Response to Submission BO093 (Holly King, Wasco-Shafter Ag Group, October 19, 2012) - Continued

BO093-16

Section 3.3.8, Project Design Features, Air Quality and Global Climate Change, summarizes measures that would be implemented as part of the project to reduce dust emissions. These measures would avoid or minimize dust-related impacts on biological resources, including special-status plants (Impacts Bio #1 and #5), protected trees, and jurisdictional waters (Impacts Bio #3 and #7). Potential dust-related impacts on special-status plants and protected trees include a reduction in their photosynthetic capability (especially during flowering periods) and increased siltation, which would also have an adversely effect on jurisdictional waters.

BO093-17

Refer to Standard Response FB-Response-BIO-02, FB-Response-GENERAL-01.

BO093-18

In Section 3.7.8, NEPA Impacts Summary, of the Revised DEIR/Supplemental DEIS, Tables 3.7-18 through 3.7-20 summarize the intensity of the effects under NEPA. Later in that section, the overall effect of the HST project on biological resources is determined for each resource type by considering the intensity of the project's effects, the context in which these effects occur, and the measures implemented to mitigate the impacts of the project. The determinations made in this section are consistent with the determinations made in Section 3.7.9, CEQA Significance Conclusions, which summarizes the level of significance of the project under CEQA, after mitigation, to be less than significant, not insignificant.

BO093-19

Refer to Standard Response FB-Response-SO-01, FB-Response-AG-02.

Turnaround area for crops have not been included in the permanent agricultural land impacts, as the land would not be removed from agricultural production (note that the Farmland Mapping and Monitoring Program includes turnaround areas in its identification of agricultural lands); however, it is recognized that productivity would be lost as a result of the additional turnaround areas required. During the property acquisition process, losses in the value of the remaining property will be taken into account and the owner will be compensated for the loss in productivity.

BO093-19

In April 2013, the Authority reached an agreement with agricultural interests on mitigation of agricultural land impacts for the Merced to Fresno Section of the HST System (Authority 2013). Under that agreement, the Authority will acquire agricultural conservation easements for its impact on Important Farmland (i.e., land classified as prime farmland, farmland of statewide importance, farmland of local importance, and unique farmland) at the following ratios:

- Important Farmland converted to nonagricultural uses either by direct commitment of the land to project facilities or by the creation of remnant parcels that cannot be economically farmed will be mitigated at a ratio of 1:1.
- Where HST project facilities would create a remnant parcel of 20 acres or less in size, the acreage of that remnant parcel will be mitigated at a ratio of 1:1.
- An area 25 feet wide bordering Important Farmland converted to nonagricultural uses by project facilities (not counting remnant parcels) will be mitigated at a ratio of 0.5:1.

BO093-20

Refer to Standard Response FB-Response-SO-01, FB-Response-AG-04, FB-Response-AG-05, FB-Response-AG-06.

The Agricultural Working Group research has been prepared in conjunction with the Revised DEIR/Supplemental DEIS and supplements the information provided therein. A series of white papers was produced by this group on the topics identified in the comment and those were presented to the High-Speed Rail Authority Board in July 2012. The information contained in the white papers was considered during preparation of the Final EIR/EIS and is reflected in Standard Responses FB-Response-AG-04, Severance – Farm Impacts; FB-Response-AG-05, Pesticide Spraying/Dust/Pollination; and FB-Response-AG-06, Confined Animal Facilities. The final white papers are available on the Authority's website. This is not deferral of analysis because that analysis has been considered and referenced in the Final EIR/EIS.

BO093-21

Refer to Standard Response FB-Response-SO-01, FB-Response-AG-01.

Response to Submission BO093 (Holly King, Wasco-Shafter Ag Group, October 19, 2012) - Continued

BO093-21

The Authority will compensate land owners at a fair market value for loss or disruptions to their operations during the right-of-way acquisition process. Land that is used temporarily will be returned to its previous state once the construction process is complete.

BO093-22

Refer to Standard Response FB-Response-AG-05.

The Authority formed an agricultural working group to assist the Authority on agricultural issues. The working group is composed of representatives from universities, government agencies, and agri-business. The group completed a white paper on pesticide use impacts in 2012 (this paper is on the Authority's website). That white paper reports there would be no need for new spraying regulations around the HST, as it would be treated like any other transportation corridor.

The white paper "Induced Wind Impacts" examined the potential for airflow from the train to create wind. It found that the induced wind speed would be 2.3 miles per hour at 30 feet from the train. This distance is well within the right-of-way of the system, so induced wind at the edge of the right-of-way would be very small. Note that HST trainsets are very streamlined and applicable and are not directly comparable to the wind effects of a typical freight train, even at higher speed. The typical HST trainset is sealed, with windows that cannot be opened, and no gaps between cars. If pesticide applicators apply pesticides near the HST in accordance with the existing regulations there should be no liability. If they fail to meet those regulations, the applicator would be liable for damages.

Statements regarding the termination of aerial application of pesticides within 0.25 mile of the HST alignment are an oversimplification of the aerial application process. To conduct aerial applications of pesticides, each farm must submit an application to its respective County Agricultural Commissioner, detailing what types of pesticide they are proposing to spray. It is after receiving this information that the Agricultural Commissioner places restrictions on the farm's application of pesticides. These restrictions include, but are not limited to: buffer zones, aerial spraying height restrictions, mesh size limits, and wind speed restrictions. When creating these

BO093-22

restrictions, the Agricultural Commissioner is looking at nearby sensitive receptors (transportation corridors, houses, business, etc.), the proposed pesticides to be sprayed (different pesticides have different spraying restrictions based on the manufacturer's approved application rates), and several other factors that may influence environmental effects of pesticide application. As there are a large number of factors that influence the possible restrictions placed on aerial application of pesticides, an absolute statement of no spraying within 0.25 mile is not reasonable. Several options are available to farmers so they may not have new spraying restrictions placed on them by their Agricultural Commissioner. For example, the farmer could change the pesticides they are proposing to use that have fewer restrictions; they could also plant a different variety of crops near the HST that does not require the application of pesticides with spraying restrictions.

The Authority recognizes that possible changes to current spraying practice from the HST may reduce the productivity of a farmer's remaining property. Those possible impacts would be taken into account by the appraiser at the time of right-of-way acquisition and any diminution in value to a property owner's remaining parcel(s) will be estimated by the appraiser through the appraisal process. This involves appraising the remainder as it contributes to the whole property value before acquisition, then appraising the remainder parcels in the after condition as separate parcels as though the project was constructed, and including any estimated damages to the remainders, such as, cost of re-establishing irrigation systems, replacing wells, providing buffers for aerial spraying, etc. The difference between these "before" and "after" values is called severance damages and will reflect any loss in value to the remainder parcels due to the construction in the manner proposed.

Land that may be affected by new aerial application restrictions would still be used by the farmer for agricultural purposes, as would new turning areas at the end of crop rows. Therefore, there is no conversion of agricultural land from project impacts to current aerial spraying practices; however, it is an economic hardship in terms of reduced production for remaining parcels of a farm. As is the case with removing land planted in crops for use as equipment turning lanes, the need to provide a buffer for crop spraying will be analyzed and addressed at the appraisal stage with input from the property owners and managers, and experts in the field.

Response to Submission BO093 (Holly King, Wasco-Shafter Ag Group, October 19, 2012) - Continued

BO093-22

As a result of implementation of existing regulations on ground and aerial application of pesticides and herbicides there is no potential for the project to adversely affect human health to a greater extent than existing conditions. Further, even if changes are necessary in current ground or aerial application approaches for a particular site, such changes will not result in the conversion of agricultural land. Therefore, the project will not have an adverse effect.

In April 2013, the Authority reached an agreement with agricultural interests on mitigation of agricultural land impacts for the Merced to Fresno Section of the HST System (Authority 2013). Under that agreement, the Authority will acquire agricultural conservation easements for its impact on Important Farmland (i.e., land classified as prime farmland, farmland of statewide importance, farmland of local importance, and unique farmland) at the following ratios:

- Important Farmland converted to nonagricultural uses either by direct commitment of the land to project facilities or by the creation of remnant parcels that cannot be economically farmed will be mitigated at a ratio of 1:1.
- Where HST project facilities would create a remnant parcel of 20 acres or less in size, the acreage of that remnant parcel will be mitigated at a ratio of 1:1.
- An area 25 feet wide bordering Important Farmland converted to nonagricultural uses by project facilities (not counting remnant parcels) will be mitigated at a ratio of 0.5:1.

BO093-23

This discussion of which alternative affects more acres has been revised in the Final EIR/EIS (see Section 3.14 of the Final EIR/EIS). The revision, amounting to 16 acres or 2.3% of 667 acres, is not a substantial change in the EIR/EIS and does not substantially alter any conclusions in the EIR/EIS.

BO093-24

Refer to Standard Response FB-Response-GENERAL-02, FB-Response-GENERAL-20, FB-Response-AG-01.

The landowner is responsible for compliance with the Subdivision Map Act. However, the Authority will assist the landowner in meeting the requirements of the Subdivision Map Act and local subdivision ordinance. These requirements are typically expected to involve issuance of a certificate of compliance or approval of a lot line adjustment by the applicable county. Depending on the circumstances of the specific acquisition, the Authority may also provide compensation for the cost of Subdivision Map Act compliance.

BO093-24

Evaluating a project that is at a 15% level of design is not "piecemealing." The HST project would be a “design-build” project. That is, the project design would be completed by the contractor who would be chosen to build the project. The Authority and FRA have prepared a project-specific EIR/EIS analyzing the potential environmental consequences of a refined set of alternative corridor alignments and stations along this section based on that level. This project EIR/EIS contains significantly more detail than was available at the first-tier Program EIR/EIS. At the time the Draft EIR/EIS was released for public review in August 2011, the Fresno to Bakersfield Section had reached the 15% level of design. The Final EIR/EIS represents a 15% to 30% level of design. The term "15% design" is an engineering term of art that refers to the level of engineering prepared on HST project elements for the EIR/EIS. The 15% design generates detailed information, like the horizontal and vertical locations of the track, cross sections of the infrastructure with measurements, precise station footprints with site configurations, and temporary construction staging sites and facilities. The 15% design also yields a "project footprint" overlaid on parcel maps, which shows the outside envelope of all disturbance, including both permanent infrastructure and temporary construction activity. This 15% design translated into a project description in the EIR with 100% of the information that is required under CEQA Guidelines Section 15147. In larger transportation infrastructure projects, consistent with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), the environmental analysis process occurs before completion of final design; this is common practice in projects using a design/build process for construction.

This approach conforms to Section 1501.2 of the CEQA’s regulations implementing NEPA, which does not require full design to complete an EIS but rather states that “[a]gencies shall integrate the NEPA process with other planning at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts” (40 Code of Federal Regulations

Response to Submission BO093 (Holly King, Wasco-Shafter Ag Group, October 19, 2012) - Continued

BO093-24

[CFR] 1501.2). Similarly, the CEQA Guidelines indicate that environmental analysis "should be prepared as early as feasible in the planning process to enable environmental considerations to influence project program and design and yet late enough to provide meaningful information for environmental assessment" (14 California Code of Regulations [CCR] 15004). As provided in the CEQA Guidelines, the level of detail in the environmental analysis is to "correspond to the degree of specificity involved in the underlying activity which is described in the EIR" (14 CCR 15146). The EIR/EIS is based on the level of engineering and planning necessary to identify potential environmental impacts and to identify the appropriate mitigation measures.

BO093-25

Refer to Standard Response FB-Response-SO-01, FB-Response-AG-04.

BO093-26

When the Draft EIR/EIS was released for public review in August 2011, the Fresno to Bakersfield Section design was based on preliminary engineering. The Revised DEIR/Supplemental DEIS design is also based on preliminary engineering, using the most current positioning data available at the time. Also, provisions in the HST construction contract will require that the Design/Build Contractor coordinate with and obtain approval from all utility service providers and the owners/operators of affected energy resource infrastructure.

Section 3.6, Public Utilities and Energy, of the EIR/EIS acknowledges that the Wasco-Shafter Bypass would avoid the oil storage tank facility; however, a number of oil wells would be replaced within large existing tracts. The cost for well decommissioning and replacement would be borne by the Authority, and the effect on the capacity or viability of the petroleum resource and industry extraction operations relative to public utilities and energy was determined to be less than significant.

BO093-27

There is substantial oil drilling activity in the Wasco-Shafter area. As of October 2012, the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources online database recorded 14 active wells within 210 feet of the centerline of the Wasco-Shafter Bypass Alternative. One of these wells is a water disposal well.

It is estimated that relocation of an oil well would cost from $3 to $5 million. Based on the higher estimate, replacing all 14 wells would cost approximately $70 million. As shown in Chapter 5 of the Revised DEIR/Supplemental DEIS, the cost of the BNSF Alternative (Alternative 1 in Table 5.2-1) is approximately $300 million more than the BNSF Alternative using the Wasco-Shafter Bypass (Alternative 8 in Table 5.2-1).

BO093-28

Refer to Standard Response FB-Response-GENERAL-02, FB-Response-GENERAL-04, FB-Response-AG-01.

The Authority does recognize that the loss of farmland cannot be fully mitigated, and as such has been classified as a significant and unavoidable impact. Refer to Impact AG #4 for information on the permanent conversion of agricultural land and Mitigation Measure AG #1 in Section 3.14.7 for measures to preserve the total amount of prime farmland.

BO093-29

Refer to Standard Response FB-Response-SO-01, FB-Response-AG-02, FB-Response-AG-03, FB-Response-AG-04.

The land acquisition process occurs before construction. It is during this phase that the Authority's right of way agent will work with individual land owners to mitigate impacts from both construction and operation of the HST. During this phase, wells and other agricultural infrastructure may need to be modified or newly built so as to minimize impacts from the construction and operation of the HST. Before land acquisition occurs and HST construction begins, the farm owner would have time to build or modify the farm's infrastructure so as to minimize impacts to farm operations. The specific actions and compensation will be determined on a case-by-case basis, depending on the characteristics of the particular land/operation being affected. As a result, describing the specific results prior to the acquisition process is not reasonably possible.

Response to Submission BO093 (Holly King, Wasco-Shafter Ag Group, October 19, 2012) - Continued

BO093-30

Refer to Standard Response FB-Response-GENERAL-02, FB-Response-AG-02, FB-Response-TR-02.

As discussed in the Standard Response General-02, equipment is not expected to have to move significant additional distances to cross the HST line.

Submission BO094 (Nora Weber, Weber Insurance Agency, October 18, 2012)

CALIFORNIA High-Speed Rail Authority

Comment Card
Tarjeta de Commentarios

Fresno to Bakersfield High-Speed Train Section
Revised Draft Environmental Impact Report/ Supplemental Draft Environmental Impact Statement (Revised Draft EIR/Supplemental Draft EIS)

La Sección de Fresno a Bakersfield del Tren de Alta Velocidad
Proyecto Revisado de Informe de Impacto Ambiental/ Declaración de Impacto Ambiental Proyecto Suplementario (Proyecto Revisado EIR/Proyecto Suplementario EIS)

Please submit your completed comment card at the end of the meeting, or mail to:
Fresno to Bakersfield Revised Draft EIR/Supplemental Draft EIS Comment, 770 L Street, Suite 800, Sacramento, CA 95814

Por favor entregue su tarjeta completada al final de la reunión, o envíela por correo a la siguiente dirección:

The comment period is from July 20 to September 20, 2012. Comments must be received electronically, or postmarked, on or before September 20, 2012.

El período de comentario es del 20 de Julio al 20 de Septiembre del 2012. Los comentarios tienen que ser recibidos electrónicamente, o matasellados, el o antes del 20 de Septiembre del 2012.

Name/Nombre: NORA WEBER
Organization/Organización: WEBER INSURANCE AGENCY
Address/Domicilio: 303 18TH ST.
Phone Number/Número de Teléfono: 661-861-9829
City, State, Zip Code/Ciudad, Estado, Código Postal: BAKERSFIELD, CA. 93301
E-mail Address/Correo Electrónico: NORA1039@SBCGLOBAL.NET
(Use additional pages if needed/Usar paginas adicionales si es necesario)

BO094-1 my building was built in 1917. Raised foundation, hard wood floors & wood siding. You have not addressed the fact that wood carries sound and that wood is more flexible and will viberate. This will cause my property not to have any value due to its location close to the track.

