UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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REGIONAL ADMINISTRATOR

Sharri Bender Ehlert, District Director
California Department of Transportation, District 6
855 M Street, Suite 200
Fresno, CA 93721

Subject: Comments on the Draft Environmental Impact Statement for the Centennial Corridor Project, Kern County, California (CEQ#20140140)

Dear Ms. Ehlert:

The U.S. Environmental Protection Agency has reviewed the Draft Environmental Impact Statement (DEIS) for the Centennial Corridor Project, a proposed new expressway extending approximately two miles from the existing Westside Parkway in Bakersfield to the State Route 58/State Route 99 interchange, eventually connecting to Interstate 5 west of the Westside Parkway. EPA's comments are directed to Caltrans per assumption of National Environmental Policy Act (NEPA) responsibility as described in the *Memorandum of Understanding Between the Federal Highway Administration (FHWA) and Caltrans Concerning the State of California's Participation in the Surface Transportation Project Delivery Pilot Program.* Our review and comments are provided pursuant to NEPA, the Council on Environmental Quality (CEQ) Regulations (40 CFR Parts 1500-1508), and our review authority under Section 309 of the Clean Air Act (CAA).

As described further below and in the enclosed detailed comments, based upon the anticipated potential localized air quality impacts and lack of information important for analyzing and mitigating the project's potentially significant impacts on air quality, EPA has rated the Centennial Corridor Draft EIS as "*Environmental Objections – Inadequate Information*, (EO-3)" (see the enclosure "Summary of Rating Definitions"). A more meaningful analysis of localized air quality impacts and commitments for measures to reduce those impacts are necessary.

California's San Joaquin Valley has among the worst air quality in the United States, especially for fine particulate matter ($PM_{2.5}$). The proposed Centennial Corridor Project is located in an area of Bakersfield that modeling shows will be the last part of the San Joaquin Valley to attain EPA's National Ambient Air Quality Standard (NAAQS) for $PM_{2.5}$. As a result, any localized increase in direct emissions in the area above those already accounted for in the state's air quality plan could adversely affect the ability of the area to meet the NAAQS by the Clean Air Act's deadline. It is therefore critically important that potential impacts to air quality be accurately analyzed, disclosed, and reduced as much as possible. The Draft EIS does not adequately evaluate the potential for increases in $PM_{2.5}$ concentrations, in particular, within 1,000 feet of the proposed new and expanded freeway. Numerous studies have shown increased particulate matter concentrations in close proximity – within 500 to 1,000 feet – of major roadways. The Draft EIS also does not adequately quantify the potential for impacts due to construction emissions of $PM_{2.5}$ within this localized area. Both facility operation and construction appear likely to increase

localized $PM_{2.5}$ emissions along the new freeway alignments, either due to an overall increase in emissions or a shift in location. To the extent that a localized increase in emissions occurs during the 2015-2019 timeframe – when the area is predicted to continue to violate the $PM_{2.5}$ NAAQS – the proposed project may both contribute to a localized NAAQS violation and delay timely attainment of the standard. EPA does not have adequate information to evaluate whether the project conforms to California's State Implementation Plan for $PM_{2.5}$ in this area.

This environmental review process highlights the need for developing a robust strategy to offset the anticipated localized air quality and health impacts that would result from introducing a high volume freeway in a region with some of the worst air quality in the nation. EPA recommends that additional measures be identified to reduce these impacts, particularly to protect children's health and to ameliorate or eliminate impacts to other sensitive receptors. Further, EPA recommends a revised Environmental Justice analysis, and mitigation to offset any impacts identified, with focused attention on the remaining population of residents that will be within close proximity to both the existing State Route 99 and the new Centennial Corridor.

This additional analysis and information should be circulated publicly for comment prior to the publication of a Final EIS as either a Supplemental Draft EIS or as a revision to the relevant sections of the current EIS and associated technical material, in accordance with NEPA and Council on Environmental Quality's NEPA Implementation Regulations. In the attached detailed comments, we also provide recommendations regarding the assessment of impacts and other issues we recommend be addressed in the NEPA document.

We appreciate the opportunity to review this Draft EIS and look forward to working with Caltrans to address and resolve the issues outlined in this letter. If we are unable to resolve our concerns, this matter may be a candidate for referral to the Council on Environmental Quality for resolution. If you have any questions, please refer staff to Connell Dunning, Supervisor in our Environmental Review Section, at 415-947-4161. Please send a copy of the Final EIS to this office (mail code ENF 4-2) when it is electronically filed with our Washington, D.C. office.

