- Commit to implementing an Environmental Management System (EMS) to assess and improve environmental performance throughout the life of the project. Guidance on EMS development and implementation is available at http://www.epa.gov/EMS/. EPA also recommends that the FEISs commit to obtaining ISO 14000 certification.
- Commit to incorporating specific language on preferred qualifications and practices in Request for Qualifications and Request for Proposals to help ensure that contractors have the necessary expertise and develop appropriate proposals to design, construct, and operate the HSR system in a sustainable manner, in line with CHSRA's stated goals.
- As discussed in the Energy Section below, describe FRA and CHSRA's partnership with National Renewable Energy Laboratory and EPA to develop a Strategic Energy Plan to reduce energy use and meet energy needs with renewable resources.

11.2 Leadership in Energy and Environmental Design (LEED) for HSR Facilities

FRA and CHSRA have the opportunity to reduce environmental impacts and promote public health by incorporating green building strategies into the HSR system, including trackway, stations, maintenance yards, and other support facilities. Such strategies facilitate long term savings in cost, energy, and water usage, among other large-scale benefits such as improved indoor air quality.

The DEISs state that "HSR project buildings would conform to U.S. Green Building Council Leadership in Energy and Environmental Design (i.e., LEED) rating standards for environmentally sustainable new construction. HSR facilities, including HSR stations and the HMF, would be certified at the *Silver Level"* (Merced to Fresno p. 3.6-45 and Fresno to Bakersfield p. 3.6-64). While EPA commends FRA and CHSRA's commitment to LEED, we believe the HSR project could be improved by achieving a higher standard for green building.

Recommendations:

- Commit to achieving LEED certification at the *Platinum Level* for HSR facilities, including stations and maintenance facilities. At a minimum, EPA strongly encourages FRA and CHSRA to commit to analyzing the strengths and feasibility of obtaining LEED certification at the Platinum Level for HSR facilities, including stations and maintenance facilities. FRA and CHSRA should work with EPA and other partners under the HST Sustainability MOU to fully identify benefits and address potential challenges of obtaining Platinum Level certification.
- Provide specific topic areas to focus green building strategies, such as onsite renewable energy, optimized energy performance, materials reuse, and indoor air quality.

11.3 California Green Building Standards

The California Building Standards Commission (CBSC) administers California's building codes and is responsible for adopting, approving, publishing, and implementing codes and standards.

CBSC oversees the implementation of 2010 California Green Building Standards (CALGreen) Code, effective January 1, 2011, which sets standards for all new structures to minimize the State's overall carbon output. California requires new buildings to minimize water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant emitting finish materials.

Recommendations:

- Add to the list of applicable Laws, Regulations, and Orders in Section 3.6, Public Utilities and Energy, so that it includes 2010 California Green Building Standards Code, California Code of Regulations, Title 24, Part 11. The Part 11 mandatory green building standards for nonresidential buildings are adopted by the California Building Standards Commission under the authority of Section 18930.5 of Health and Safety Code, Division 13, Part 2.5, known as the California Building Standards Law. Information is available at http://www.bsc.ca.gov/default.htm.
- Commit to exceeding CALGreen standards in priority areas by meeting "optional" standards, including: pollutant control, indoor air quality, renewable energy, energy and water conservation, low impact development, and designated parking for fuel efficient/electric vehicles.

11.4 Sustainable Design for Unique Rail Infrastructure

LEED for new construction focuses on traditional buildings (commercial, institutional, multifamily, etc.) and is applicable to many of the facilities that will make up the HSR system. The HSR system, however, will also have unique rail infrastructure that falls outside the scope of traditional buildings covered by LEED.

Recommendations:

- Commit to considering best practices listed in the American Public Transportation Association March 2011 Transit Sustainability Guidelines and adopting relevant recommendations. Guidelines address unique opportunities for green building and overall sustainability in the transit industry. Guidelines are available at http://www.apta.com/resources/hottopics/sustainability/Documents/Transit_Sustainability_Guidelines_APTA_Final.pdf. More detailed examples of best practices and case studies are available in the Transit Sustainability Practice Compendium, available at http://www.apta.com/resources/hottopics/sustainability/Documents/Transit-Sustainability-Practice-Compendium.pdf.

11.5 Promoting Green Building in Station Areas

Section 3.13, Station Planning, Land Use, and Development, discusses FRA and CHSRA commitments to work with local governments in station areas to promote TOD near stations. HSR stations are expected to change development patterns and induce new development. New development will have environmental impacts, which can be minimized by incorporating green building practices. In addition, community benefits can be maximized from incorporating natural elements and community oriented components.