BO094-2 Consequently - - -

The movement of the air space around the speed train, verses the speed of movement, verses the distance the viberation will travel - will determine the loss/damage to the quite & peaceful use of my property.

Please provide a distance ratio and a provision to compensate me.

Response to Submission BO094 (Nora Weber, Weber Insurance Agency, October 18, 2012)

BO094-1

Refer to Standard Response FB-Response-N&V-04, FB-Response-SO-02.

For information on potential HST project impacts on property values, see section 5.4.4.3 in the *Fresno to Bakersfield Section: Community Impact Assessment Technical Report* (Authority and FRA 2012h).

BO094-2

Refer to Standard Response FB-Response-N&V-03, FB-Response-N&V-04, FB-Response-N&V-05, FB-Response-SO-02.

Submission BO095 (Barry Cockerham, Weir Floway, Inc., October 18, 2012)

Weir Floway, Inc.

2494 S. Railroad Avenue
Fresno, CA 93707

Tel: +01 (559) 443 6488
Cell: +01 (559) 250 6719

www.weirminerals.com

From the office of:
Barry Cockerham - President

October 18, 2012

California High Speed Rail Authority
Fresno to Bakersfield Revised Draft EIR/Supplemental Draft EIS Comments
770 L Street, Suite 800
Sacramento, CA 95814

Subject: Comments to Fresno to Bakersfield Revised Draft EIR/Supplemental EIS Comments
2494 Railroad Avenue Fresno California

To whom it may concern:

This letter contains comments to the Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement: Fresno to Bakersfield (EIR/EIS) from Weir Floway Inc. (Floway). As described in more detail below, Floway operates a pump manufacturing business at 2494 South Railroad Avenue in Fresno California. Past use of the property (by others) has resulted in contaminated soil and groundwater which is being remediated under an order issued by the California Environmental Protection Agency Department of Toxic Substances Control (DTSC). The California High Speed Rail line (HSR) and associated right of way intersects the entrance to the Floway Fresno business, will cause the elimination of a number of plant buildings and it will cause the need to develop new access and restructuring of our manufacturing process flow. The HSR line will also eliminate a number of facilities installed for remediation of soil and groundwater under the DTSC order. Substantial planning, engineering and construction will need to occur before the California HSR Authority takes the property in front of this facility so as not to negatively disrupt the business or create risk by compromising the environmental remediation equipment. Our comments to the EIR/EIS are provided below divided into two topics: 1) Comments regarding the Floway facility and pump manufacturing business; and 2) Comments regarding the environmental cleanups being conducted under the DTSC order.

Comments Regarding Floway Facility and Pump Manufacturing Business

BO095-1

The property at 2494 South Railroad Avenue is an active Floway Pump manufacturing business that employs 150 people. The planned HSR right of way intersects and eliminates the four front entrances to the plant (A, B, C and D on the attached figure) on Railroad Avenue and will require the demolition of the administrative office and the information systems (IS) building (1 and 2 on attached figure). New entrances to the plant with access and egress lanes will need to be constructed on the west side of the plant along Golden State Boulevard. To access with large vehicles and materials one or more of the large warehouse buildings on the east side of the plant will need to be moved or demolished and replaced. To support the plants manufacturing process flow, now with entrances on the west and southwest instead of the east and northeast, at least one building will need to be demolished and reconstructed further south on the property. In order to provide adequate room for the additional structures the storm water pond may need to be backfilled and the storm water collection capacity will need to be replaced. All utilities located now along Railroad Avenue will also need to be replaced provably along Golden State Boulevard. Finally, one of the greatest challenges for this property will be for all of these facility changes to be put in place before the right of way is taken by HSR so that the Floway business does not lose productivity or have substantial downtime as a result of the HSR construction. Individual comments follow.

BO095-1

BO095-2

1. As shown on the attached map, the IS building is eliminated by the HSR right of way (Building 1). These systems are critical to the Floway business and the systems contained in this building will need to be relocated before this portion of the right of way is taken and the building is destroyed. One alternative is to locate the IS function in the new or expanded administrative building described below.

BO095-3

2. As shown on the attached map, the front portion of the administrative building is eliminated by the HSR right of way (Building 2). This is a very active and necessary part of the Floway business and this building will need to be replaced before this portion of the right of way is taken and the building is destroyed. It is unclear now if this building can be redesigned to allow a second floor to be constructed to replace the space eliminated by HSR. If this is not possible a new administrative building may need to be constructed on the southern portion of the site.

BO095-4

3. With subsurface construction along Railroad Avenue the proposed alignment will impact on-site subsurface infrastructure such as storm drains, the sewer lines, water supply lines, natural gas lines, electrical lines, and communication lines relied upon for plant operation. Utility lines along Railroad Avenue will likely need to be replaced on the west side of the site along Golden State Boulevard.
   a. The sewer lines are used for discharge of onsite waste water both from personnel use and from plant operations under a permit with the City of Fresno. A new discharge point will need to be constructed and connected before the current line is eliminated.

BO095-5

   b. The storm drain is used for the discharge of Site storm water. A new discharge point will need to be constructed and connected before the existing line is eliminated.

BO095-6

   c. Power, gas and telecommunications lines are used for all plant activities and these lines will need to be replaced and connected to the systems before the current lines are eliminated.

BO095-7

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Submission BO095 (Barry Cockerham, Weir Floway, Inc., October 18, 2012) - Continued

BO095-8

4. Plant deliveries which include semi-truck loads of 40-foot long steel need to be able to access the Fabrication Shop (Building 4). Without access from Railroad Avenue this will not be possible. One alternative is to relocate the Test Laboratory (Building 3) so that these large loads can access the Fabrication Shop from the intersection of Golden State Avenue and East Avenue (Location E). The Test Laboratory could be relocated to the southern portion of the site perhaps in the area of the current storm drain pond to be outside of the contaminated soil on Parcel 18 on the southern part of the property. This building contains a test pit which would avoid contaminated soils if installed in this area.

BO095-9

5. If the storm drain pond area is used for the relocation of other plant facilities, storm water will need to be routed to another location. Since the storm drain needs to be relocated along Golden State Boulevard, plant storm water runoff would likely need to be discharged to this line.

BO095-10

6. Building 5 on the attached map will need to be removed to allow access to the site from Golden State Boulevard and to allow proper access to this building. This building houses inventory control (raw and semi-finished pump components) and assembly, paint and shipping and receiving. This building has the only shipping dock on the site where large material can be loaded onto tractor trailers. A tractor cannot access the loading dock if the Railroad Avenue side of the plant is eliminated. A potential new location for this building would be south of the Machine Shop (Building 8) along the HSR right of way.

BO095-11

7. Building 6 is a self-contained paint booth and with limited access from the East due to the closure of Railroad Avenue this building would need to be replaced to the south of the inventory control building.

BO095-12

8. Employee parking is located south of the Machine Shop along the east side of the site for access from Railroad Avenue. Access to this area will be eliminated with the HSR and as described above this area will need to be used for the new inventory control building. Employee parking would need to be relocated on Parcel 18 in the area of the engineered cover. The engineered cover may need to be enhanced to facilitate this use.

BO095-13

9. New access and egress lanes would need to be constructed along Golden State Boulevard for plant personnel and plant deliveries and shipments. Locations E, F, G and H are proposed as access gates to facilitate plant deliveries (E and F), shipping and receiving (F and G) and personnel parking (G).

BO095-14

10. As described above, the location of all of the plant functions will need to be assessed as part of the HSR project access changes to optimize use and minimize material handling. If the current concept with the Fabrication Shop (building 4), Machine Shop (building 8) and Maintenance Building (building 9) remain in the current locations.

BO095-15

BO095-16

BO095-17

BO095-18

BO095-19

BO095-20

BO095-21

BO095-22

BO095-23

BO095-24

BO095-25

BO095-26

BO095-27

Comments Regarding Environmental Issues at the Property

Floway and The Vendo Company are under Imminent and Substantial Endangerment Determination and Remedial Action Order, Docket No. I&SE 99/00-001[1] with the DTSC for ongoing soil and groundwater cleanup activities at the Site. The current proposed alignment of the Fresno Subsection of the Fresno to Bakersfield route (Alignment) (see Sheet 9, Sta. 373+00 to 401+00, Alignment F1in Volume III, Section A Alignment Plans Part 1 of 2) directly intersects/eliminates numerous structures, groundwater extraction and monitoring wells, and engineered covers at the Site installed as part of the Order. Our comments regarding how these impacts effect the HSR construction project are presented below.

1. Parcels 12 and 13 in the central portion of the Site were previously used as an oil refinery and distribution facility in the early 1900s and an asphalt company through the 1970s. Hydrocarbon impacts in soil have concentrations that range from below detection to 17,000 milligrams per kilogram (mg/kg) in the upper 35 feet below ground surface (bgs). Hydrocarbon impacts have affected more than 2.5 acres and extend to depths of approximately 55 to 60 feet (bgs). The case regarding these impacts was closed by the Central Valley Regional Water Quality Control Board (CVRWQCB) in 1999 with completion of an engineered cover or cap across Parcel 12/13, which remains in place today.
    a. All work in this area needs to be approved by DTSC.
    b. Hydrocarbon impacted soil will be encountered to the maximum depth excavated by HSR construction in the central portion of the Site.
    c. Contact with hydrocarbon soil represents a risk to the HSR construction workers.
    d. HSR construction workers will require proper training and personal protective equipment for work in this area.
    e. These soils will require proper management and handling during construction and disposal.
    f. The hydrocarbons in the soil may have a significant impact on soil compaction in this area.
    g. The cap allowing closure of this area will need to be made part of the design and replaced during construction of the HSR.
    h. The cap design will need to integrate into the design of the cap on the remainder of the property.
    i. The Land Use Covenant on the property requires long-term maintenance (30 years plus) of the engineered cover and management and reporting related to the hydrocarbons soils long-term.
    j. The DTSC requires a financial assurance account to cover the long-term maintenance of the cap in this area.

2. Parcel 18 was operated by the Vendolator Manufacturing Company and the Vendo Company from the late 1930s to the early 1960s. TCE and chromium

[1] DTSC, 1999. Imminent or Substantial Endangerment and Determination and Remedial Action Order, Railroad Avenue Site, Docket No. I&SE 99/00-001, Fresno, California, October 1999.

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Submission BO095 (Barry Cockerham, Weir Floway, Inc., October 18, 2012) - Continued

BO095-27

impacts remain in soil beneath Parcel 18 on the southern portion of the Site that will likely be intersected by HSR construction. TCE and chromium impacts to soil have been addressed by the installation of an engineered cover on Parcel 18.

a. All work in this area needs to be approved by DTSC.
b. Chromium and TCE impacted soil will be encountered during the HSR construction on the southern portion of the Site.
c. Contact with chromium and TCE impacted soil represents a risk to the HSR construction workers.
d. HSR construction workers will require proper training and personal protective equipment for work in this area.
e. Chromium and TCE impacted soil will be encountered by activities associated with construction of the HSR.
f. These soils will require proper management and handling during construction.

BO095-28

g. The cap allowing closure of this area will need to be made part of the design and replaced during construction of the HSR.

BO095-29

h. The Land Use Covenant on the property requires long-term maintenance of the engineered cover and management and reporting related to the chromium and TCE soils long-term.

BO095-30

i. The DTSC requires financial assurance to cover the long-term maintenance of the cap in this area.

BO095-31

3. TCE and dissolved chromium impacts to groundwater exist below most of the Site. A groundwater extraction system consisting of four active groundwater extraction wells has been used to address the impacts to groundwater since 1995. Two of the active groundwater extraction wells and many groundwater monitoring wells will be directly impacted by HSR project activities.

a. Before this equipment is impacted a plan must be developed with the DTSC.

BO095-32

b. The groundwater extraction and monitoring wells impacted by the project will need to be properly abandoned according to City of Fresno and California Department of Water Resources standards.
c. In order to maintain compliance with the Order, the extraction and monitoring wells and the associated piping will need to be replaced outside of the immediate right of way of HSR.
d. Replacement and additional extraction wells will also need to be installed such that total capture of groundwater impacts is achieved. Modeling, design, construction, and evaluation will be required as part of the extraction well replacement.
e. The telemetry and other system operations will need to be upgraded to facilitate the changes.
f. Operational costs of the system will be greater as the new wells will not be in the optimal location to achieve capture it may require a longer duration of operation to achieve cleanup. These costs may include purchasing additional capacity from the POTW.

BO095-32

g. The proposed alignment will also impact groundwater extraction system conveyance piping to the sewer main, electrical lines, and communication lines. Groundwater that is extracted from the groundwater extraction system is discharged to the City of Fresno sewer main for subsequent treatment at the City of Fresno Water Treatment Facility. These subsurface conveyance structures will need to be relocated and reconfigured in order for the groundwater extraction system to maintain functionality.

BO095-33

4. The Parcel 12/13 Cap was installed in 1997 and covers approximately 11 acres of Parcels 12 and 13, where hydrocarbon impacts remain, and Parcel 19. This Cap has been engineered to prevent surface water infiltration from contacting subsurface soil, thereby limiting the potential for mobilization of hazardous substances to groundwater. The alignment directly intersects/eliminates portions of the Parcel 12/13 Cap at the Site.

a. The DTSC needs to be notified before this area is disturbed.

BO095-34

b. Based on the proposed right-of-way alignment, 1 acre of the Parcel 12/13 Cap will be removed and will need to be replaced with an engineered cover.
c. The cover will need to be designed and integrated into the cover on the remainder of the property.

BO095-35

d. Provisions stated in the Site Operation and Maintenance Plan (OMP)[2] requires that the Cap will be monitored and maintained until at least 2040.
e. Monitoring and maintenance of the Parcel 12/13 Cap is to include annual inspections conducted by facility personnel, resurfacing approximately every 5 years or as-needed, and inspections conducted by DTSC every 5 years.

BO095-36

f. The DTSC requires financial assurance to cover the long-term maintenance of the cap in this area.

BO095-37

5. The Parcel 18 Cap was installed in 2009 and covers approximately 3 acres of the southern part of the Site where TCE and chromium impacts remain. This Cap has been engineered to prevent surface water infiltration from contacting subsurface soil, thereby limiting the potential for mobilization of hazardous substances to groundwater. The alignment directly intersects/eliminates portions of the Parcel 18 Cap at the Site.

a. The DTSC must be notified when this area is disturbed.
b. Based on the proposed right-of-way alignment, 1 acre of the Parcel 18 Cap will be disturbed and will need to be replaced.

BO095-38

c. Provisions stated in the Site Operation and Maintenance Plan (OMP)[3] requires that the Cap will be monitored and maintained until the year 2040.

[2] AMEC Geomatrix, 2011, Operation and Maintenance Plan, Railroad Avenue Site, Fresno, CA, January 14.
[3] AMEC Geomatrix, 2011, Operation and Maintenance Plan, Railroad Avenue Site, Fresno, CA, January 14.

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Submission BO095 (Barry Cockerham, Weir Floway, Inc., October 18, 2012) - Continued

BO095-39

d. Monitoring and maintenance of the Parcel 18 Cap is to include annual inspections conducted by facility personnel, resurfacing approximately every 5 years or as-needed, and inspections conducted by DTSC every 5 years.

BO095-40

e. When construction of the HSR begins at the Site, necessary actions will need to be taken in order to either preserve the existing cap or to replace the function of the existing Cap in the area where it is disturbed.

BO095-41

f. The DTSC requires financial assurance to cover the long-term maintenance of the cap in this area.

BO095-42

6. The proposed alignment will also impact on-site subsurface infrastructure such as storm drains, the sewer lines, water supply lines, electrical lines, and communication lines relied upon for the environmental project.
   a. The sewer lines are used for discharge of contaminated water under a permit with the City of Fresno. A new discharge point will need to be constructed and connected before the current line is eliminated.
   b. The storm drain is used for the discharge of Site storm water. A new discharge point will need to be constructed and connected before the existing line is eliminated.
   c. Power and telecommunications lines are used for the environmental systems and these lines will need to be replaced and connected to the systems before the current lines are eliminated.
   d. Portions of these utilities intersect contaminated soils, therefore comments related to the intersection of contaminated soils provided above apply.