Sincerely,

for Jared Blumenfeld
8 July 2014

Enclosures:
(1) Summary of EPA Rating Definitions
(2) EPA's Detailed Comments on the Centennial Corridor DEIS

cc via email: Jennifer Taylor, Caltrans
Robert Pavlik, Caltrans
Vincent Mammano, Federal Highway Administration
Seyed Sadredin, San Joaquin Valley Air Pollution Control District
Mark McLoughlin, California High Speed Rail Authority
Robert Ball, Kern Council of Governments

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

U.S. EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE CENTENNIAL CORRIDOR PROJECT, KERN COUNTY, CALIFORNIA, JULY 8, 2014

Air Quality Impacts

The proposed Centennial Corridor Project is located in an area of Bakersfield that modeling shows will be the last part of the San Joaquin Valley to attain EPA's National Ambient Air Quality Standards (NAAQS) for fine particulate matter ($PM_{2.5}$). Attainment in that area will take the maximum time allowed under the Clean Air Act (CAA) and depends on additional reductions in direct $PM_{2.5}$ emissions in the Bakersfield area. The State is currently projecting attainment of the 2006 standard by the end of 2019. Evaluation of whether the area has attained will be based on ambient data from 2017 through 2019. Given that San Joaquin Valley Air Pollution Control District's (APCD's) 2012 Air Quality Plan shows attainment with no margin, even slight local increases in ambient $PM_{2.5}$ concentrations during the period 2017 to 2019 may make it difficult, if not impossible, for the area to show it has attained the standard.

The Draft EIS does not adequately evaluate the potential for localized increases in $PM_{2.5}$ concentrations from operations and construction. Construction of the Centennial Corridor Project will last from 2015 to 2018. These are key years for attainment of the 2006 $PM_{2.5}$ standard in the San Joaquin Valley.

Recommendations:

Quantify construction emissions for criteria pollutants, especially $PM_{2.5}$, and mobile source air toxics. To the extent that it is possible to identify specific locations of elevated construction emissions, these should be provided.

Subsequent analysis should quantitatively evaluate the anticipated increase in $PM_{2.5}$ concentrations as a result of localized (segment-level) increases in emissions, especially for 2018. In terms of significance, any predicted increase in $PM_{2.5}$ concentrations in the area during this time frame will likely contribute to a NAAQS violation and delay attainment of the NAAQS, and should be addressed in the context of NEPA.

The Draft EIS analysis of environmental justice impacts resulting from localized increases in $PM_{2.5}$ concentrations due to project operations and construction is similarly inadequate. Since segments of the proposed project alternatives will pass through areas of potential environmental justice concern, any localized increase in $PM_{2.5}$ emissions could lead to an increase in $PM_{2.5}$ exposure for environmental justice populations.

Recommendations:

To the extent that the revised $PM_{2.5}$ analysis in the subsequent analysis identifies geographic areas with potentially increased $PM_{2.5}$ concentrations from project operations and construction, it should also quantitatively evaluate the demographics of the populations living in areas of potentially increased $PM_{2.5}$ exposure. The demographics (including statistics for minority and low income populations) in those areas should be compared to similar statistics for a suite of reference communities, including Kern County, the City of Bakersfield, the State of California, and the entire United States.

Project air quality improvements are necessary to avoid contributing to localized NAAQS violations, to avoid a delay in timely attainment of the NAAQS, and to support the State and local air quality

goals of bringing the area into timely attainment of the NAAQS. In addition to the construction and operational mitigation measures described in our detailed comments, Caltrans should work closely with the San Joaquin Valley APCD and other local partners to pursue all practicable $PM_{2.5}$ mitigation within the project area. We note that the conformity analysis described in the Air Quality Study Report does not preclude the need for further air quality improvements in the context of NEPA.

Recommendations:
Caltrans should consider and commit to mitigation measures to reduce air quality impacts from both construction and operational emissions.

Caltrans should consider the widest possible range of operational emissions reductions in the project area, including upgrades to local fleets (such as delivery trucks/warehouses, school and city buses, garbage trucks, and street sweepers) and support for alternative fuel infrastructure (e.g., Liquid Natural Gas/Compressed Natural Gas, hydrogen, Electric Vehicle charging).

For construction, Caltrans should consider warm mix asphalt, deployment of Tier 4 or better nonroad engines, and electrification whenever possible.

To reduce exposure to mobile source-related emissions, Caltrans should pursue sound walls, vegetative barriers, and landscape corridors, as well as heating, ventilation, and air conditioning upgrades and indoor air filtration at schools, medical facilities, and other sensitive locations.