Recommendations:

- Commit to providing information on green building practices when working with local jurisdictions on station-area development. In addition, encouraging third party certification (such as LEED for Homes and Build it Green) and goals to exceed CALGreen requirements by meeting "optional" standards.
- Commit to provide technical assistance for green building in station areas. Incorporate into FRA and CHSRA's ongoing grant program to support station-area development.
- Encourage and assist local jurisdictions in designing for adaptability and reuse in station areas to increase flexibility to meet future community needs. This is especially critical for any parking features which may become unnecessary after transit connectivity is developed. For guidance, see Public Architecture, Design for Reuse Primer, http://www.publicarchitecture.org/reuse/, and Lifecycle Building Challenge Resources, http://www.lifecyclebuilding.org/resources.php.
- Commit to working with local jurisdictions to obtain LEED ND Certification for station areas. LEED-ND certification provides independent, third-party verification that a building or neighborhood development project is located and designed to meet high levels of environmentally responsible, sustainable development.

11.6 Industrial Materials Management

EPA commends FRA and CHSRA's intent to use recycled materials for project construction (Merced to Fresno and Fresno to Bakersfield p. 2-97). We recognize, however, that the DEISs do not identify specific best practices to be adopted. Tire derived aggregate (TDA) is one of several recycled materials that could be incorporated into the project. As discussed in our comments above in the Noise Section, use of TDA could lower project costs and energy footprint by reducing the need for mined resources, has free draining characteristics that help solve engineering problems, and can mitigate vibration noise. Several other examples of use of recycled materials can also potentially lower project costs and have been used in other major infrastructure projects, such as the new East Span of the San Francisco-Oakland Bay Bridge. Karen Irwin with the EPA Region 9 Waste Division (415-947-4116) is available to further discuss the use of recycled materials as they relate to a high-speed train system.

In addition, the DEISs contain a regional analysis of GHG emissions associated with the construction phase of the HSR project. GHG emissions attributable to materials production (the raw acquisition, refining, processing, and manufacturing of construction materials to be used in building the HSR infrastructure) are not included in the DEIS emissions analysis. As a result, GHG emissions that would result from the project may be underestimated. The magnitude of emissions associated with materials production is exemplified in a University of California Davis study, which evaluated constructing a HSR segment from San Francisco to Anaheim and concluded that materials production would comprise more than 80% of total CO2e from the project.[3]

[3] "Life Cycle Greenhouse Gas Assessment of infrastructure construction for California's high-speed rail system", May 2011, University of California Davis, Institute of Transportation Studies, Brenda Chang and Alissa Kendall http://www.sciencedirect.com/science/article/pii/S1361920911000484.

Recommendations:

- Identify which recycled materials would be used to replace raw materials for particular infrastructure components. Some options include:
  - Use recycled materials to replace carbon-intensive Portland Cement in concrete as "supplementary cementitious material".
  - Use tire-derived aggregate in lightweight embankment fill, retaining wall backfill, and as underlay to rail tracks.
  - Use recycled materials in pavement applications, such as crushed recycled concrete, recycled asphalt pavement, and rubberized asphalt concrete. Also, in some circumstances, on-site asphalt can be re-used (e.g., cold in-place recycling or full depth reclamation).
  - Limit overdesign and use of excess concrete through admixtures and other techniques.
- Include a discussion of the GHG estimates of the materials production process for materials that would be used in the construction of the HSR, including but not limited to, Portland Cement, precast concrete, ready mix concrete, aggregate, rail, reinforcement bars, rail fasteners, rail pads, steel poles, and contact wire. Where feasible, include a quantification of GHG emissions resulting from the production process.

12. ENERGY

The EISs state that CHSRA would purchase up to 100% renewable energy to power HSR operations (Merced to Fresno p. 3.6-45 & Fresno to Bakersfield p. 3.6-64). It is not clear if CHSRA is assessing options for powering only the trains or also stations and support facilities. EPA strongly supports FRA and CHSRA's dedication to renewable energy, which would eliminate emissions from powering the HSR system with electricity generated from fossil fuels, along with numerous other potential environmental benefits. EPA recognizes that realizing the goal of powering the system with 100% renewable energy will require strategic planning and early coordination. We also support partnering with BNSF and UP and short haul carriers to determine if electrification of the HSR could occur in coordination with electrifying freight movement.