BO095-43

7. The OMP requires the Parcel 12/13 Cap and the Parcel 18 Cap to be monitored and maintained until the year 2040.
   a. This includes inspection by internal personnel every year, resurfacing (as needed) every five years, and inspection by DTSC every five years.
   b. The OMP further states that remedial activities (i.e. groundwater extraction and long-term monitoring) at the Site are estimated to be complete by 2017. This schedule may be extended further based on the modifications necessary to accommodate the HSR construction.
   c. Cap monitoring and maintenance must be continued to ensure the existing Caps and any reconfigured features continue to perform the required function.
   d. Operations and maintenance obligations will need to either be transferred to CHSRA, or sufficient replacement equipment (i.e. monitoring and extraction wells) and access must be granted for Floway/Vendo to conduct necessary operations and maintenance activities.

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BO095-44

8. DTSC issued a Land Use Covenant (LUC)[4] which restricts land use at the property and is filed with the County of Fresno Assessor's office.
   a. The LUC identifies prohibited uses and activities of the Site.
   b. The LUC requires the appropriate management of disturbed soils and non-interference with caps and groundwater extraction wells and monitoring wells systems.
   c. The LUC "runs with the land" that the CHSRA will acquire to construct the HSR through the Site.
   d. HSR will need to comply with the restrictions and requirements of the LUC.

BO095-45

9. The proposed alignment will require significant financial expenditures to maintain functionality of impacted facilities including the existing groundwater extraction systems and groundwater monitoring well network.
   a. We anticipate 17 wells will need to be abandoned at a cost of approximately $174,000, including permitting fees, subcontractor fees, and oversight. These wells, including three extraction wells and 13 groundwater monitoring wells will need to be replaced at a cost of approximately $1,004,000.
   b. Costs incurred to replace the existing groundwater extraction systems and monitoring wells includes the preparation of design plans, obtaining DTSC approval, permitting fees, subcontractor fees, material costs, installation of conveyance utilities, oversight, and reporting activities. In total, the cost to replace the existing groundwater monitoring well network and groundwater extraction system is expected to be in excess of $1,178,000. These costs are required to maintain capture of impacted groundwater and remain in compliance with existing environmental orders, plans, and covenants.
   c. Additional costs will be incurred from new building construction, replacement/repair of impacted surface caps, and reconfiguration of the Site utilities, including storm drains, sewer, water supply, and electrical utilities.

BO095-46

10. In addition to the costs discussed above, further costs have been and continue to be incurred as Floway cooperates and coordinates with the CHSRA in advance of planned acquisition activities.

BO095-47

11. Storm water will need to be controlled in the HSR right of way. Currently, Site storm water drains internally and to the storm water pond on the south side of the Site. The storm water pond cannot accommodate additional flows from the HSR and this pond may need to be eliminated as part of new Site access. A new storm water plan will need to be developed for the Site and the appropriate infrastructure installed to take these flows.

[4] DTSC, 2011. Covenant to Restrict Use of Property, Environmental Restriction, Railroad Avenue Site, Fresno, California, November, 2011.

Submission BO095 (Barry Cockerham, Weir Floway, Inc., October 18, 2012) - Continued

BO095-48

12. To minimize impacts to existing Site structures, infrastructure, and environmental features, we suggest the CHSRA consider the use of shoring to narrow the right-of-way and limit the size of excavation. Narrowing the right-of-way as much as possible and reducing the excavation area is an environmentally superior option when compared to a wider and larger excavation area which will most certainly increase the volume of impacted soil encountered during construction activities. Additionally, the use of shoring for this purpose may also allow for some of the existing groundwater extraction and monitoring wells to remain in place, where groundwater capture is known to be effective.

BO095-49

13. To minimize impacts to the existing Site structures, infrastructure, and environmental features, we suggest the CHSRA consider building a retaining wall on the east side of the HSR track to protect against potential failures on the existing Southern Pacific line and move the line further east of the currently proposed alignment. Moving the line further east also presents an environmentally superior option compared to the existing alignment which will encounter contaminated soil and require the abandonment and replacement of existing groundwater extraction wells and monitoring wells.

BO095-50

14. The overall timing and schedule of acquisition and replacement of impacted Site structures, infrastructure, and environmental systems is critical in order for the facility and environmental systems to maintain functionality. Prior to the acquisition of the CHSRA right-of-way and any other associated activities, utilities (including sewer, water, electricity, communication, etc.) must be replaced.

BO095-51

15. The CHSRA should be aware that the abandonment and replacement of groundwater extraction and monitoring wells must be approved by the DTSC and the City of Fresno prior to the acquisition of the right-of-way. Furthermore, the groundwater system cannot be down for more than one week in order to maintain hydraulic control of the impacted groundwater plume beneath the Site.

BO095-52

16. The CHSRA should also be aware that any disturbance to the existing engineered caps and underlying soils must be approved by the DTSC. The DTSC requires work plans and other formal documentation before and after conducting work.

BO095-53

17. The following are corrections to inaccuracies in the Technical Report:
    a. Section 5.4 of the Technical Report, Site 59, South Fresno Regional Groundwater Plume, states that Floway and Vendo are the responsible parties for OU1. Floway/Vendo are responsible for the cleanup and remediation associated with the dissolved chromium and TCE concentrations in groundwater under OU1; however, Floway and Vendo are not responsible for the PCE and TCE degradation products present in groundwater in OU1and the Technical Report needs to be revised for accuracy.

BO095-53

BO095-54

    b. The Remedial Investigation Report, Operable Unit #1 (OU1 RI Report)[5] states that the "PCE plume in the western portion of OU1 . . . appears to be from a different source than the plume consisting primarily of dissolved chromium" and TCE. This source is considered to be to the west or southwest of OU1 and is currently under investigation by DTSC. The Former FMC Corporation Site 40 is believed to be the main sources of pesticides, particularly 1,2,3-TCP, found in OU1. The Technical Report should be revised to make it clear that PCE impacts to OU1 are attributable to an unidentified source; the Former FMC Corporation Site 40 is the source of pesticide impacts to OU1; and the TCE and dissolved chromium impacts to OU1 are from the Railroad Avenue Site.

BO095-55

    c. Section 5.4 of the Hazardous Wastes and Materials Technical Report (Technical Report)[6], Site 40, Former FMC Corporation, identified environmental impacts to Site 40 include dichlorodiphenytrichloroethane (DDT), endrin, toxaphene, dieldrin, and ethion. The Remedial Investigation Report for Operable Unit 2 (OU2 RI Report)[7] and the Imminent or Substantial Endangerment and Consent Order, Docket No. HAS-CO 02/03-069[8] identify 1,2,3-trichloropropane (1,2,3-TCP) as a "hazardous substance found at the Site." 1,2,3-TCP should be included in the Technical Report as a contaminant of concern for the Former FMC Corporation site.

We looked forward to your response to comments and we anticipate working with you closely as the HSR project proceeds.

Regards,

Barry Cockerham

cc: Vera Haitayan
Jim Doxey
Nate Lincoln
Joe Niland

[5] Geomatrix, 2005. Remedial Investigation Report, Operable Unit #1, South Fresno Regional Groundwater Plume, Fresno, California, 24 May 2005.
[6] California High-Speed Rail Authority (CHSRA), 2012. California High-Speed Train Project EIR/EIS, Fresno to Bakersfield Section, Hazardous Wastes and Materials Technical Report, 2012.
[7] ERM, 2007. Remedial Investigation Report, Operable Unit 2, South Fresno Regional Plume, Fresno, California, February.
[8] DTSC, 2002. Imminent or Substantial Endangerment and Consent Order, Docket No. HSA-CA 02/03-069, Fresno, California, 26 November 2002.

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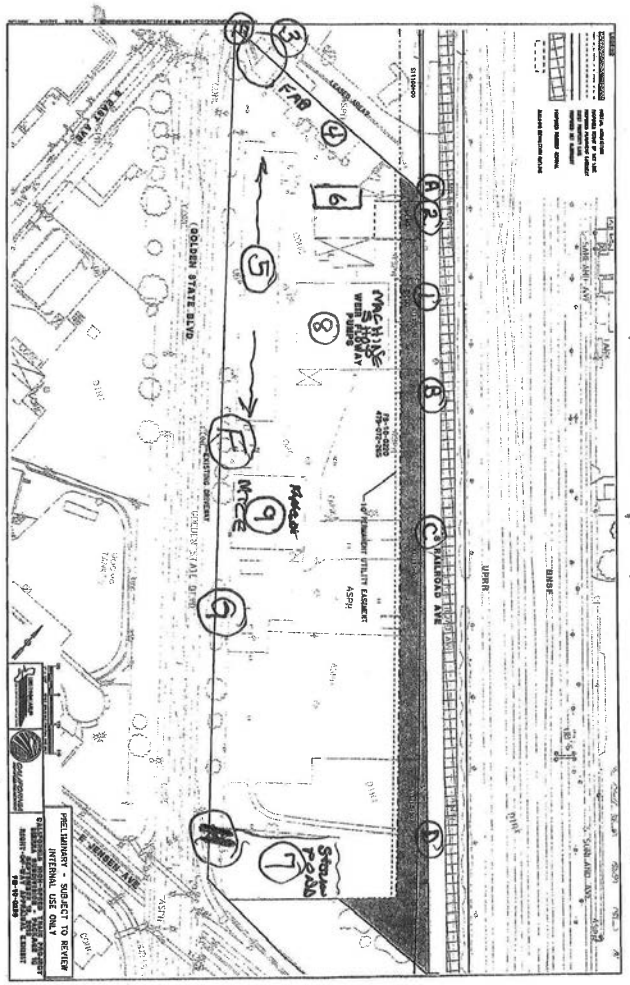
Submission BO095 (Barry Cockerham, Weir Floway, Inc., October 18, 2012) - Continued



Response to Submission BO095 (Barry Cockerham, Weir Floway, Inc., October 18, 2012)

BO095-1

Refer to Standard Response FB-Response-SO-01, FB-Response-AG-02, FB-Response-AG-04.

BO095-2

Refer to Standard Response FB-Response-SO-01.

BO095-3

Refer to Standard Response FB-Response-SO-01.

BO095-4

Refer to Standard Response FB-Response-SO-03.

BO095-5

Refer to Standard Response FB-Response-SO-01.

BO095-6

Refer to Standard Response FB-Response-SO-01.

BO095-7

Refer to Standard Response FB-Response-SO-01.

BO095-8

Refer to Standard Response FB-Response-SO-01.

Detailed right-of-way access analysis will be conducted during the right-of-way appraisal process. If parcel access cannot be maintained, the parcel may be acquired.

BO095-9

Refer to Standard Response FB-Response-SO-01, FB-Response-AG-04.

BO095-10

Refer to Standard Response FB-Response-SO-01.

BO095-11

Refer to Standard Response FB-Response-SO-01.

BO095-12

Refer to Standard Response FB-Response-AG-02, FB-Response-SO-01.

BO095-13

Refer to Standard Response FB-Response-AG-02, FB-Response-SO-01.

BO095-14

Refer to Standard Response FB-Response-SO-01.

BO095-15

The Authority is aware of the ongoing remediation efforts by Floway and The Vendo Company and will account for those activities during final design and construction. Responses to the individual comments are provided in Comment Responses 802 through 841.

BO095-16

Refer to Standard Response FB-Response-HMW-02.

BO095-17

Refer to Standard Response FB-Response-HMW-02.

As noted in the Final EIR/EIS, work on this site or any site that may be currently under remediation would be coordinated with DTSC and/or other appropriate regulatory agencies.

BO095-18

Refer to Standard Response FB-Response-HMW-02.

Comment is noted. Work within this area would be closely coordinated with DTSC and other appropriate regulatory agencies. The final design and construction planning would

Response to Submission BO095 (Barry Cockerham, Weir Floway, Inc., October 18, 2012) - Continued

BO095-18

take into consideration the known contaminated soils at the site and would be designed to minimize the spread of contaminants. Soils would be handled and disposed of if necessary according to applicable Federal, State and local regulations (for example CCR Title 22).

BO095-19

Refer to Standard Response FB-Response-HMW-02.

Worker health and safety would be incorporated into HST construction plans. The construction contractor would be required to adhere to all appropriate federal and state OSHA regulations.

BO095-20

Refer to Standard Response FB-Response-HMW-02.

Worker health and safety would be incorporated into HST construction plans. The construction contractor would be required to adhere to all appropriate federal and state OSHA regulations. If necessary, workers would need proper training to work in the area (including Hazwoper training if needed) and would be required to use an appropriate level of personal protective equipment.

BO095-21

Refer to Standard Response FB-Response-HMW-02.

Proper handling and management of soils would be incorporated in to any plans developed for the site. Soils would be handled in a manner that would minimize the spread of contamination, and any soils that need to be removed from the site would be done so following regulations pertaining to the transport of hazardous materials (e.g., California Code of Regulations Title 22).

BO095-22

Refer to Standard Response FB-Response-HMW-02.

BO095-22

Comment is noted. The potential for soil compaction at the site would be assessed and accounted for in the final engineering design for foundations located at the site. Construction plans for the site would be closely coordinated with DTSC and other appropriate agencies.

BO095-23

Refer to Standard Response FB-Response-HMW-02.

Construction plans for the site would be closely coordinated with DTSC and other appropriate agencies. The Authority understands that construction of the HST cannot impede site remediation solutions and that construction at the site would need to be conducted in a manner so as to not spread contaminated materials. Replacement of the existing cap would be coordinated with DTSC during the final design and construction phases.

BO095-24

Refer to Standard Response FB-Response-HMW-02.

Construction plans for the site would be closely coordinated with DTSC and other appropriate agencies. The Authority understands that construction of the HST cannot impede site remediation solutions and that construction at the site would need to be conducted in a manner so as to not spread contaminated materials. Replacement of the existing cap would be coordinated with DTSC during the final design and construction phases and would be integrated into the final design.

BO095-25

Refer to Standard Response FB-Response-HMW-02.

Comment noted. The Authority acknowledges these requirements and would work with the property owner during right of way acquisition to develop how these requirements would continue to be met.

Response to Submission BO095 (Barry Cockerham, Weir Floway, Inc., October 18, 2012) - Continued

BO095-26

Comment noted. The Authority acknowledges this requirement and would work with the property owner during right of way acquisition to develop how this requirement would be met.

BO095-27

Refer to Standard Response FB-Response-HMW-02.

As noted in the Final EIR/EIS, work on this site or any site that may be currently under remediation would be coordinated with DTSC and/or other appropriate regulatory agencies. The final design and construction planning would take into consideration the known contaminated soils at the site and would be designed to minimize the spread of contaminants.

Worker health and safety would be incorporated into HST construction plans. The construction contractor would be required to adhere to all appropriate federal and state OSHA regulations. If necessary, workers would need proper training to work in the area (including Hazwoper training if needed) and would be required to use an appropriate level of personal protective equipment (PPE) to reduce exposure to TCE and Chromium.

The Authority understands that soils would require proper management and handling during construction and soils would be handled transported and disposed of, if necessary, according to applicable federal, state and local regulations (for example CCR Title 22).

BO095-28

Refer to Standard Response FB-Response-HMW-02.

Construction plans for the site would be closely coordinated with DTSC and other appropriate agencies. The Authority understands that construction of the HST cannot impede site remediation solutions and that construction at the site would need to be conducted in a manner so as to not spread contaminated materials. Replacement of the existing cap would be coordinated with DTSC during the final design and construction phases and would be integrated into the final design.

BO095-29

Comment noted. The Authority acknowledges these requirements and would work with the property owner during right of way acquisition to develop how these requirements would continue to be met.

BO095-30

Comment noted. The Authority acknowledges this requirement and would work with the property owner during right of way acquisition to develop how this requirement would be met.

BO095-31

Refer to Standard Response FB-Response-HMW-02.

The Authority understands that a groundwater treatment and monitoring system is in place at the site and while this system may need to be reconfigured, its effectiveness must be maintained. During right of way acquisition, the Authority would work closely with the property owner and DTSC to develop a plan during final design for reconfiguration of the system if necessary.

BO095-32

Refer to Standard Response FB-Response-HMW-02.

As discussed under Impact MHW #3 in Section 3.10, Hazardous Material and Wastes, with construction on or in proximity to sites of potential environmental concern (PEC sites), construction activities could encounter contaminants or interfere with ongoing remediation efforts. The section goes on to discuss the fact that construction at known PEC sites would require careful coordination with regulatory agencies and current landowners before advancing, so as to not impede ongoing remediation efforts at these locations. Where effects on PEC sites cannot be avoided, preconstruction activities would address the requirements for constructing at PEC sites in coordination with

Response to Submission BO095 (Barry Cockerham, Weir Floway, Inc., October 18, 2012) - Continued

BO095-32

regulatory agencies and landowners. The site would need to remediate prior to construction, or the HST would need to be designed and constructed to so as to not impede remediation at the site. This may require relocation of remediation systems, such as groundwater extraction wells and conveyance systems, or potential changes to HST design details in the vicinity of ongoing remediation.