To mitigate $PM_{2.5}$ increases due to project operations and construction, especially in the 2015-2019 timeframe, Caltrans should work with partner agencies to pursue other localized $PM_{2.5}$ emissions reductions in the project area, including woodstove/fireplace changeouts; upgrades to chargrilling equipment, railway/rail yard equipment, and lawn and garden equipment; and paving unpaved roads/alleys

To address the potential health impacts on the local community, Caltrans should work with partners to support asthma programs.

Caltrans should also work with EPA, the San Joaquin Valley APCD, and the California Air Resources Board to further identify local businesses where there would be opportunities to reduce $PM_{2.5}$ emissions.

In addition to compliance with existing San Joaquin Valley APCD rules and regulations, mitigation should also pursue deployment of best available control technology (BACT, described below). The Standard Conditions (p. 355; SC-CI-20 and others) should be revised to reflect the following provisions in order to minimize the air quality impacts of project construction:

- All project contractors must meet, or exceed the requirements of San Joaquin Valley APCD Rule 9510.
- Implementation of the on-site mitigation should utilize construction equipment that meets, or exceeds equivalent emissions performance to that of the EPA Tier 4 exhaust emissions standards for nonroad compression ignition engines and model year 2010 exhaust emissions standards for on-highway compression ignition heavy-duty vehicle engines.

http://www.epa.gov/otaq/standards/heavy-duty/hdci-exhaust.htm
http://www.epa.gov/otaq/standards/nonroad/nonroadci.htm

- Use of cleaner fuels should also include electricity and hydrogen fuel as options.
- For truck idling, anything in excess of 5 minutes should be prohibited, in compliance with California ARB's Airborne Toxic Control Measure (ATCM) 2485.
  http://www.arb.ca.gov/regact/idling/idling.htm
  http://www.arb.ca.gov/msprog/truck-idling/factsheet.pdf
- Work with San Joaquin Valley APCD to specify the following:
  Seek to demonstrate and/or deploy heavy-duty technologies that exceed the latest EPA exhaust emission performance standards. For example, heavy-duty plug-in hybrid-electric vehicles-PHEVs, battery-electric vehicles-BEVs, fuel cell electric vehicles-FCEVs and/or advanced technology locomotives in partnership with the San Joaquin Valley APCD Technology Advancement Program.
  http://www.epa.gov/otaq/standards/heavy-duty/hdci-exhaust.htm
  http://www.epa.gov/otaq/standards/nonroad/nonroadci.htm
  http://www.epa.gov/otaq/standards/nonroad/locomotives.htm
  http://valleyair.org/grants/technologyadvancement.htm

Consider the following additional Standard Conditions to ensure that best management practices for highway construction and operation are employed:

- Deploy BACT during construction and operation, including but not limited to:
  a) Soliciting bids that include use of energy and fuel-efficient fleets;
  b) Soliciting preference for construction bids that use BACT, particularly those seeking to deploy zero emissions technologies;
  c) Employing the use of alternative fuel vehicles and fueling infrastructure (e.g., LNG, CNG, hydrogen and/or electric vehicle charging);
  d) Using lighting systems that are energy efficient, such as LED technology;
  e) Using the minimum feasible amount of GHG-emitting construction materials that is feasible;
  f) Using cement blended with the maximum feasible amount of flash or other materials that reduce GHG emissions from cement production;
  g) Using lighter-colored pavement where feasible;
  h) Recycling construction debris to maximum extent feasible;
  i) Planting shade trees in or near construction projects where feasible;
  j) Utilize grid-based electricity and/or onsite renewable electricity generation rather than diesel and/or gasoline powered generators during construction; and
  k) Building sound walls and planting vegetative barriers along the corridor to minimize human exposure to near roadway emissions.

Health Effects

The proposed Centennial Corridor will place a high-volume roadway adjacent to hundreds of residences, several schools, and medical facilities. Although the Draft EIS did not analyze the number of residences remaining within a designated "buffer of impact" (i.e., within 500 feet of the centerline or edge of the new highway alignment), the Draft EIS does state that the preferred alternative will displace over 300 units, including over 900 residents. Because of the high number of displacements, there is likely a high number of remaining residences within close distance of the proposed new highway, raising the importance of fully assessing, disclosing, and identifying mitigation measures to

address the potential health-related impacts, in addition to disclosing any increase in mobile source toxics, to the remaining adjacent residences.