Recommendations:

- Include a description in the FEIS of steps taken to date to meet future renewable energy needs along with plans to reach the goal to power the system with 100% renewable energy. Include discussion of CHSRA's partnership with National Renewable Energy Laboratory to create a strategic energy plan.
- Identify if the goal to power the system with 100% renewable energy includes powering stations and heavy maintenance facilities and/or generating renewable energy on-site.
- Include commitments to promote siting of renewable resources on contaminated and underutilized lands over pristine lands if FRA and CHSRA have a role in influencing where the source of energy for powering the trains will come from. RE-Powering America's Lands Initiative has a mapping tool that allows users to see contaminated lands by location and is available at http://www.epa.gov/renewableenergyland/mapping_tool.htm.

- Coordinate with local farming stakeholders to consider linking generation of renewable energy from farming practices with the need to power the project through renewable energy. Include the discussion of this potential source of renewable energy in the FEIS.
- Describe how electrification of a high-speed train system could occur in coordination with efforts to electrify freight movement. Specifically, the FEIS should outline the steps that would need to occur, and barriers that would need to be overcome, in order to construct electrification infrastructure that could meet the needs of freight movement and high speed train operation.

13. HAZARDOUS MATERIALS

EPA understands that hazardous materials would be used in the construction, operation, and maintenance of the overall HSR system. The DEISs state that "operation of the HSR would require only minor amounts of hazardous materials" and provide a few examples of hazardous materials (M-F p. 3.10-24 and F-B p. 3.10-27). A quantification and full list of hazardous materials to be used is not provided. Given the expansive size of the entire HSR system and the projected lifetime of operation, small applications of hazardous materials will accumulate over time and could potentially have adverse impacts on human health and the environment.

DEISs explain that a database search was conducted in order to identify sites of potential environmental concern near HSR alignments. Page 3.10-6 of the Merced to Fresno DEIS describes a buffer of 0.5 mile and page 3.10-7 of the Fresno to Bakersfield DEIS describes a buffer of 1 mile from the centerline of the track. It is unclear why buffers vary between documents and if the 0.5 mile buffer is sufficient to protect human health and the environment.

Recommendations:

- Commit to identifying, avoiding and minimizing hazardous materials in the material selection process for construction, operation, and maintenance of the overall system, including stations and all support facilities. While proprietary information may prevent full knowledge of potential threats, high standards for material specifications and direct communication with manufactures can aid in promoting safety for passengers and employees. Examples of chemicals to consider avoiding are included in the State of California Environmental Protection Agency's "Chemicals known to the State to Cause Cancer or Reproductive Toxicity," available at http://www.oehha.org/prop65/prop65_list/files/p65single090211.pdf.
- Commit to systematically evaluate a full hazardous material inventory list on an annual basis and replace hazardous with non-hazardous substances to the extent possible. Examples of preferable products may include non-toxic cleaning solutions and non-petroleum based lubrication for switching equipment. In addition, pesticides can be minimized through the use of integrated pest management, as detailed on EPA's website at www.epa.gov/pesticides.
- Commit to not using extremely hazardous substances within 0.25 mile of a school or other sensitive receptor. (HMW-MM#1.)
- Clarify why buffers used in the database search for sites of potential environmental concern vary between documents. If found to be appropriate, conduct an additional database search to identify all sites that may be affected by the project.

14. ELECTROMAGNETIC FIELDS AND ELECTROMAGNETIC INTERFERENCE

Section 3.5 of both DEISs asses potential impacts from electromagnetic fields and electromagnetic interference. The scope of sensitive receptors analyzed and mitigation measures proposed appear to differ between documents.

Recommendations:

- Add medical laboratories and research/technical parks to the list of facilities close to the HSR that could be affected by exposure to electromagnetic fields and interference on page 3.5-13 of the Merced to Fresno DEIS (following the example of the Fresno to Bakersfield DEIS) or confirm that they are not present. Update the analysis as needed to reflect these additional facilities, or, if these facilities cannot be found within the study area, commit to assessing them should they later be identified.
- Add a Mitigation Measure identified in the Fresno to Bakersfield DEIS to the Merced to Fresno FEIS, "Protect sensitive equipment". If the study area between Merced and Fresno has been fully assessed and no sensitive equipment has been identified, commit to implementing this mitigation measure if any sensitive equipment is later identified.