The Authority acknowledges that any groundwater extraction wells taken out of service at the site would be abandoned according to City of Fresno and DWR requirements and that any groundwater extraction wells that need to be removed would be replaced outside the HST right of way. Replacement wells would need to achieve total capture of impacted groundwater at the site and the Authority acknowledges that modeling, design , and evaluation will be required as part of groundwater extraction, well replacement and that telemetry and other operations systems would also need to be replaced, upgraded or reconfigured to facilitate changes in the remediation system due to the HST.

The Authority acknowledges that costs may be greater than the current system if new systems cannot be located in the optimal locations to achieve groundwater capture and any additional costs would be borne by the Authority.

BO095-33

Refer to Standard Response FB-Response-HMW-02.

DTSC will be notified before this area is disturbed and would coordination would occur with DTSC on any disturbance to this area.

BO095-34

Refer to Standard Response FB-Response-HMW-02.

The Authority would coordinate with the Department of Toxic Substances Control on any disturbance of the Parcel 12/13 cap and would receive approval on designs of any new engineered cover.

BO095-35

The Authority acknowledges these monitoring and maintenance requirements and would coordinate with the Department of Toxic Substances Control, as necessary, to ensure the requirements are met.

BO095-36

Comment noted. The Authority acknowledges this requirement and would work with the property owner during
right-of-way acquisition to develop how this requirement would be met.

BO095-37

Comment noted. The Authority would coordinate with the Department of Toxic Substances Control on any disturbance to this cap.

BO095-38

The Authority acknowledges these monitoring and maintenance requirements and would coordinate with the Department of Toxic Substances Control, as necessary, to ensure the requirements are met.

BO095-39

Comment noted. The Authority acknowledges the monitoring and maintenance requirements and would coordinate with DTSC and Floway as necessary to ensure that plans are in place to meet the requirements.

BO095-40

Comment noted. The Authority acknowledges this and will work with the Department of Toxic Substances Control, landowners, and designers during right-of-way acquisition and final design to preserve the existing cap or design a replacement.

BO095-41

Comment noted. The Authority acknowledges this requirement and would work with the property owner during right-of-way acquisition to develop how this requirement would be met.

Response to Submission BO095 (Barry Cockerham, Weir Floway, Inc., October 18, 2012) - Continued

BO095-42

Refer to Standard Response FB-Response-PU&E-03.

BO095-43

Refer to Standard Response FB-Response-SO-01, FB-Response-HMW-02.

The Authority would coordinate with DTSC on any disturbance of the Parcel 12/13 and/or Parcel 18 caps and would receive approval on designs of any new engineered cover. The Authority also acknowledges the monitoring and maintenance requirements and would coordinate with DTSC and Floway as necessary to ensure that plans are in place to meet the requirements.

BO095-44

Refer to Standard Response FB-Response-HMW-02.

The Authority would review all data and Land Use Covenants on the site related to hazardous materials. These parcels are not proposed for uses by the HST that are likely restricted by the LUC; i.e., residential uses. The Authority would comply with all restrictions and requirements of the LUC.

BO095-45

Refer to Standard Response FB-Response-SO-01, FB-Response-AG-04.

BO095-46

Refer to Standard Response FB-Response-SO-01.

BO095-47

Refer to Standard Response FB-Response-HWR-02.

The HST design will include stormwater facilities for runoff from the HST right-of-way. It is not intended that the runoff from the HST right-of-way will enter the Weir Mineral Services stormwater system.

BO095-48

Between S. East Avenue and E. Jensen Bypass, the high-speed train (HST) alignment is within a trench structure that narrows the right-of-way width. Due to the use of the trench structure, the excavated volume is less than would be required for an open cut. The HST right-of-way may seem wider, as the alignment is not immediately adjacent to the Union Pacific Railroad corridor. This is because the HST alignment must start to curve away from the Union Pacific Railroad corridor to join the BNSF corridor south of Fresno.

As discussed under Impact MHW #3 in Section 3.10, Hazardous Material and Wastes, with construction on or in proximity to sites of potential environmental concern (PEC sites), construction activities could encounter contaminants or interfere with ongoing remediation efforts. The section goes on to discuss the fact that construction at known PEC sites would require careful coordination with regulatory agencies and current landowners before advancing, so as to not impede ongoing remediation efforts at these locations. Where effects on PEC sites cannot be avoided, preconstruction activities would address the requirements for constructing at PEC sites in coordination with regulatory agencies and landowners. The site would need to remediate prior to construction, or the HST would need to be designed and constructed to so as to not impede remediation at the site. This may require relocation of remediation systems, such as groundwater extraction wells and conveyance systems, or potential changes to HST design details in the vicinity of ongoing remediation.

BO095-49

The use of a wall between the high-speed train tracks and the Union Pacific Railroad tracks is an ongoing discussion with the freight railroad. Between S East Avenue and E. Jensen Bypass the high-speed train alignment begins to diverge to the west, away from the Union Pacific Railroad corridor, to follow the BNSF corridor south of Fresno. In order to make this turn the radius required for high-speed operation is large. The radius currently proposed is the minimum that can be utilized while meeting the planned operational speed of 220 miles per hour.

As discussed under Impact MHW #3 in Section 3.10, Hazardous Material and Wastes, with construction on or in proximity to sites of potential environmental concern (PEC

Response to Submission BO095 (Barry Cockerham, Weir Floway, Inc., October 18, 2012) - Continued

BO095-49

Sites), construction activities could encounter contaminants or interfere with ongoing remediation efforts. The section goes on to discuss the fact that construction at known PEC sites would require careful coordination with regulatory agencies and current landowners before advancing, so as to not impede ongoing remediation efforts at these locations. Where effects on PEC sites cannot be avoided, preconstruction activities would address the requirements for constructing at PEC sites in coordination with regulatory agencies and landowners. The site would need to remediate prior to construction, or the HST would need to be designed and constructed to so as to not impede remediation at the site. This may require relocation of remediation systems, such as groundwater extraction wells and conveyance systems, or potential changes to HST design details in the vicinity of ongoing remediation.

BO095-50

Refer to Standard Response FB-Response-SO-01, FB-Response-SO-03.

BO095-51

Refer to Standard Response FB-Response-PU&E-03, FB-Response-HMW-02.

As discussed under Impact MHW #3 in Section 3.10, Hazardous Material and Wastes, with construction on or in proximity to sites of potential environmental concern (PEC sites), construction activities could encounter contaminants or interfere with ongoing remediation efforts. The section goes on to discuss the fact that construction at known PEC sites would require careful coordination with regulatory agencies and current landowners before advancing, so as to not impede ongoing remediation efforts at these locations. Where effects on PEC sites cannot be avoided, preconstruction activities would address the requirements for constructing at PEC sites in coordination with regulatory agencies and landowners. The site would need to remediate prior to construction, or the HST would need to be designed and constructed to so as to not impede remediation at the site. This may require relocation of remediation systems, such as groundwater extraction wells and conveyance systems, or potential changes to HST design details in the vicinity of ongoing remediation.

The Authority acknowledges this and will coordinate with DTSC, the City of Fresno, landowners, and designers during right of way acquisition to ensure that effective

BO095-51

remediation of the site is not impeded. The Authority acknowledges that the groundwater system cannot be down for more than one week in order to maintain hydraulic control of the impacted groundwater plume beneath the Site. New systems may need to be installed prior to removal of existing groundwater extraction wells.

BO095-52

Refer to Standard Response FB-Response-HMW-02.

BO095-53

The *Fresno to Bakersfield Section: Hazardous Wastes and Materials Technical Report* (Authority and FRA 2012c) will be updated with the information provided.

BO095-54

The *Fresno to Bakersfield Section: Hazardous Wastes and Materials Technical Report* (Authority and FRA 2012c) will be updated with the information provided.

BO095-55

The *Fresno to Bakersfield Section: Hazardous Wastest and Materials Technical Report* (Authority and FRA 2012c) will be updated with the information provided.

Submission BO096 (Carole Fornoff, Westchester Agriculture Asset Management, October 18, 2012)

WESTCHESTER
Agriculture Asset Management

October 18, 2012

Attn: California High Speed Rail Authority
Fresno to Bakersfield Revised Draft EIR/Supplemental Draft EIS Comment
770 L Street, Suite 800
Sacramento, CA 95814

Re: Comments to the CA High Speed Rail Authority

I am the Vice President of Westchester Group Investment Management, Inc., which manages the agricultural operations owned by Premiere Agricultural Properties, LLC. I am writing to express my concerns regarding the Fresno to Bakersfield Draft Environmental Impact report that was prepared and available for public comment.

BO096-1 Premiere highly recommends that the Authority select its Alternative 1 alignment from Wasco north to the Kern County line as the preferred alignment. Our reasoning is that Alternative A follows the existing railroad alignment and if Alternative 2, were constructed, the route would cause damage by placing the rail diagonally across approximately 1,000 acres of productive farmland owned by Premiere.

Premiere's primary concerns regarding Alternative 2 are as follows:

BO096-2 1. Access and Safety: Its location would cause slow moving farm equipment and labor to drive several miles to the new crossing location in order to access the remaining portion of the property.

BO096-3 2. Water Supply: It would sever the existing water supply to the ranch whereby reconstruction of the irrigation systems and their water supplies would be needed.

BO096-4 3. Loss of Efficiencies: It would cause add inefficiencies to the farming operation. There will be additional cost associated with operating the irrigation system, fertilization and chemical applications, traffic, fuel and labor.

BO096-5 4. Loss of Present and Future Value: The diagonal route through productive farmland and the items mentioned above would severely impact the present and future value of Premiere's investment.

For each of the foregoing reasons, Westchester Group Investment Management and Premiere Agricultural Properties, LLC, request that Alternative 1 be selected.

Very truly yours,

Carole A. Fornoff

6715 N. Palm Avenue, Suite 101, Fresno CA 93704
O. 559-435-1055 | F. 559-435-5803

www.WGIMglobal.com

Response to Submission BO096 (Carole Fornoff, Westchester Agriculture Asset Management, October 18, 2012)

BO096-1

Refer to Standard Response FB-Response-GENERAL-02, FB-Response-GENERAL-04, FB-Response-GENERAL-10, FB-Response-AG-01.

The objective of the Revised DEIR/Supplemental DEIS was to evaluate the impacts of all proposed alternatives. Please see Chapter 7 of the Final EIR/EIS for a discussion of the selection of the Preferred Alternative.

BO096-2

Refer to Standard Response FB-Response-TR-02, FB-Response-S&S-01, FB-Response-AG-02.

BO096-3

Refer to Standard Response FB-Response-AG-04.

The Authority will fairly compensate landowners for loss or disruptions to their operations during the right-of-way acquisition process, including the severing of irrigation systems or water supply lines. The intention is to allow time for upgrades and relocations to occur before construction to minimize irrigation disruptions due to construction and operation of the HST.

BO096-4

Refer to Standard Response FB-Response-SO-01, FB-Response-AG-02, FB-Response-AG-03, FB-Response-AG-04.

The Authority has committed to compensating landowners at a fair market value for any permanent takings of their land as well as any temporary or permanent losses of income they may experience.

BO096-5

Refer to Standard Response FB-Response-SO-01, FB-Response-SO-02, FB-Response-AG-02.

The Authority has committed to compensating landowners at a fair market value for any

BO096-5

permanent takings of their land as well as any temporary or permanent losses of income they may experience.

Submission BO097 (Jeff Fleming, Western Dairy Design, October 15, 2012)

Fresno - Bakersfield (July 2012+) - RECORD #279 DETAIL

Status :	Action Pending
Record Date :	10/15/2012
Response Requested :	No
Stakeholder Type :	Business
Affiliation Type :	Businesses and Organizations
Interest As :	Businesses And Organizations
Submission Date :	10/15/2012
Submission Method :	Website
First Name :	Jeff
Last Name :	Fleming
Professional Title :	Dairy Consultant
Business/Organization :	Western Dairy Design
Address :	
Apt./Suite No. :	
City :	Oakdale
State :	CA
Zip Code :	95361
Telephone :	209-848-8674
Email :	jefflem@dairydesigners.com
Email Subscription :	
Cell Phone :	
Add to Mailing List :	
Stakeholder Comments/Issues :	NOTE: I am a consultant for Gaspar Dairy, 7615 7 1/2 avenue, Hanford: In Technical Appendix 3.24-B, regarding parcel 01409000700, on Figures B-6 and B-7, This parcel 01409000700 should be outlined in green as farmland type WW, as this entire parcel is irrigated with wastewater from the dairy lagoon. A pipeline under the HSR right of way is required in order to get lagoon water to the portion of the parcel to the west of the right of way.
EIR/EIS Comment :	Yes
Official Comment Period :	Yes

BO097-1

Response to Submission BO097 (Jeff Fleming, Western Dairy Design, October 15, 2012)

BO097-1

Refer to Standard Response FB-Response-AG-02, FB-Response-AG-04.

Please see Appendix 3.14-B in the Final EIR/EIS for the changes to parcel 014090007000, which are outlined in green.

Submission BO098 (Jeff Fleming, Western Dairy Design, October 17, 2012)

Fresno - Bakersfield (July 2012+) - RECORD #290 DETAIL

Status :	Unread
Record Date :	10/17/2012
Response Requested :	Yes
Stakeholder Type :	Business
Affiliation Type :	Businesses and Organizations
Attorney or Law Firm? :	No
Interest As :	Businesses And Organizations
Submission Date :	10/17/2012
Submission Method :	Website
First Name :	Jeff
Last Name :	Fleming
Professional Title :	Dairy Consultant
County :	Stanislaus
Business/Organization :	Western Dairy Design
Address :	
Apt./Suite No. :	
City :	Oakdale
State :	CA
Zip Code :	95361
Telephone :	209-848-8674
Email :	jefflem@dairydesigners.com
Email Subscription :	
Cell Phone :	
Fax :	
Comment Type :	Issue (concern, suggestion, complaint)
Add to Mailing List :	No
Stakeholder Comments/Issues :	Question re Calif HST project Revised DEIR/Supplemental DEIS, Fresno to Bakersfield Section Appendix 3.14, Figures B-6 and B-7. What do the green and yellow outlines around some parcels mean, labeled "ww" and "cca" ? Note I am in stanislaus county, my dairy client is in Kings county.
Subscription Request/Response :	
EIR/EIS Comment :	No
General Viewpoint on Project :	Unknown
Official Comment Period :	Yes

BO098-1

Response to Submission BO098 (Jeff Fleming, Western Dairy Design, October 17, 2012)

BO098-1

WW stands for Waste Water (parcels highlighted in green). This is a parcel that is permitted to accept waste water from an agricultural operation. CAA stands for Confined Animal Agriculture (parcels highlighted in yellow). These parcels are permitted to have animal operations, such as dairies.

Submission BO099 (Jeff Fleming, Western Dairy Design Associates, Inc., October 18, 2012)

Response Package to Revised DEIR / Supplemental DEIS
Fresno to Bakersfield Section
Appendix 3.14 – B

From:

Manuel Gaspar & Son Dairy
7615 7 ½ Ave.
Hanford, CA 93230
Kings County

Submitted to:

California High-Speed Rail Authority
Fresno to Bakersfield Revised Draft EIR
/Supplemental Draft EIS Comment
770 L Street, Suite 800
Sacramento, CA 95814

October 17, 2012

Prepared by:

Western Dairy Design Associates, Inc.
316 West F Street, Suite 100
Oakdale, CA 95361
(209) 848-8674 Fax: (209) 848-8654

David Avila
Dairy Consultant

Steve Gaspar
Dairy Operator

Response Package to Revised DEIR / Supplemental DEIS
Fresno to Bakersfield Section
Appendix 3.14 – B

Cover letter	**1**
Cost estimate Spreadsheet	**4**
Commented pages from Appendix 3.14 – B	**6**
Corrected maps from Appendix 3.14 – B	**9**
Detailed dairy site maps, pre and post HST project	**11**
5th amendment	**13**
ASABE study (2003) ***Effects of Magnetic Field during Gestation on Dairy Cows and Their Calves***	**14**
From Bioelectromagnetics 24:557 – 563 (2003 ***Effect of 10 kV, 30 uT, 60 Hz Electric and Magnetic Fields on Milk Production and Feed Intake in Non-pregnant Dairy Cattle***	**24**

Submission BO099 (Jeff Fleming, Western Dairy Design Associates, Inc., October 18, 2012) - Continued

Manuel Gaspar & Son Dairy
7615 7 ½ Avenue
Hanford, CA 93230

Fresno to Bakersfield Revised Draft EIR
/Supplemental Draft EIS Comment
770 L Street, Suite 800
Sacramento, CA 95814 **Oct. 17, 2012**

Response Letter to Revised DEIR / Supplemental DEIS, Fresno to Bakersfield Section, Appendix 3.14 - B

BO099-1 **There are issues with the High Speed Train ROW (HSTROW) location relative to our dairy. We have concerns about the affect the noise, vibration and magnetic fields. We have researched several technical papers which address these issues. It seems there are not a lot of studies that have taken place with these issues.**

BO099-2 **Nevertheless, we did find one study that will have a devastating affect to our dairy caused by the ROW cutting through the west side of our dairy facility.**
The areas taken by the HSTROW directly impacts, from south to north, our only public road access to our dairy facility which is off of 7 ½ Ave, our landscaped front yard, my parents' home of 11 years, a manure rain water runoff storage pond, cattle corrals, cattle feeding facilities, feed storage area, two manure water storage lagoons, a deep irrigation water well, electrical power supply poles, severs key irrigation lines to our farm property to the west of 7 ½ Ave and farmland.