While the Draft EIS includes disclosure of mobile source air toxics, it does not include any conclusions about possible health effects to the community. The Draft EIS (p. ES-9) concludes that, for the study area as a whole, mobile source air toxics (MSAT) emissions will be higher for all Build Alternatives, but that emissions will decrease due to anticipated technological and fuel improvements. According to the Air Quality Study report, however, some locations, such as Real Road, will experience elevated MSAT emissions when compared to the No Build Alternative. This is particularly important because this area is already adjacent to the high-volume State Route 99 and is proximate to an identified environmental justice community as identified in the Community Impact Assessment. Also, regardless of overall emissions changes, concentrating vehicle traffic may cause nearby residences (i.e., within 500 feet of the new highway) throughout the project area to be exposed to higher MSAT concentrations than they would otherwise experience without the project.

In addition to disclosing potential areas where MSAT impacts are anticipated, Caltrans should describe possible associated health effects and discuss mitigation to reduce those effects. As many studies suggest, including the South Coast Air Quality Management District study cited in the Draft EIS (p. 236), increased exposure to MSAT emissions is problematic to health. EPA does not agree with the conclusions in the DEIS (p. 236) that uncertainties in the science surrounding the analysis of mobile source air toxics make the results of such assessments "not useful to decision-makers". Given the potential presence of a new highway adjacent to hundreds of residents not previously living next to a high volume roadway, information surrounding the potential health effects is useful to decision-makers in designing the roadway and identifying mitigation to lessen possible impacts. Further, there is a need to inform residents about the possible health effects and incorporate their input into identifying mitigation measures to address possible impacts.

Recommendations:

Describe the "remaining" population of residents that will not be relocated and will be within a 500 foot "buffer" of the new corridor.

Analyze and discuss the potential mobile source air toxic-related health impacts from the construction and operation at full build out of the corridor to possible receptors.

Describe possible mitigation measures to reduce impacts, such as improved filtration in central heating, ventilation, and air conditioning systems for concentrated sensitive receptors (Table 4.2) near the selected Build Alternative, and a community health clinic for affected residents.

Existing data, methodology, and guidance needed to assess health impacts and perform a risk characterization for air toxics are available on EPA's web site and are provided below:

- AERMOD may be used to model ambient concentrations of toxics at locations in the project area, given emissions from EMFAC. For guidance on how to conduct such analyses, consult the document, "Transportation Conformity Guidance for Quantitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas." (http://www.epa.gov/otaq/stateresources/transconf/projectlevel-hotspot.htm#pm-hotspot)
- Given ambient concentrations of air toxics, risk characterization can be done using EPA guidance and data:

- EPA's Air Toxics Risk Assessment Reference Library (http://www.epa.gov/ttn/fera/risk_atra_main.html) describes how to conduct risk assessment "at the facility and community scale." Volume 1 of the library describes the process and basic technical tools for these analyses, and Volume 2 describes detailed procedures for source-specific or facility-specific risk assessment.
- EPA's IRIS web site (http://www.epa.gov/IRIS/), referenced on page 4-69, includes the "individual unit risk estimates", also known as "potencies" or "slope factors," which may be employed in the process of cancer risk assessment, and reference concentrations for noncancer risk assessment.
- EPA's Health Effects Notebook for Hazardous Air Pollutants also includes information on some of the MSATs, including benzene, 1,3-butadiene, formaldehyde, acetaldehyde, acrolein, and polycyclic organic matter (POMs) (http://www.epa.gov/ttn/atw/hlthef/hapindex.html).
- Detailed cancer risk assessment guidance is available in the following EPA documents:
  - "Guidelines for Carcinogen Risk Assessment" (2005) (http://epa.gov/cancerguidelines/)
  - "Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens" (http://epa.gov/cancerguidelines/sup-guidance-early-life-exp-carcinogens.htm)

If necessary, exposure modeling can be performed using models available from EPA's web site:

- The Air Pollutants Exposure Model (http://www.epa.gov/ttn/fera/human_apex.html)
- The Hazardous Air Pollutant Exposure Model (http://www.epa.gov/ttn/fera/human_hapem.html)
- EPA's Exposure Factors Handbook (http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252).

Children's Environmental Health and Safety

Executive Order 13045 on Children's Health and Safety directs each federal agency, to the extent permitted by law, to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children, and to ensure that its policies, programs, activities, and standards address these risks. Analysis and disclosure of these potential effects under NEPA is necessary because some physiological and behavioral traits of children render them more susceptible and vulnerable than adults to environmental health and safety risks. Although the Draft EIS identifies communities and public schools located near the proposed project area, the Draft EIS does not clearly describe the potential direct, indirect, and cumulative impacts of the project on children's health.

Recommendations:

Evaluate the potential direct, indirect, and cumulative health impacts of the construction and operation of the various project alternatives on children's health.