BO099-3 **Each of the items has an impact to our lives in ways we had never evaluated until now. Here are the impacts as listed:**
Our public access is cut off totally. Our farm will be land locked. There must be an access ROW along the east side of the HSTROW purchased from our neighbor to the south to maintain our public road access. This will allow for us to reach the new overpass at Fargo Ave.

BO099-4 **Our landscape areas offer areas of rest and relaxation from the daily rigors of living and working at home. Taking of this area will eliminate our on site relaxation area. My parents' home will have to be destroyed. Currently, we as a family, that is grandparents, son and daughter in law and grandchildren live as a close family unit as man has done from the beginning of time. Having one home removed from our farm site and the possibility of my parents moving off the property will impact our social structure tremendously. No close contact between my parents and my family will break down our relationships. Our heritage from my parents will not be passed on as readily through our normal daily interactions and constant contact living with in a few minutes walk from each other. Our driving time, vehicle wear and tear, fuel consumption and time just being at home will`` forever be impacted negatively. All these issues are impossible to quantify.**

BO099-5 **As for the inanimate objects, the loss of manure rainwater runoff storage and manure water storage ponds will impact our Kings County Conditional Use Permit and our California State Water Quality Control Board (CSWQB) Permit due to a negative capacity impact to our storm water storage and manure water storage and directly our operations nutrient water management plan. This will require 18 to 24**

1

BO099-5 **months of permit processes with Kings County and the CSWQB to modify our permits and operations requirements costing tens of thousands of dollars. Being we are significantly changing our operations, we will have to meet new regulations both at the County and State levels which will dramatically increase our operational costs from regulatory compliance requirements.**

BO099-6 **We will have to relocate/replace the deep water irrigation well. The relocated well must have a 50 foot seal, and be per California well standards. The cost will include power to the new well location. RWQCB will require that a Well Log should be taken by a professional hydrogeologist. The data from the well log will be required for a new RWQCB Report Of Waste Discharge and a new Monitor Well Installation and Sampling Plan reflecting the modified dairy facility and operations.**

BO099-7 **A new evacuation plan will have to be provided for the county HMBP.**

BO099-8 **We will have to install new manure water storage lagoons lined with double high density polyethylene liners, with gravel and Lysimeters or leak detectors, approved to meet RWQCB Tier I standards. A Geo-boring study and Construction Quality Assurance Plan must be prepared for RWQCB by a Civil Engineer. An Operation and Maintenance Plan must be prepared for RWQCB by a registered Engineer or Geologist.**

BO099-9 **We will have to install ground water monitoring wells to meet state regulations. All of the above should be paid for by the high speed rail authority.**

BO099-10 **The high speed rail authority will have to install three pipe lines and an electric conduit under the right of way, in order to get clear irrigation water, manure lagoon water, and crop field tail water to and from the crop field on the portion of our property which lies to the west of the HSTROW. All the above pipes to be of sufficiently strong material / buried deep enough to withstand trains. The pipes must be provided with cleanouts / pig stations to unplug them.**

BO099-11 **Isolating our farm ground to the west of 7 ½ Ave will cost in travel and more importantly, time to drive a much greater distance to farm the fields and retrieve the crops to our cattle feeding areas.**

BO099-12 **We currently have 86 acres of crop field land. The HSTROW will remove 10.1 acres, or a 12% loss of crop field land to which waste water is applied. Reduced acreage means reduced herd capacity and diminished economic stability for our entire operation. If we are forced to reduce our herd size by 12%, our percent loss of net revenue will be much greater, because our income will reduce by 12% but our fixed costs will remain the same. The dairy has loans and commitments which need its current income to service. It is not certain that the dairy could survive with a reduced herd until we find other waste water land to rent or purchase, which could take years. The dairy's property values, much diminished due to proximity to the HSTROW, will make credit more difficult to obtain once replacement waste water land is found. In general, HSR's forcing of herd reductions may cause dairy foreclosures if they cannot weather the financial impact.**

2

Submission BO099 (Jeff Fleming, Western Dairy Design Associates, Inc., October 18, 2012) - Continued

10/17/2012 13:05 5595831445 S AND A GASPAR PAGE 02/02

BO099-13 Moreover, the impact from the magnetic fields which will be created by the presence of the electrical grid at the HSTROW and the passing trains will have a huge affect to our lactating cows' milk production. We will have to move our facility to the east away from the HSTROW to avoid the possibility of the affect of the magnetic fields.

BO099-14 It appears the unintended consequences to livestock facilities by the high speed train is not anticipated with in the Environmental Impact Report (EIR). I see only inanimate items addressed which is fine for field crop farming which are managed from a remote base farming operations facility. I do not see the impacts being addressed with in the EIR to a family dairy farm facility such as ours.
As I have listed above, our very way of life will be negatively altered for ever.

BO099-15 Nevertheless, we understand progress must take place as our population increases. As well, we recognize progress in all areas of our state infrastructure must take place. I see a huge increase in the consumption of electricity due to the HS Train, yet I see no progress or plan to effectively increase the production of electricity in our

BO099-16 state. Moreover, I did not find any references to safety measures to prevent stray voltage through the ground. Stray voltage is very detrimental to dairy cows milk production and reproduction.

BO099-17 I have worked out the probable financial impacts to our lives. The emotional and social impacts can not be quantified.

BO099-18 I see the EIR states the intent is to use "green" energy as mitigation for the huge consumption of electricity. I hope this is not the real plan for green energy will never be abundant enough to supply our future needs. Spain has tried building up national sources of green energy for a decade and now understands it does not work and will never be a viable source of energy in the current forms being wind and solar. I have heard news casts boosting hydraulic generating plants as one source of green energy. I find that a bit odd considering current law does not considered it to be green energy unless the plant produces "less" than 30 kW. There are too few, if any dams that generate that little amount of electricity. If, for the reason to "justify" the electrical consumption of the HS Train, hydro power is classified as "green", California will have a problem to not justify hydro power not to be part of the 33% requirement to be sourced from all dams as "renewable". When I see Government contradicting itself as an approach to an end, the light of day of the hypocrisy is shone and belittles their attempt to convince informed people to believe anything with in the EIR. That will all be an interesting debate in the political future of our state.

Manuel Gaspar & Son Dairy

Steve Gaspar

3

Probable Milk Production Losses Based on Research
ASAE (American Society of Agricultural Engineers) Publication #7010203; 29 January, 2003.

Manuel Gaspar & Son Dairy
7801 7 1/2 Ave
Hanford, California 93230
559-381-0947- Mr. Steve Gaspar

Number of lactating cows:	720	
Average milk production per cow:	68	lbs per day
Yearly production per cow per normal lactation (year):	20,740	lbs per 305 days
Milk butterfat content- normal:	3.55%	before affects of magnetic fields
3.5% Fat corrected milk production:	21,036	lbs per 305 days (year)
Income per cow:		
Milk price:	$18.50	per cwt.
Average income per cow per year:	$3,891.71	
Production per cow as affected by magnetic fields:		
% of milk loss based on study:	7.35%	production loss per lactation (year)
Milk produced per 305 day lactation after loss:	19,216	lbs per 305 days
Milk butterfat content- affected by magnetic fields:	3.40%	after affects of magnetic fields
3.5% Fat corrected milk production:	18,650	lbs per 305 days (year)
Average income per affected cow per year:	$3,554.89	
Milk production loss:	2,387	lbs per cow per 305 day lactation (year)
Income loss per cow:	$336.83	per 305 day lactation (year)
Total calculated losses for the herd:	$242,514.01	per year
Losses based on a 50 year life span of the facility:	$12,125,700.26	(note this number does not reflect an inflation factor)

Move dairy facility from High Speed Train Right of Way to mitigate magnetic fields:

Replacement facilities:	
New milking parlor- Double 24 Parallel Style barn-	$800,000
New freestall barn facility for lactating cows- 720	$1,152,000
New dry cow and heifer facilities-	$432,000
Change manure management system:	
Replace Settling pond-220'x50'	$5,450
Replace manure nutrient water storage lagoons-Lined	$200,000
Replace cow lane flush system-	$160,000
Demolish Existing facility-	$76,950
Mitigate corral soils-	$48,000

4

Submission BO099 (Jeff Fleming, Western Dairy Design Associates, Inc., October 18, 2012) - Continued

Replacement facilities:	
Redirect irrigation, wastewater, and tail water pipelines under HSTROW	$75,000
	$350,000
Replace existing home (offsite)	$336,000
New lot-	$250,000
Shop-storage building-	$55,000
Commodity Barn- 32' x 100'	$80,000
Silage pad- 120' x 340'	$80,000
Property loss-7.33 acres	$183,250
Losses over 50 year life of facility:	
Crop loss from farm ground conversion- **10.1 acres**	$1,325,625
Government compliance costs:	
Consultant reports	$20,000
Kings County Conditional Use permit-	$28,000
California State Water Quality Control Board-	$4,000
Revise ROWD-	$8,000
Revise SPR at Kings County Planning Department-	$24,000
Install ground water monitoring wells-	$27,500
Increased costs of operations:	
Monitor new monitoring wells- 50 years	$400,000
Farming costs to property west of 7 1/2 Ave.-	
Increased travel and crop transfers	$811,800
Total estimated impact costs-	$6,932,575

5

Table 1
Affected Confined Animal Agricultural Facilities

Figure #	Address	APN	Operation Type	County	Alternative	Acres Affected	% of Parcel Affected
Severe Effects							
B-19	9846 Lansing Avenue	28206005000	Dairy	Kings	Hanford West Bypass 1 Alternative	17	18.5
Moderate Effects							
B-1	7750 East Davis Avenue	05603055S	Dairy	Fresno	BNSF Alternative	15	23.8
B-7	7615 7½ Avenue	014090007000	Dairy	Kings	BNSF Alternative	4.5	6.3
B-8	7601 Fargo Avenue	014130058000	Dairy	Kings	BNSF Alternative	0.4	1.2
B-11	7315 Houston Avenue	016200035000 016200034000	Dairy	Kings	BNSF Alternative	15	21.1
B-16	8480 Kansas Avenue	028202030000	Dairy	Kings	BNSF Alternative	1.3	0.01
B-21	Nevada Avenue and 8th Avenue	028290017000	Feedlot	Kings	BNSF Alternative, Corcoran Bypass and Corcoran Elevated alternatives	17	32.1
B-24	2400 Avenue 136	291030043	Dairy	Tulare	BNSF Alternative, Corcoran Bypass and Corcoran Elevated alternatives	10.6	18.3
B-22	2799 Avenue 136	291020022	Dairy	Tulare	BNSF Alternative, Corcoran Bypass and Corcoran Elevated alternatives	10.7	11
B-4	6502 13th Avenue	006050004000	Dairy	Kings	Hanford West Bypass 1 and Hanford West Bypass 2 alternatives	2.5	5.3
Negligible Effects							
B-2	8000 East Davis Avenue	05603044S	Poultry	Fresno	BNSF Alternative	0.5	0.3
B-5	7705 Flint Avenue	014090002000	Dairy	Kings	BNSF Alternative	0.2	0.2
B-6	7334 7th Avenue	014090035000	Dairy	Kings	BNSF Alternative	6	8.4
B-9	11336 7th Avenue	016130047000	Dairy	Kings	BNSF Alternative	0.4	0.5

6

Submission BO099 (Jeff Fleming, Western Dairy Design Associates, Inc., October 18, 2012) - Continued

approximately 50 feet from the cattle holding areas, and therefore indirect noise and vibration effects would be moderate.

Dairy — 7615 7½ Avenue (Figure B-7)

BNSF Alternative

The diary located at 7615 7½ Avenue in Kings County would experience moderate effects from construction of the HST project under the BNSF Alternative. The project would require acquisition of approximately 4.5 acres of land, or 6.3% of the parcel, which would bisect the property. However, all dairy facilities are located in the eastern portion of the property and would not be separated. The land directly affected by the alignment contains cattle holding areas and associated buildings as well as a residence. Relocating the affected facilities would require approximately 9 acres of land. After the project acquired land for the tracks there would be 20 acres of adjacent continuous unaffected land remaining. Thus, there appears to be sufficient available unaffected acreage to enable the dairy to continue operation. The HST track centerline would be approximately 50 feet from the closest cattle holding area, and therefore indirect noise and vibration effects would be moderate.

Dairy — 7601 Fargo Avenue (Figure B-8)

BNSF Alternative

The dairy located at 7601 Fargo Avenue in Kings County would experience moderate effects from the construction of a road overpass along the HST alignment under the BNSF Alternative. The road overpass would require acquisition of a small (0.4 acre) portion of land, or 1.2% of the parcel, on the property that contains cattle holding areas; however, no structures would be affected. Relocating the affected cattle holding area would require 2.7 acres of land. After the project acquired land for the road overpass, approximately 2.7 acres of continuous unaffected land would remain. The available unaffected acreage is limited, and therefore special consideration would need to be given to finding adjacent lands if the holding area is relocated. Due to the relatively small size of the acquired land, it is likely the dairy would continue operation at this location. The HST track centerline would be approximately 160 feet from the closest cattle holding area, and therefore indirect noise and vibration effects would be negligible.

Dairy — 7315 Houston Avenue (Figure B-11)

BNSF Alternative

The dairy located at 7315 Houston Avenue in Kings County would experience moderate effects from the construction of a road overpass along the HST alignment under the BNSF Alternative. The road construction would require acquisition of 15 acres of agricultural land, or 21% of the parcel. The neighboring property contains a residence and facility buildings that probably support the dairy facility and cattle holding areas on the adjacent property at 12270 7th Avenue. Relocating the residence and facility buildings would require 3 acres of land. After the project acquired land for the road overpass, 52 acres of adjacent continuous land would remain. Thus, there appears to be sufficient available unaffected acreage to enable the dairy to continue operation. The HST track centerline would be approximately 600 feet from the closest animal holding area, and therefore the indirect noise and vibration effects that would occur would be negligible.

Dairy — 9846 Lansing Avenue (Figure B-17)

Hanford West Bypass 2 Alternative

The dairy located at 9846 Lansing Avenue in Kings County would be affected by the construction of the HST project under the Hanford West Bypass 1 Alternative. The alignment would require acquisition of approximately 3 acres, or 1.6% of the parcel, at the northern portion of the property. Because no dairy facilities would be affected and acquisition of non-facility land would not bisect the operation, the effects on the dairy facilities would be negligible. The HST track centerline would be located approximately 1,600 feet from the cattle holding areas, and therefore indirect noise and vibration effects would be negligible.

2.0 Offsite Wastewater Application Lands

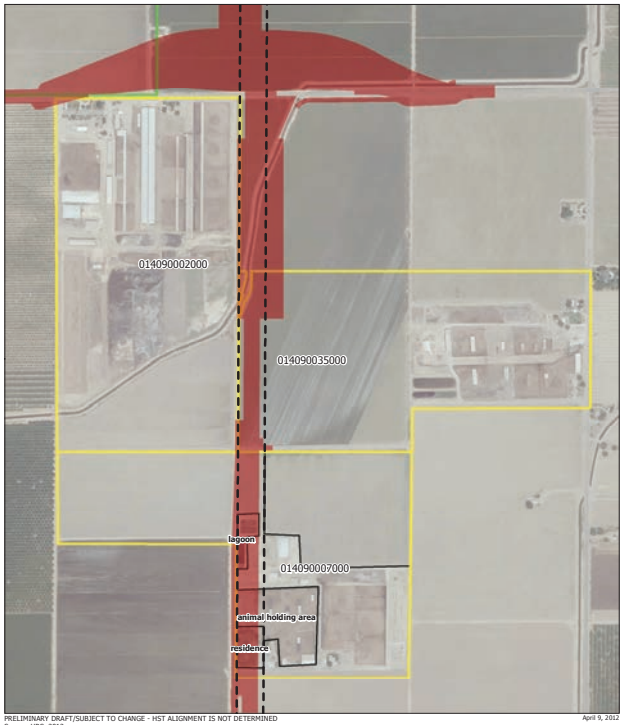
Table 3 provides a parcel-by-parcel listing of all the offsite wastewater application lands that are affected by each of the project alternatives. This table provides the total acres affected on each parcel as well as the number of these total acres that have the potential to be used for wastewater application. This potential for wastewater application was determined using aerial imagery of croplands and excluding acreage that is currently not used for crop production (e.g., storage yards, roads, and parking areas). The effects on these parcels can be viewed in the designated figure.

Table 3
Affected Wastewater Lands by Alternative (including HMF)

Figure	APN	Total Acres Affected	Acres with Potential for Manure Management
BNSF Alternative			
B-30	014060006000	4.4	4.4
B-33	016200011000	3.0	3.0
B-37	016260001000	3.0	3.0
B-34	016200010000	10.3	10.3
B-35	016260026000	0.8	0.8
B-32	016260019000	17.5	17.5
B-39	016260014000	15.9	15.9
B-41	028050016000	5.0	5.0
B-42	028050015000	0.3	0.3
B-44	028050003000	0.3	0.3
B-43	028050006000	4.1	4.1
B-45	028080008000	7.7	7.7
B-46	028170040000	5.9	5.9
B-48	028170041000	3.2	1.4
B-47	028160011000	7.3	7.3
B-51	028202005000	23.9	23.9
B-52	028202003000	2.9	2.9
B-53	028202012000	5.3	5.3
B-49	028170042000	0.7	0.7

Submission BO099 (Jeff Fleming, Western Dairy Design Associates, Inc., October 18, 2012) - Continued

CALIFORNIA HIGH-SPEED TRAIN PROJECT EIR\EIS
FRESNO TO BAKERSFIELD
APPENDIX B



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012
April 9, 2012

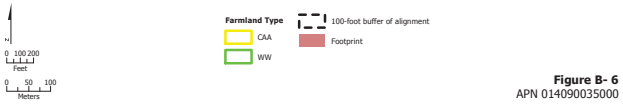
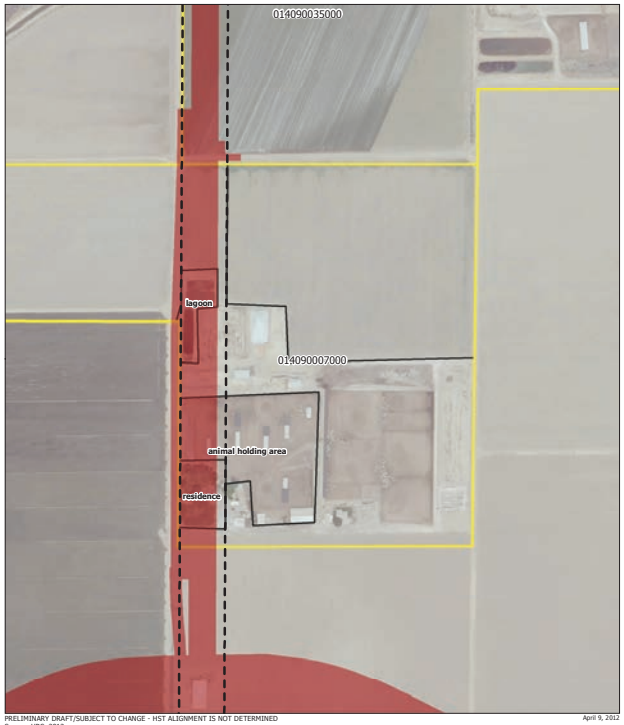


Figure B- 6
APN 014090035000

CALIFORNIA HIGH-SPEED TRAIN PROJECT EIR\EIS
FRESNO TO BAKERSFIELD
APPENDIX B



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012
April 9, 2012

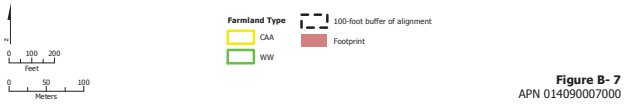
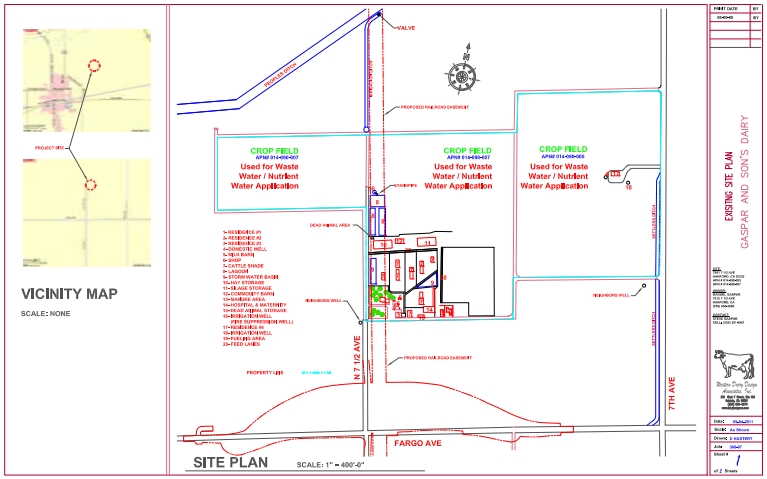
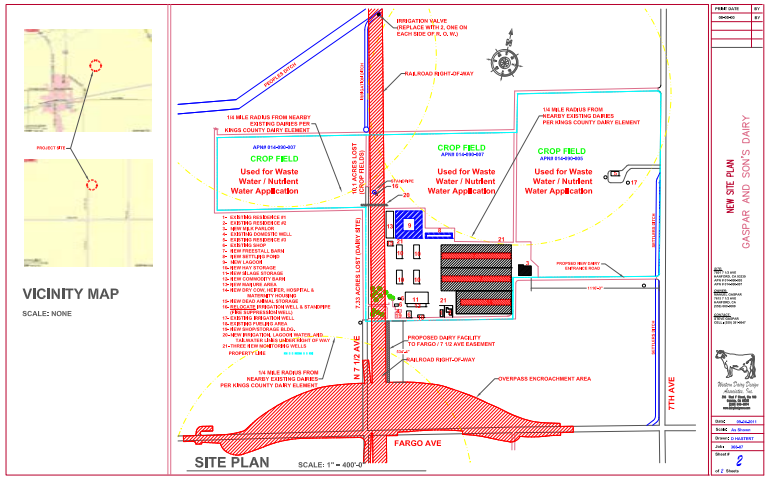


Figure B- 7
APN 014090007000

Submission BO099 (Jeff Fleming, Western Dairy Design Associates, Inc., October 18, 2012) - Continued





Submission BO099 (Jeff Fleming, Western Dairy Design Associates, Inc., October 18, 2012) - Continued

LAW OF THE LAND

5th Amendment to the United States Constitution

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Effects of Magnetic Field during Gestation on Dairy Cows and Their Calves

J.J.J. Broucek, C. W. Arave, M. Uhrincat, A. Sandor, S. Mihina, A. Hanus, P. Kisac

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Abstract

We used 25 Holstein cows. The cows of a trial group (13) were exposed to a low magnetic field (MF) at a flux density ranging from 42.1 ΦT (head) to 21.9 ΦT (breech) during the 196th to 258th day of gestation, while cows of a control group (12) were in an environment with a zero MF.

There was a significant difference (*P<0.05) between trial and control groups in 305 days lactation milk production (6910.5 kg vs. 7423.1 kg). Days open and calving intervals were not significantly shorter in the trial group. 8 bulls and 4 heifers were born in the trial group, and 6 bulls and 6 heifers in the control group. No significant differences between groups of cows and calves were found in the growth of live body weight during the whole trial.

Maze learning ability tests were conducted for calves at the age of 15 weeks. Maze behavior was not different, but exploratory behavior was intensified in the trial group. An open-field test was applied at three ages, A1 (16 weeks), A2 (25 weeks) and A3 (12

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months). There was no impact of the magnetic field in the prenatal period on the open-field behavior and relationship of calves to humans.

KEYWORDS. Magnetic field, Animal housing, Dairy cows, Calves, Milk yield, Behavior.

INTRODUCTION

The magnetic field is one of several environmental factors. Its extreme values are called gepathogenic zones and occur rather frequently in nature. Electrical and magnetic fields of the earth are deformed there, and increased ionization and electrical conductivity of soil can be proved (Gould, 1984). Many barns are located above these zones, and animals, since they are kept at one place for a long time, can be negatively affected by them. When evaluating 328 dairy cows, Harsch et al. (1996 a) found that after screening stalls to calm the waves of the magnetic field, the heart rate decreased by about 9 beats/minute on average. The animals vocalized less and were less frightened by external stimuli. In another study, Harsch et al. (1996 b) found that dairy cows housed above deformed magnetic field had improved reproductive parameters after the application of a special mat. The impact of the magnetic field on the increased number of stillborn or malformed calves has been shown (Llaurado, 1985).

Factors such as intensity, gradient and direction of the magnetic field that was used for the evaluation of the magnetic field that affects a biological sample (Barnothy, 1964). The living organism registers and assesses very weak magnetic fluctuations. Veterany and Hluchy (2001) found that hatchability of chickens was increased exposure of eggs to magnetic field 0.07 T. Wenzel et al. (2002) assessed the effect of electromagnetic transmitters of mobile phone network on behavior of dairy cows in Germany. Significant differences were found in lying behavior and in daily behavior profiles of cows. Reilly (1995) notes that an excitation threshold for neural stimulation of dairy cows is 53,7 mT if the body is exposed in a dorsal or sagital direction. In exposure of the head only, the threshold value is approximately three times higher.

It has been proved that after exposure to a magnetic gradient, the hypothalamic-pituitary-adrenal axis is activated and immunity and central nervous system disturbed. Stress factors of the magnetic field can be aggravated by limited movement, very high animal density, hyper- and hypothermia, bleeding, starving etc. According to Barnothy (1964), a decrease in the growth of young mice was recorded. Mevissen et al (1998) found that immunity was disturbed after a long-term exposure to a magnetic field of 100 μT. Prenatal exposure of mice to a sinusoid magnetic field of 5 mT for the period of gestation caused in the young aged 82-84 days a deficit of spatial learning and memory (Sienkiewicz et al. 1996 b). Rats exposed to a magnetic field were in comparison with a control group retarded in the moment of the first opening of eyes and tooth eruption ($P<0.01$). In the open-field test, trial animals walked over significantly less squares than control animals ($P<0.01$) but they defecated ($P<0.05$) and urinated ($P<0.01$) significantly more frequently than the animals that were not exposed (Ossenkopp, 1972). From the results of a study by Burchard et al. (1995) it can be seen that exposure to a magnetic field of 30 μT for a period of 28 days did not cause changes to milk production and consistency, except for the fat content. According to Kowalczuk et al. (1994) prenatal

exposition to a magnetic field with a magnetic induction of 20 mT from the zero to the seventeenth day of gestation is linked with heavier fetuses and a small incidence of external abnormalities. In another experiment, pregnant mice were exposed during all periods of gestation to a magnetic field of 20 mT. Male mice from the trial group had a significantly lower weight in the 30th day of age than males from the control group. Prenatal exposed females were, on the other side, slightly heavier than those that had not been exposed. In the open-field test, exposed animals showed a higher motion activity (Sienkiewicz et al. 1994). The same authors (Sienkiewicz et al. 1996 a) carried out a series of experiments with direct exposure of the magnetic field to adult mice. They used a magnetic field with a magnetic induction of 5 μT, 50 μT, 0.5 mT a 5.0 mT. Control animals were in an environment with the magnetic induction lower than 50 nT. No kind of exposure had an effect on the maze learning of animals.

MATERIALS AND METHODS

Equipment

This study aimed to ascertain the effects of an induced magnetic field of a similar intensity as that of a natural geopathogenic zone on livestock. First we had to assemble a device that homogenized the natural magnetic background in the trial barn with the absence of longitudinal waves.

We used a large-space area screener composed of 4 coils. Three coils were placed horizontally with an axis angle of 120° and connected serially. The fourth coil was situated vertically and connected to the others in parallel. A magnetic background of 20 nT was measured by measuring instrument Tester EMS-823. In a compensated area we installed a resonator composed of an emitter of magnetic waves and a glass resonating cylinder. A permanent magnet was built into a globe-shaped emitter. The magnetic induction was altered with the change of distance between these two components (emitter and resonating cylinder). When the distance between the emitter and resonating cylinder was 0.52 m, a magnetic induction of 57,7 mT was measured to 0.1 m by means of a differential magnetometer BG 91. A permanent magnet excited the resonator through the static magnetic field, and the resonator generated longitudinal waves of the electromagnetic field called also Tesla's scalar waves (Meyl, 1998).

The resonator was placed at the height of 2.93 m above the feeding alley. The heads of four cows were exposed to a magnetic induction of the static magnetic field of 42.1 μT and their rears to 21.9 μT (these are values obtained in animal housings with a detected geopathogenic zone) and to longitudinal waves of an electromagnetic field. We kept this distance (0.52m) unchanged during all period of the exposure.

Animals and Housing

Twenty five Holstein cows, which were gradually divided into two balanced groups by milk production over the first 6 months of lactation were used in the experiment. The trial group animals (n =13) were exposed to a static magnetic field (from 42.1 μT to 21.9 μT) and to longitudinal waves of electromagnetic field from the 196th day of gestation.

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The control group (n=12) was in a separated area. Two concentric circles determined the effects of magnetic radiation from the resonator on the head and the rear part of animals. The magnetic field was affecting the animal obliquely from above. Dairy cows from trial and control groups were kept in tie-stall housing without access to an exercise lot from the 196th to the 258th day of gestation. Both groups were kept in separate areas within the same barn so as to maintain a permanent intensity of the magnetic field.

All cows were gradually moved to a group maternity pen with loose housing, straw bedding and a zero magnetic field two weeks before the planned parturition. Both groups were in the same environment over the whole lactation period. The average of lactation order was 3,5 in trial group and 3,3 in control group. The cows were fed the same feed ration consisting of corn silage, alfalfa hay and concentrate mixture. The calves could eat starter mixtures and alfalfa hay from a special feeder and crib; they could also eat the same ration as the cows from the trough. Calves were fed alfalfa hay and corn silage free choice and 1.5 kg concentrate per day after weaning. After calving, cows were moved to a loose housing production barn. Milk production was monitored on a daily basis and milk composition determined every two weeks. The cows were weighed once a month. Reproduction and health of the animals was monitored.

Eight bulls and 4 heifers were born in the trial group, and 6 bulls and 6 heifers in the control group. The animals were reared by nurse cows in loose housing from the seventh day of life until weaning. Weaning was conducted at 56 days in all animals. Live body weight was measured at birth, every two weeks and during every change of housing. Two bulls from the trial group were slaughtered due to respiratory diseases at the age of 22 weeks.

Behavior tests

The 6-unit maze 16.4 x 4.5 m was used. On the first observation day the calves was tested five times. The first test was for training. Time was recorded from entry to exit. Behavior was recorded by a video camera.

An open-field test was applied at three ages, A1 (16 weeks), A2 (25 weeks) and A3 (12 months) in an arena marked off into 9 squares. In A1 and A2, the size of the arena was 4.5 x 4.5 m. Two buckets containing concentrate were placed therein. The calves were given four 5-minute tests (AM and PM during 2 consecutive days). Behaviour of the animals was recorded using a video camera. The animals were subjected to six, 10 minute tests during 3 consecutive days at the A3 age in a 10x10 m arena. A manger containing concentrate was placed in square 8. The animals were exposed to isolation and silence during the first two tests, and to an unfamiliar person sitting on square 4 during the third and fourth tests. Noise (110dB and 1kHz) was used as a stress factor for the last two tests.