Clearly identify the project alternatives that have the least impact to children, as well as those alternatives that have the least impact on areas already significantly impacted by existing air pollution, high disease rates, and indicators of social vulnerability.

Identify mitigation measures to reduce impacts from the proposed project's construction and operation to schools and child care centers near the proposed project area, including measures identified in the voluntary EPA School Siting Guidelines (http://www.epa.gov/schools/siting/download.html), and voluntary EPA Guidelines for States: Development and Implementation of a School Environmental Health Program (http://www.epa.gov/schools/ehguidelines/index.html). Engage local school districts, child care providers, and others to identify mitigation measures.

Obtain and discuss relevant health data (e.g., asthma data) for children living near the proposed project area, if available. The analysis should consider the following:

- Potential respiratory impacts, including asthma, from air pollutant emissions and generation of fugitive dust;
- Potential noise impacts (see below) to health and learning, especially in areas where the project is located near homes, schools, childcare centers and parks; and
- Potential impacts from the use of chemicals, such as dust suppressants, and hazardous materials to children living near the proposed project areas.

The Draft EIS identifies schools and daycare centers near proposed build alternatives (Table 4-2) but does not fully discuss the noise impacts to them. Section 216 of the California Streets and Highways Code, cited in the Noise Study Report (p. 21), defines a noise impact when noise levels resulting from a proposed freeway project, exceed an equivalent sound level over one hour (Leg(h)) of 52 A-weighted decibels (dBA) in the interior or public or private elementary or secondary classrooms, libraries, multipurpose rooms, or spaces. The Draft EIS identifies some schools in the noise impacts analysis segments but does not provide the estimated indoor and outdoor noise levels for those schools. For example, the Draft EIS states that the closest school with an outdoor recreational area to any project alignment is Harris Elementary School, which is about 500 feet from the Alternative B alignment and 800 feet from the Alternative C alignment, and Table 4-2 on p. 3-90 identifies other schools and daycare centers, one within 300 feet of Alternative B. We did not find the noise estimates for the interiors of the nearby schools in the Draft EIS or Noise Study Report.

Recommendation:
Identify the indoor and outdoor noise impacts at the nearby schools for the project alternatives. Compare these values with the State significance criteria identified in the Noise Report. Identify what mitigation measures would be appropriate.

Environmental Justice Analysis and Communities of Concern

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, directs each federal agency to make achieving environmental justice (EJ) part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. There is a growing body of evidence that low-income and minority communities are more vulnerable to pollution impacts than other communities, including deficits of both a physical and social nature that make the effects of environmental pollution more

burdensome.[1] Environmental justice concerns may arise from the potential human health, ecological, social, cultural, and economic impacts associated with a proposed project.

EPA is concerned that the EJ analysis did not fully account for the impacts to the remaining community, including identified EJ neighborhoods (Table 3.11), after the proposed relocations proceed. The Draft EIS does not address visual impacts and community disruption during the potentially prolonged partial relocation phase, with demolition and construction possibly being and implemented over a long timeframe. Caltrans should confirm no environmental justice impacts are anticipated in the remaining population not being relocated or, if such a confirmation is not possible, identify mitigation measures to alleviate anticipated impacts.

Also, the Draft EIS does not address the cumulative burden of a new highway facility for those communities of concern that may already be experiencing elevated environmental effects from their proximity to a major highway or arterial. In particular, the Preferred Alternative may create significant isolation for the community in Census Tract 18.01 Block Group 1 (Vol. 2, Figures 3-9b, 3-9c), between Real Road and State Route 99, as well as the "boxed in" area the DEIS (p. 91) identified west of South Real Road in Census Tract 28.12.

Recommendations:

Further discuss the impacts for the community in Census Tract 18.01/19.01 (Page 109), between Real Road and State Route 99, as well as the "boxed in" area the Draft EIS identified west of South Real Road in Census Tract 28.12. Identify how disproportionate impacts to these communities may be mitigated.

Identify mitigation measures for any additional direct and cumulative impacts, particularly any measures identified through renewed and continuous community engagement.

Analyze and disclose the impacts of the new corridor to the remaining population that will be adjacent to the new corridor, including visual impacts and limitation to connectivity via bicycle and pedestrian means.

Community Impacts during Relocation, Construction, and Operation

While EPA supports measures to minimize and mitigate impacts to communities of concern that are already provided in the Draft EIS, we believe further measures are also necessary to ensure that community cohesion is maintained and communities of concern are not disproportionately harmed by this project.