Statistical analysis

The data were analyzed with a statistical package STATISTIX (Analytical Software, P.O. Box 12185, Tallahassee, FL 32317-2185, USA). Between-group comparisons (factor treatment) were analyzed using a two-way analysis of variance (ANOVA) with repeated measures (factor days). Significant differences between means were tested by Tukey's test.

RESULTS

Cows

Milk production of trial cows showed a lower trend as soon as the second month. In the tenth month of a standardized lactation (305 days), a significant difference (*P<0.05) between treatments in favor of the control group was recorded (417 kg vs. 583 kg). A 513-kg significant difference (*P<0.05) was found between control and treatment groups for the 305 d lactation (6910 kg vs.7423 kg) (Table 1). The largest difference between groups in the content of individual components was in milk fat (3.71% versus 3.55%). Lactose production was significantly (*P<0.05) different (336.7 kg vs. 359.5 kg). The growth of live body weight of dairy cows in observed groups did not differ in any lactation month. The average daily gain over the period from the 30th to the 305th day of lactation was 0.26 kg in the trial group and 0.23 kg in the control group.

Reproduction indicators of cows in both groups were not significantly different during the lactation following exposure to the magnetic field. Days open (139.8 vs.164.4) and calving intervals were shorter (415.2 vs. 440.0) in the trial group. During the trial, 2 cows were culled out of the trial group for health reasons and one for sterility. Three cows were culled from the control group for sterility and one for sickness. Eight males and four females were born in the trial group; one cow had stillborn twins and one live-born twins. Six males and six females were born in the control group. All cows in the trial group calved without help, and one parturition was assisted in the control group.

Calves

No significant differences between groups were found in the growth of live body weight during the whole trial. Live body weight at birth was slightly higher in the trial group (45.5 kg vs. 44.2 kg). From birth to 120 days, there was no difference between groups for body weight change. Average daily gains were slightly higher in the trial group, but again this difference was not significant. The average daily gain from birth to 30 days was 0.52 kg in the trial group and 0.42 in the control group. There were average daily gains of 0.67 kg in the trial group and 0.65 kg in the control group for the period from birth to 120 days.

The total time of standing in the maze decreased from 47.7 s in the first run to 27.9 s in the second run, and this level was maintained until the fourth run. There was a significant increase in the fifth run to 70 s, and this time changed only negligibly until the eighth run. The average times on the first and second days (34.7 s vs. 69.5 s) were significantly different.

We evaluated the orientation of the calves in the maze according to the number of mistakes and returns to the entrance part. Animals from the trial and control groups made the same number of mistakes (26). On both days, there were generally less returns in the control group.

Calves from the trial group ran across the maze in the first run slower than calves from the control group (84.5 s vs. 44.2 s). In the next three runs the animals from the control group were slower. Beginning in the fifth run, the time spent in the maze was significantly

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prolonged in the trial group. Due to the time extension, there was a significant difference (*P<0.05) between the average times on the first and second days (69.1 s vs. 112.6 s).

The number of grid crossings for the first minutes and for the whole 5 minutes tests were not statistically different between groups at the ages A1 and A2. The longest stay in both groups occurred in square No. 7 for ages A1 and A2. During all tests, the stay was higher in the trial group (**P<0.01). Total times of movement were slightly lower in the trial group. There were no significant differences between the times of the first eating or the length of feeding. At 25 weeks, first sniffing of the bucket occurred much sooner than at a younger age. Animals in the trial group were slightly faster. The time of the first eating of feed at 25 weeks was different between treatments (*P<0.05). In all tests, the reaction of the trial group was faster, with the greatest differences found on the first and second tests (113.7 s vs. 177.7 s. and 24 s. vs. 43 s). Vocalization was more frequent in the control group during both age periods.

The frequency of stays in square No. 8, where the manger was placed, was falling equally in both groups from the first to the fourth tests at the age of A3. The frequency of staying at the manger and concentrate sniffing and a time of feeding were not different. In the last two tests with noise stress introduced, the frequency of staying at manger increased in the control group. Owing to this, differences between groups were significant (*P<0.05) in the fifth test and on the third day. There were no significant differences between groups in frequencies or in lengths of staying in square No. 4 where an unfamiliar person was sitting, but slightly higher values were recorded in a control group. A similar trend was found in the evaluation of stays on the boundary with square No. 4. Contact behaviour, measured by the frequency and length of sniffing of the person, was not significantly different between groups.

DISCUSSION

In this study, we aim to report on the research into the impact of an artificially induced magnetic field on production and behavior of dairy cattle. A natural zone could not ensure the same intensity of radiation on all observed farms. To avoid this disadvantage we exposed the cows to an induced magnetic field, which is, in fact, an induced geopathogenic zone. Under these conditions we proved that a weak magnetic field affecting animals in the gestation period constitutes a negative environmental factor that decreases milk production. No negative influence of the magnetic field on reproduction was observed. Live body weight of calves at birth, as well as weight gains of mothers during lactation were higher in the trial group. It was obvious that the trial group had better reproduction parameters. However, this could not be linked with exposure to the magnetic field. By no means do we claim that the effects of this factor improve the milk production of cows. Similarly, as in humans, the impact of the magnetic field on animals differs by individuals. In our experiment, we focused on the study of the magnetic field, which was induced so as to acquire the same intensity as that found in nature in the strongest geopathogenic zones. We focused on indirect effects, in the period when the fetus was in a high degree of development. The values of magnetic induction affecting the mother's organism were higher than those noted by Thompson et al (1995) in lambs, but lower than those used by Reilly (1995). However, the mother's immunity system might have been disturbed. On the other hand, the fetus has a maximum protection from

environmental influences in the womb. We have not proved the conclusion of Pohl (1986) that growth decreased in animals after exposure to the magnetic field. Calves of the trial group grew more intensively, but that could have been caused by a larger number of bulls in the trial group. It is worth mentioning that two bulls from the trial group had to be culled due to pneumonia and subsequent slaughter at the age of 22 weeks. Here it could be an immunity problem.

Stressors operating in the prenatal or early postnatal period can influence development, behavior and physiological reactions of individuals (Weinstock, 1997; Williams et al., 1999). We aimed for a complex assessment of the behavior of animals. Therefore, we applied methods for inducing abnormal reactions of animals.

In maze tests, the stay of the trial group the total time spent in test facility were prolonged. This is what authors Vallee et al. (1999) say. On the other hand, this prolonging of time could be accounted for as an increased exploratory reaction. This exploratory behavior occurred only in bulls. It is yet to be ascertained whether we will consider this exploratory behavior of males as positive or negative. If it is an expression of a higher interest in the environment, and thus of a higher intelligence (Purcell and Arave, 1991), we can speak about positive effects of the magnetic field of a certain intensity operating during an intrauterine development. Similar results in the comparison of the sex behaviour of calves were found out by Arave et al. (1992). The male calves were slower to find the food source than females. Exploration of an unfamiliar environment and its evaluation is fundamental to adaptation. According to Braastad (1998), prenatally stressed animals reportedly show a reduced exploratory behavior and an impaired learning ability. In this respect, we obtained contrary results. Calves that were prenatally exposed to the magnetic field showed a more significant exploratory behavior. For example, female rats showed significantly higher exploratory activities in a hexagonal tunnel maze, but defecated significantly less than males (Escorihuela et al, 1997).

Another method we used for the evaluation of emotional reactivity the open-field test. Our animals from both groups showed a good habituation, and their motor activity decreased from the first to the fourth test in each testing age. We found no differences between the sexes during open-field tests, opposite to the maze. The results of open-field tests conducted by additional authors indicate that a poor environment can increase the motivation of animals to explore or to fear. Fearfulness, which can be expressed by increased vocalization (Passillee et al, 1995), was more prevalent in the control group. Animals prenatally exposed to the magnetic field did not have an increased mobility as Sienkiewicz et al. (1998), reported in laboratory animals.

Approach behaviour to humans was not significantly different between groups at the age of 12 months, but slightly lower values were found in the trial group. Needless to say we do not consider this evidence of the negative impact of the treatment used in the prenatal period. Based on all mentioned information, we cannot qualify the reaction of trial group calves as abnormal or different from standard behavioral patterns. The effects of this environmental factor in the prenatal period did not have a negative impact on the calves.

CONCLUSION

We can conclude that no convincing impact of the magnetic field in the prenatal period

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has been proven on the growth, maze and open-field behaviour and relationship of calves to humans. However, our experiment show that a magnetic induction of 21.9 ΦT to 42.1 ΦT imposed during gestation does not allow for a full realization of genetic dispositions for milk production in a subsequent lactation. A negative impact of this environmental factor on the body weight of cows after calving and on their reproduction has not been proven.

REFERENCES

Arave, C.W., R.C. Lamb, M.J. Arambel, D. Purcell, and J.L. Walters. 1992. Behavior and maze learning ability of dairy calves as influenced by housing, sex and sire. *Appl. Anim. Behav. Sci.* 33: 149-163.

Barnothy, J.M. 1964. Introduction. In: *Biological effects of magnetic fields,* 1-24. M.F. Barnothy, eds. Plenum Press, New York.

Braastad, B.O. 1998. Effects of prenatal stress on behaviour of offspring of laboratory and farmed mammals. *Appl. Anim. Behav. Sci.* 61: 159-180.

Burchard, J.F., D.H. Nguyen, and E. Block. 1996. Biological effects of electric and magnetic fields on productivity of dairy cows. *J. Dairy Sci* . 79: 1549-1554.

Escorihuela, R.M., A. Fernandez-Teruel, and A. Tobena. 1997. Labyrinth exploration, emotional reactivity, and conditioned fear in young Roman/Verh inbred rats. *Behavior Genetics.* 27: 573-578.

Gould, J.L. 1984. Magnetic field sensitivity in animals. *Review of Physiology.* 46: 585-598.

Harsch, B., D. Marx, and K. Loeffler. 1996a. Einflusse vermuteter Stoerzonen auf die Gesundheit und Leistung landwirtschaftlicher Nutztiere und Auswirkungen der fΦr die Beseitigung derartiger Einflusse entwickelten Photonenplatte von R. Wiggenhauser. 2. Mitt. Herzschlag- und Atmungsfrequenz, Koerperinnentemperatur, Blutparameter, Mastleistung und Wachstum, Stalluftbedingungen; Tieraerztl. Umschau. 51: 722-729.

Harsch, B., D. Marx, K. Loeffler, and E. Grunert. 1996b. Einflusse vermuteter Stoerzonen auf die Gesundheit und Leistung landwirtschaftlicher Nutztiere und Auswirkungen der fur die Beseitigung derartiger Einflusse entwickelten Photonenplatte von R. Wiggenhauser. 3. Mitt. Gesundheits- bzw. Krankheitszustand der Milchkuhe und ihre Fruchtbarkeitleistungen. Tieraerztl. Umschau. 51: 772-785.

Kowalczuk, C.I., L. Robbins, J.M. Thomas, B.K. Butland, and R.D. Saunders. 1994. Effects of prenatal exposure to 50 Hz magnetic fields on development in mice: I. Implantation rate and fetal development. *Bioelectromagnetics.* 15: 349-361.

Llaurado, J.G. 1985. Harmful effects of electromagnetic fields: myth or reality? *Int J Bio-Medical Computing.* 17: 1-6.

Mevissen, M., M. Haussler, M. Szamel, A. Emmendoerffer, S. Thun-Battersby, and W.

LΦscher. 1998. Complex effects of long-term 50 Hz magnetic field exposure in vivo on immune functions in female Sprague-Dawley rats depend on duration of exposure. *Bioelectromagnetics.* 19: 259-270.

Meyl, K. 1998. Elektromagnetische UmweltvertrΦglichkeit. Ursachen, PhΦnomene und naturwissenschaftliche Konsequenzen. Teil 1: Umdruck zur Vorlesung. Villingen-Schweningen, INDEL GmbH, Verlag, 219 p.

Ossenkopp, K. 1972. Maturation and open-field behaviour in rats exposed prenatally to an ELF low intensity rotating magnetic field. *Psychological Report.* 30: 371-374.

Passille, de A.M., J. Rushen, and F. Martin. 1995. Interpreting the behaviour of calves in an open-field test: a factor analysis. *Appl. Anim. Behav. Sci* . 45: 201-213.

Pohl, von G.F. 1986. *Erdstrahlen als Krankheits- und Krebserreger* . Germany: Frech-Verlag.

Purcell, D., and C.W. Arave. 1991. Isolation vs. group rearing in monozygous twin heifer calves. *Appl. Anim. Behav. Sci* . 31: 147-156.

Reilly, J.P. 1995. Nerve stimulation of cows and other farm animals by time-varying magnetic fields. *Transactions of the ASAE* . 38: 1487-1494.

Sienkiewicz, Z.J., L. Robbins, R.G.E. Haylock, and R.D. Sauders. 1994. Effects of prenatal exposure to 50 Hz magnetic fields on development in mice: II. Postnatal development and behavior. *Bioelectromagnetics.* 15: 363-375.

Sienkiewicz, Z.J., R.G.E. Haylock, and R.D. Sauders. 1996a. Acute exposure to power-frequency magnetic fields has no effect on the acquisition of a spatial learning task by adult male mice. *Bioelectromagnetics* . 17: 180-186.

Sienkiewicz, Z.J., S. Larder, and R.D. Sauders. 1996b. Prenatale exposure to a 50 Hz magnetic fields has no effect on spatial learning in adult mice. *Bioelectromagnetics.* 17: 249-252.

Sienkiewicz, Z.J., R.G.E. Haylock, and R.D. Sauders. 1998. Deficits in spatial learning after exposure of mice to a 50 Hz magnetic field. *Bioelectromagnetics.* 19: 79-84.

Thompson, J.M., F. Stormshak, J.M. Lee, D.L. Hess, and L. Painter. 1995. Cortisol secretion and growth in ewe lambs chronically exposed to electric and magnetic fields of a 60-hertz 500-kilovolt AC transmission line. *J. Anim. Sci.* 73: 3274-3280.

Vallee, M., S. Maccari, F. Dellu, H. Simon, M. Le Moal, and W. Mayo. 1999. Long-term effects of prenatal stress and postnatal handling on age-related glucocorticoid secretion and cognitive performance: a longitudinal study in the rat. *Eur J Neurosci.* 11: 2906-2916.

Veterany, L., and S. Hluchy. 2001. Effect of magnetic field on chicken hatching. *Czech J. Anim. Sci.* 46: 289-291.

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Weinstock, M. 1997. Does prenatal stress impair coping and regulation of hypothalamic-pituitary-adrenal axis? *Neurosci. Biobehav. Rev.* 21: 1-10.

Wenzel, C., A.C. Woehr, J. Unshelm. 2002. Das Verhalten von Milchrindern unter dem Einfluss elektromagnetischer Felder. *Der Praktische Tierarzt.* 83:260-267.

Williams, M.T., H.N. Davis, A.E. McCrea, and M.B. Hennessy. 1999. Stress during pregnancy alters the offspring hypothalamic, pituitary, adrenal, and testicular response to isolation on the day of weaning. *Neurotoxicol. Teratol.* 21: 653-659.