In particular, the *Draft Relocation Impact Report* and *Community Impact Analysis* both highlight Bakersfield's tight housing market, and as a result relocations will be protracted, and will likely cost more than statutory payment limits which taken together may present disproportionate impact to lower-income residents in the project area. Further, the Draft EIS does not address or propose mitigation for the impacts to pending relocation of residents and businesses during the protracted

1 EPA Symposium on the Science of Disproportionate Environmental Health Impacts, March 17 - 19, 2010. The fourteen scientific reviews commissioned by EPA and published in the American Journal of Public Health are listed on EPA's website: http://epa.gov/ncer/events/news/2011/10_25b_11_feature.html. The commissioned papers were published in the American Journal of Public Health in December 2011: http://ajph.aphapublications.org/toc/ajph/101/S1. See also EPA's Framework for Cumulative Risk Assessment: http://www.epa.gov/raf/publications/pdfs/frmwrk_cum_risk_assmnt.pdf

period between their neighbor's relocation, and their own, including what plan Caltrans has for managing property whose occupants have left the property, or what impacts may result from timely demolition of vacant properties.

Regarding accessibility and cohesion, once a new highway is in place, community responses to surveys highlighted the value they place in their ability to access community resources by foot. However, the Draft EIS does not sufficiently address the additional impact of lost access to parks, churches, retailers, and neighbors from the Build Alternatives. Recently, more focus is being afforded the idea of integrating multimodal and pedestrian transportation solutions, including the Caltrans Complete Streets Program, the Kern COG Draft RTP/SCS, and SB375 Framework Core Actions, which identify goals promoting pedestrian and bicycle connectivity, including "more walkable communities," "creating walkable neighborhoods," and "enhancing biking and walking within established communities". In addition, the HUD-DOT-EPA Partnership for Sustainable Communities was formed to help communities by providing more transportation choices, promoting equitable housing, supporting existing communities, and valuing communities and neighborhoods.

Recommendations:
Consider revising the housing stock analysis dated November 2011 to see what changes have happened to the market by 2014, and how that may change some of the relocation pressures identified in the *Draft Relocation Impact Report.*

Commit to continuous community involvement, and provide information on how the public will be involved in the development of the mitigation relocation plan and how the plan will be implemented. The Draft EIS (p. 446) states that six years have elapsed since initial outreach to minority and low-income populations. Please update future environmental documents to identify coordination that has occurred since that time, as well as any community input since the Preferred Alternative was announced.

Revise Mitigation Measure C-2 (Draft EIS p. 96) by providing a more robust strategy of the relocation/demolition/construction plan, with a goal of optimizing the maintenance of community character by limiting "piece-meal" parcel-by-parcel demolition/abandonment of properties. Address strategies for avoiding environmental justice impacts from implementation/compensation associated with the Relocation process, including timely demolition and management of vacant properties.

Review community cohesion concerns raised during previous public involvement to facilitate that identification of highest priority concerns and mitigation measures and use continuous community engagement to identify and mitigate likely visual/aesthetic and other community impacts during the protracted relocation, demolition, construction, and operation.

Include a comparison of walking distance and walking/bicycling access to parks, churches, retailers, school, and neighbor centers before and after the introduction of the new corridor for each alternative. Clearly indicate alternative routes, and distances, that will be required to access these areas once new alternatives are operational.

Consider additional bicycle/pedestrian connectivity measures, including vegetated and shaded recreational "decks" and overpasses to provide parkways and connections between communities that will be bisected and incorporate community input to identify access points for

maximum cohesiveness. EPA recommends Caltrans use the adopted National Association of City Transportation Officials (NACTO) *Street Design Guide* for effective shaded design to encourage continued community cohesion.

Coordinate with the High Speed Rail Authority for common community involvement in those areas that may experience impacts from both Centennial Corridor and High Speed Rail projects, especially as it pertains to relocation in similar markets.

Disclosing Noise Impacts

The Draft EIS contains extensive noise related impact analysis and associated conclusions regarding soundwall feasibility. While the DEIS acknowledges some unmitigated impacts, it does not fully disclose the noise levels that would not be mitigated where soundwalls were not found to be reasonable and feasible. The Preferred Alternative would leave some noise impacts unmitigated at levels well above the noise abatement criteria and possibly at levels that the Federal Interagency Committee on Urban Noise (FICUN) considers incompatible with residential land use. Examples of high noise levels include those represented by RB-16 (68 decibels (dB)), RB-46 (67 dB), RB-49 (69 dB), RB-69 (70 dB), RB-65 (71 dB), R99-12 and 13 (74 dB). Receivers R99-25 and R99-43C would experience a noise level of 75 dB, which is a high noise level. EPA indicates that hearing loss "may begin to occur in sensitive individuals, depending on actual noise levels received at-ear" at Day-Night Average Sound Levels (DNL) of 75 dB and has established a 75 dB level for an 8-hour exposure and 70 dB level for a 24-hour exposure as the average noise level standard requisite to protect 96% of the population from a greater than 5 dB permanent threshold shift (decrease in the ear's sensitivity or acuity to perceive sound)[2].

Recommendations:

EPA recommends that Caltrans include a more robust characterization of noise impacts for those areas that would still receive high noise impacts, even with recommended soundwalls or where soundwalls were not found to be reasonable and feasible. Estimate the population affected by utilizing census data and disclose the number of people who would experience significant outdoor noise levels under each alternative.

For the residential receptors receiving significant noise levels as identified in the Draft EIS after mitigation, discuss indoor noise levels that would likely be experienced considering the Noise Level Reduction (NLR) typical of the homes in the area, both with windows open and closed.

Identify the number of residences that would exceed the noise abatement criteria (Activity level D) for indoor environments (52 dB) and those exceeding EPA's recommended noise level of ≤ 45 dB for indoor residential areas. For those residences that would still experience significant noise levels, consider identifying mitigation measures to achieve an outdoor to indoor NLR equivalent to 25 dB (for noise from 65-70 dB) and 30 dB (for noise from 70-75 dB).

2 *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (EPA, 1974), p. 20. Available: http://www.nonoise.org/library/levels74/levels74.htm

Identify possible health effects that could be associated with the noise levels identified for the project after mitigation and consider committing to additional mitigation in light of potential health effects.

In addition to the Detailed Comments provided above, please consider the following recommendations regarding the accuracy and characterization of the air quality analysis in the Draft EIS and the Air Quality Study Report (AQSR):

Characterization of No Build Alternative
Table S.1 of the Draft EIS (p viii) states that the No Build Alternative is "Inconsistent with the long-term air quality plans (Regional Transportation Plan)". Page 33 of the Air Quality Study Report further states,

> "The No-Build Alternative would not implement the proposed project improvements; thereby, it would not result in any operational air quality impacts including the beneficial impact of congestion management which would result from the build alternatives. The No-Build Alternative is not consistent with regional goals and policies for improvement of air quality within the Basin and would not be consistent with the projected regional growth and the local government goals and policies for reduction of air quality emissions within its respective jurisdiction."

These statements are not substantiated and are misleading. The conclusion that the No-Build Alternative would not be consistent with local government goals and policies for reduction of air quality emissions in air quality plans assumes that no other options are available for reduction of emissions under the No-Build Alternative. In addition, the Regional Transportation Plan may show regional conformity with the No Build Alternative. Further, while congestion management may result in short term reduction of emissions, increased freeway capacity has also been shown to lead to longer term vehicle miles traveled (VMT) increases, which ultimately runs counter to regional goals for air quality improvement.

- Address the mischaracterization of the No Build Alternative, particularly with respect to air quality impacts.

General NAAQS comments
Table S.1 (p. viii) states that "predicted concentrations of 24-hour average" PM_{10} and $PM_{2.5}$ would be within applicable standards. This statement is misleading because concentrations of PM_{10} and $PM_{2.5}$ were not directly estimated in the Draft EIS or the supporting Air Quality Study Report.

- Please revise the reports to indicate that only total emissions of PM_{10} and $PM_{2.5}$ were estimated in the reports.

In several places, the Draft EIS (p. 221 and elsewhere) and the AQSR states that the federal 1-hour ozone standard is not applicable. While the federal 1-hour ozone standard has been revoked, the San Joaquin Valley remains in nonattainment for the 1-hour standard and Clean Air Act anti-backsliding provisions still require that the area develop an implementation plan for the 1-hour standard.

- Evaluate all possible contributions to 1-hour ozone NAAQS violations or delayed attainment for that standard.

The document states that "A qualitative analysis was done for particulate matter with a diameter less than 10 microns (PM_{10}) and fine particulate matter ($PM_{2.5}$). The modeling predicted concentrations of these air pollutants using a modeling protocol reviewed and approved by the Interagency Coordination Group (p. 116)" This statement suggests that a modeling protocol was approved and air quality dispersion modeling was conducted and results reported. A modeling protocol is typically done when quantitative air quality dispersion modeling is used to predict an actual ambient air quality concentration of PM_{10} or $PM_{2.5}$. However, as stated later in the DEIS and in the AQSR, only a qualitative analysis, displaying relative total regional emissions, was conducted for this project. No modeling protocol was approved and no predicted concentrations of air pollutants are included in the Draft EIS.

- Remove a conclusion that a modeling protocol was approved.

The document further states (p. 116) that "Results of the qualitative particulate matter and conformity analysis indicated that 24-hour average concentrations of particulate matter (PM_{10}) along the study area corridor would be less than the currently established applicable National Ambient Air Quality Standard. Concentrations of fine particulate matter ($PM_{2.5}$) along the study area corridor would not exceed no-build concentrations ...." Without quantitative modeling results, the document cannot explicitly reference modeling concentrations for different project alternatives.

- Please remove reference to modeling concentrations for different project alternatives in subsequent environmental analysis.

Under Federal 8-hour ozone standards, there is a very limited discussion of ozone impacts and ozone plans. The San Joaquin Valley Air Basin was classified as a "serious" nonattainment area for the federal 8-hour ozone standard on April 14, 2004, and was given an attainment deadline of June 15, 2013. On June 4, 2010, EPA approved the Basin's reclassification to "extreme" nonattainment. The San Joaquin Valley APCD has implemented an Ozone Attainment Demonstration Plan since 2004. The 2004 Ozone Plan, which addressed the 1-hour ozone standard was withdrawn by California in late 2012. In 2013, the State adopted a revised 1-hour ozone plan that demonstrates that the area will attain the 1-hour ozone standard by 2017. The currently approved 8-hour ozone plan is the 2007 plan which was adopted by the District Governing Board on April 30, 2007, and was approved by CARB on June 14, 2007.

- Revise the conclusions (p. 23) regarding the changes in ozone standards and applicability of different deadlines for plans and attainment.

The document should include more data on air quality trends (six years is preferable) and include more recent data than is shown on page 231 of the Draft EIS. Both 2012 and 2013 ambient air monitoring data are quality assured, certified, and readily available.

- Address the need for more recent and complete data on air quality trends.

Localized CO modeling was performed in conjunction with emission factors from the CARB emission factor model EMFAC2007 (p. 240).

- Use EMFAC2011 for future revisions to the CO hot spot analysis.

Re-entrained road dust

The Draft EIS indicates that re-entrained PM_{10} road dust was estimated using the emission factor equations provided in the Fifth Edition, Volume I of the EPA's AP-42 document, dated November 1, 2006 (p. 247). The equations in AP-42 were updated in January of 2011.

- Update the re-entrained road dust emissions using the 2011 version of AP-42.

It is not clear if re-entrained road dust, shown in Table 3.29 (p. 247), was based on the VMT for all 330 road segments and their associated VMT used to estimate the EMFAC2011 tailpipe, brake wear and tire wear PM_{10} emissions (presented in AQSR Table 4-5). The re-entrained road dust emissions in the document are less than 0.5% of the EMFAC emissions. This ratio is significantly smaller than the ratio of paved road dust to EMFAC emissions in the regional conformity analysis for Kern County. Even when rural roads are removed from the regional totals, paved road emissions are typically 40% of EMFAC emissions for freeway and arterial roadways. These emissions also increase with VMT.

- Include estimates of total VMT for each alternative used to estimate the emissions in AQSR Tables 4-5 and 4-6 and the corresponding parts of the Final EIS.

Characterization of Regional and Localized Emissions

The Draft EIS (p. 247) indicates that overall regional emissions decrease between the no- build and the alternatives in the year of 2038 and concludes that due to these decreases, "the project will not cause any new particulate matter violations or worsen existing particulate matter violations in the project area." However, the Draft EIS states that all build alternatives would result in an "overall increase in the truck and total volumes along the Centennial Corridor within the project limits (p. 247)." As with any project that results in increased truck traffic, local increases in emissions could contribute to localized elevated ambient concentrations, even with decreases in regional emissions.

- Clarify that the regional decreases and their impact on regional concentrations may not completely offset localized increases in particulate emissions.

As mentioned previously, construction of the Centennial project will be ending in 2018. Evaluation of whether the area has attained will be based on ambient data from 2017, 2018, and 2019. Given that the San Joaquin Valley APCD 2012 Plan shows attainment with no margin, even slight increases in ambient $PM_{2.5}$ concentrations around the Bakersfield-California Avenue monitor during the period 2017 to 2019 may make it difficult, if not impossible, for the area to show it has attained the standard. Potential increases in emissions in a year within this timeframe should also be evaluated.

- Revise subsequent environmental documents to ensure that they appropriately characterize the attainment challenges for the project area.