Table 1 Milk yield (kg)

Month of lactation	Trial group	Control group	d	F-test					
n	Mean	SD	n	Mean	SD	a	b		
1.	13	861.4	105.8	12	856.9	163.5	4.5	1.216	0.008
2.	13	956.5	92.3	12	974.2	141.7	-17.7	0.286	0.160
3.	13	872.1	99.2	12	915.3	133.6	-43.2	1.173	0.976
4.	13	838.1	120.4	12	885.0	137.4	-46.9	0.980	0.700
5.	13	799.6	130.4	12	821.4	165.9	-21.8	0.651	0.154
6.	13	718.1	129.2	12	733.6	167.6	-15.5	1.280	0.078
7.	11	633.2	97.0	12	650.2	167.0	-17.0	3.182 +	0.121
8.	11	552.5	121.9	12	592.9	143.6	-40.4	1.686	0.719
9.	11	471.5	161.1	11	525.3	110.8	-53.8	2.017	1.176
10.	8	417.2	253.3	8	582.6	225.3	-165.4	0.618	5.303 +
305 days	11	6910.5	860.1	12	7423.1	722.7	-512.6	2.430 +	3.780 +

+ $P < 0.05$

a - animals; b - treatment; d - difference

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Effect of 10 kV, 30 μT, 60 Hz Electric and Magnetic Fields on Milk Production and Feed Intake in Nonpregnant Dairy Cattle

J.F. Burchard,[1]* H. Monardes,[1] and D.H. Nguyen[2]

[1]*Department of Animal Science, McGill University, Sainte Anne de Bellevue, Québec, Canada*

[2]*Institut de Recherche d'Hydro-Québec, Varennes, Québec, Canada*

Milk production is the main agricultural income in the province of Québec, and the electrical distribution network traverses the rural dairy production region. This study evaluates the hypothesis that electric and magnetic fields may affect dairy production. Sixteen multiparous nonpregnant lactating Holstein cows (weighing 662 ± 65 kg and with 150.4 ± 40 days of lactation) were confined to wooden metabolic crates during the experiment with a 12:12 h light:dark cycle. The cows were divided into two replicates of eight cows each and exposed to a vertical EF of 10 kV/m and an uniform horizontal MF of 30 μT at 60 Hz. Replicate one was exposed for three periods. Each period was represented by an estrous cycle ranging from 24 to 27 days. During the first period, the electric and magnetic fields (E&MF) were off; during the second period they were on; and during the final period, they were off. The second replicate was exposed for three periods also, but the exposure protocol was reversed (first period, on; second period, off; last period, on). Exposure to E&MF (on) resulted in an average decrease of 4.97, 13.78, and 16.39% in milk yield, fat corrected milk yield, and milk fat, respectively; and an increase of 4.75% in dry matter intake. Bioelectromagnetics 24:557–563, 2003. © 2003 Wiley-Liss, Inc.

Key words: feed intake; electric field; magnetic field; cows; extremely low frequency; alternating current

INTRODUCTION

The capacity of electric and magnetic fields (E&MF) to induce electric fields (EF) and currents in the tissues of exposed subjects (Kaune and Gillis, 1981; Kaune and Forsythe, 1988; Tenforde, 1989) and the hypothesis that E&MF might have biological effects on humans and/or on animal health have motivated a considerable number of scientists to direct their research efforts toward a better understanding of the biological effects of E&MF. Milk production represents the most important economic activity in agriculture in Québec. The electrical network of Hydro-Québec (Qué., Canada) traverses these rural areas. Because of this exposure, Hydro-Québec was motivated to study the effect of extremely low frequency alternating current (AC) E&MF on dairy cows. A chamber was constructed to generate E&MF similar to those prevailing directly under alternating current 735 kV power lines and to resemble normal dairy farming conditions in a confined housing system.

Previous related studies were principally field studies based on surveys of farmers (Busby et al., 1974; Williams and Beiler, 1979; Amstutz and Miller, 1980) and retrospective studies based on surveys and existing data banks (Williams and Beiler, 1979; Algers et al., 1981; Algers and Hennichs, 1985; Martin et al., 1986). Attempts to evaluate the biological effects of E&MF on yield and reproduction variables of cows in a semicontrolled environment have been conducted in Sweden (Algers and Hultgren, 1987) and in the US (Raleigh, 1988). In those experiments, both direct current (DC) and AC lines were used, and the variables (fertility, behavior, yield, and health) measured in farm animals did not show evidence of an effect attributable to E&MF. However, the uniformity of the E&MF and the sensitivity of the variables assessed varied considerably. Specifically, two herds with a total of 55 cows grazing

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*Correspondence to: J.F. Burchard, Department of Animal Science, McGill University, 21111 Lakeshore, Sainte-Anne de Bellevue, Qué., H9X 3V9 Canada.
E-mail: Javier.burchard@mcgill.ca

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near a 400 kV AC line did not systematically avoid the area underneath the power line (Algers et al., 1981). In the same report, using artificial insemination records from 36 herds that were grazing during the summer underneath a 400 kV AC line did not show any reduced fertility that could be related to E&MF.

Two herds exposed to 400 kV AC lines in Sweden experienced fertility problems (Algers et al., 1981). In the first herd, exposure time between 1974 and 1976 was about 25 days/year, and exposure time between 1977 and 1978 was about 55 days/year. The second herd was exposed about 26 days/year. Information obtained from both herds indicated that when exposure to 400 kV AC lines commenced, a detrimental effect on fertility was noticed. Other researchers (Busby et al., 1974) carried out surveys at four dairy farms. In two of them, milk yield was higher prior to the installation of a 765 kV AC power transmission line near the farm. On the other two farms, no effect of the high voltage line was claimed.

A study of 55 dairy farms during a period of 4–6 years before and after the construction of a 765 kV AC power line revealed no effect of the lines on fertility, calf mortality, or birth abnormalities (Wilson and Anderson, 1989). A study of the fertility of cows, based on artificial insemination records of 106 farms in Sweden that were exposed to 400 kV AC lines for more than 15 days, revealed no effect on reproductive performance due to the high tension lines (Algers et al., 1981). Heifers housed beneath a 400 kV AC, 50 Hz transmission line and exposed for 120 days to E&MF averaging 4 kV/m and 2 μT did not differ in regularity of the estrous cycle, midcycle plasma progesterone concentration, intensity of estrus, or conception rate in response to E&MF exposure (Algers and Hultgren, 1987). Exposure of 774 beef cattle to a mean E&MF of 5.6 kV/m under a 500 kV DC transmission line over a period of 3 years did not affect feed consumption, health, mortality, number of calves weaned, sexual development in bull calves, or carcass weight (Raleigh, 1988).

The problem with the above studies was that the exposed intensity and time exposed to E&MF varied considerably. In fact, in some of the trials, the exposed cattle may have been receiving no E&MF exposure for days or portions of days because the current in the power lines varied, as did the distance of the cattle from the lines, both of which affect the intensity of the E&MF. Relatively few studies have been conducted in a controlled environment (Burchard et al., 1996, 1998, 1999; Rodriguez et al., 1998, 2002). These studies have suggested that dairy cows respond with certain physiological changes when exposed to E&MF similar to those generated by high tension lines. Burchard et al. (1996) showed an increase in dry matter intake (DMI) and fat corrected milk in lactating, pregnant dairy cows exposed to E&MF (10 kV/m, 30 μT).

The experiment reported here was designed to study the effect of continuous exposure to 60 Hz AC E&MF, similar to those generated by 735 kV power lines, on milk yield and composition, and feed intake in nonpregnant dairy cows with estrous cycle activity.

MATERIALS AND METHODS

Sixteen multiparous nonpregnant lactating Holstein cows weighing 662 ± 65 kg (mean ± SD) with 150 ± 40 days of lactation were confined to wooden metabolic crates in a E&MF chamber during the experiment with a 12:12 h light:dark cycle. Room temperature and humidity were 18.2 ± 4.6 °C and 57 ± 30%, respectively. Light intensity in the E&MF chamber during the light and dark periods were 321 ± 14 and 0 ± 0.0 lux, respectively. All the experimental procedures comply with the good laboratory practices (GLP) recommended by the Guide to the Care and Use of Experimental Animals of the Canadian Council on Animal Care (Canadian Council of Animal Care (CCAC), 1984).

The cows were blindly allocated into two replicates of eight cows each, based on their parity and days in lactation. Each replicate was treated for three consecutive periods (three estrous cycles). For replicate one, during the first period of the treatment, the E&MF were off; during the second period they were on; and during the final period, they were off. The second replicate was treated for three periods also, but the activity of the fields was reversed (first period, on; second period, off; third period, on). The number of days of each exposure period varied according to the estrous cycle duration. Since each treatment period is equivalent to an estrous cycle and estrous cycle differ in duration, only the first 3 weeks of exposure within each treatment period were considered for data analysis.

The E&MF chamber contained eight wooden metabolism crates, each capable of housing one cow, and was designed to allow simultaneous exposure of up to eight animals during long uninterrupted periods. Wooden (rather than metal) metabolism box stalls were used to minimize disturbance of the EF. The wooden floor of each metabolism crate was covered with rubber mats, water bowls, and plastic pipes (nylon tubing 3/8″ [~0.95 cm] diameter and at least 5 m long), and the metallic grids of the manure management system were grounded to avoid currents associated to stray voltage The magnetic field (MF) in the chamber was generated by 14 rectangular coils, 10 m long and 4 m high. A current of 1.03 A generated a uniform horizontal MF of 30 μT (60 Hz). The EF was generated by two plates 9 m long and 6.5 m wide that were suspended 0.4 m from the

ceiling by synthetic isolators. The total electric capacity of the plates was 4.3 nF. This system produced a vertical EF of 10 kV/m (60 Hz).

Measurements of the E&MF were performed with probes installed at three locations in the chamber and were recorded with a data acquisition system every 5 min. All probes were checked and calibrated at the beginning of every period of exposure using a commercial probe. Further description of the chamber can be found in Nguyen et al. (1995) and Burchard et al. (1999). The intensity of the E&MF chosen for this experiment resembles the hypothetical worst case scenario encountered by the dairy cattle on pasture standing continuously under an 735 kV AC power line when the line has a maximum load of current of 2000 A. In reality, these conditions are found only for a few days during the winter in the Province of Québec.

Estrous cycles were synchronized in order to obtain a homogeneous sample of animals regarding estrous cycle status within each period of treatment. The beginning of the first estrous cycle was synchronized with two 25 mg dinopros-tromethamine (Lutalyse, Upjohn, Kalamazoo, MI) injections separated by 11 days. Thirteen days after the first dinoprostromethamine injection was defined as day 1 of treatment. After 17 days of treatment, milk progesterone concentration was evaluated every other day to detect the presence of a new corpus luteum in the ovary. Once the corpus luteum was detected in all cows, 25 mg dinopros-tromethamine were injected to synchronize the initiation of the next estrous cycle to be included in the replicate. This procedure was repeated twice in order to evaluate three consecutive estrous cycles or periods per cow. Milk progesterone was estimated using a qualitative immunoreactive commercial kit (Target, Biometallics, Princeton, NJ).

The animals were fed twice daily, a total mixed ration (TMR) formulated to meet NRC requirements (NRC, 1989) and allow *ad libitum* consumption. The TMR consisted of forages, corn, and commercial protein and mineral supplements. The TMR was supplied with individual plastic containers in order to measure daily DMI. The TMR dry matter content was determined weekly. TMRs were sampled weekly, and a monthly composite sample was chemically analyzed. Water and feed were available *ad libitum*.

Milking was performed twice daily. Feed intake and milk production were measured daily. Samples of morning and afternoon milk were collected weekly and submitted for analysis of milk fat, milk protein, and somatic cell count to the local dairy herd analysis program laboratory (Programme d'analyse des troupeaux laitieres du Québec, Ste. Anne de Bellevue, Qué.). Cows were observed daily to assess their health status.

Statistical Analysis

The data collected during the first 3 weeks of treatment within each treatment period were compiled and analyzed using the mixed model procedure of SAS (SAS Institute, Inc., Cary, NC). One animal was eliminated from the data set because it stopped lactating before completing the experimental periods. The experimental design was a cross-over design with treatment switchback (Lucas, 1957; Oman and Seiden, 1988). This method has been developed to test two treatments in the same experimental unit, resulting in a reduction of the number of experimental animals required and in the variability between cows. In this design, each cow receives both treatments (treatment A = off, treatment B = on) in either of the sequences 1 or 2 (sequence 1 = A_1 B_2 A_3, sequence 2 = B_1 A_2 B_3 where the suffixes denote periods or estrous cycle). (Cochran and Cox, 1957). The statistical model used was the following:

$$Y_{ijklm} = \mu + rep_i + trt_j + period_k + day_l + trt_j \times day_l + cow_{im} + \lambda im \times period_k + e_{ijklm}$$

where: μ = overall mean
rep_i = effect of the ith replicate (i = 1,2)
trt_j = effect of the jth treatment (j = 1= off, j = 2 = on)
$period_k$ = effect of the kth period (k = 1,2,3)
day_l = the effect of the lth day (l = 1–21), counted from the beginning of each period
$trt_j \times day_l$ = the interaction effect of treatment and day
cow_{im} = the random effect of the mth cow nested within the ith replicate; 7 cows in replicate 1 and 8 cows in replicate 2
$\lambda_{im} \times period_k$ = the random λ linear time trend of the mth cow nested within the ith replicate
$\lambda_{im} \sim N(0,\sigma^2_e)$.

The model assumes no covariance between measurements from the same cow but in different periods. It also assumes that the 21 daily measurements within each period, for a given cow, have an auto-regression ([ar(1)] covariance structure.

Correlation $(Y_{ijklm}, Y_{ijkl'm}) = \rho^{(l-l')}$, where (l−l′) = interval in days between the treatment on day l and that of day l′, and elsewhere the correlation = 0.

Some departures from normality and heterogeneous variances of residuals between cows within replicated were detected. Removal of the observations with scaled residual of more than three SD from the

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fitted value resulted in no significant changes in the least-square means. Since there is not a valid reason to drop the outlier observations, the complete data set was statistically analyzed. The covariance parameter estimates are presented in Table 2 as a reference for future research.

RESULTS AND DISCUSSION

Results for the production variables are presented as least-squares means (LSM) ± standard error (SE) (Table 1). Exposure to E&MF (on) resulted in a decrease of 4.97%, in milk yield, 13.78% in fat corrected milk yield, and 16.39%, in milk fat content. An increase of 4.75% in dry matter intake was detected. The statistical analysis revealed an interaction between treatment and days of treatment within period for the variables milk fat percentage ($P = 0.011$) and dry matter intake ($P < 0.001$) (Fig. 1). In this experiment, milk production decreased and feed consumption increased during E&MF exposure (Table 1).

These results partially agree with previous results where E&MF were associated with a 5.5% increase in feed consumption and a 9% increase in fat-corrected milk yield in pregnant dairy cows exposed to 10 kV, 30 μT, 60 Hz E&MF (Burchard et al., 1996). However, no increase in feed consumption was observed in beef cattle exposed for 3 years to E&MF under a 500 kV DC transmission line (Raleigh, 1988). These inconsistencies could be due to a different reproductive stage of the animals used in these studies. However, this study did not produce the data to confirm this hypothesis. A study with rats demonstrated an increase in body weight after 10 weeks of exposure to a 0.5 mT MF; however, a total exposure period of 68 weeks of exposure failed to demonstrate the same MF effect (Takebe et al., 1999). Lambs chronically exposed to E&MF of a 60 Hz 550 kV AC transmission did not experience any difference in weight gain due to E&MF exposure (Thompson et al., 1995).

TABLE 1. Milk Yield, Fat-Corrected Milk Yield, Dry Matter Consumption, and Milk Fat Percentage Obtained in 15 Lactating Nonpregnant Dairy Cows During the First Three Weeks for Each of Three Consecutive Estrous Cycles During E&MF Nonexposure (off) and Exposure (on) Periods

Variable	Off	On	SE	*P*
Milk yield (kg/day)	23.76	22.58	0.30	0.0002
4% Fat-corrected milk yield (kg/day)	24.66	21.26	0.71	<0.0001
Dry matter intake (kg/day)	20.00	20.95	0.24	0.0002
Milk fat content (%)	4.27	3.57	0.23	0.0033

Results are least-squares mean, their standard errors (SE), and the level of significance.

The percentage of fat in milk was lower during E&MF exposure. The interaction between treatment and days of exposure was significant for milk fat (Fig. 1D) and DMI (Fig. 1C). This suggests that the magnitude of E&MF effect varied over the time of treatment. Long photoperiod stimulation of milk yield in dairy cows becomes statistically detectable after 28 days of treatment (Dahl et al., 1997). The increase in DMI observed in the study reported herein is coincidental with an increase in milk fat content. Further statistical analysis of previous experiments (Burchard et al., 1996) revealed a significant week-by-treatment interaction for fat-corrected milk, DMI, and milk fat content. An analogous situation was observed when lactating pregnant dairy cows were exposed to E&MF (Rodriguez et al., 2002). This agrees with the suggestion that the E&MF exposure effect varies across time due to an adaptation response of the animals.

The suppression of the synthesis of the hormone melatonin (MLT) in the pineal gland in certain species has been suggested to be the mechanism of interaction between extremely low frequency E&MF and a variety of biological entities (Reiter, 1991, 1993; Kato et al., 1994; Yellon, 1994). This effect of E&MF on pineal secretion is postulated to be analogous to that of light.

The response of feed consumption and milk production to photoperiod in dairy cows has been studied extensively and was recently reviewed (Peters and Tucker, 1978; Peters et al., 1978). Artificial exposure to long days increased milk yield in dairy cattle. However, increases in milk yields were not always complemented with increases in feed intake (Stanisiewski et al., 1985; Bilodeau et al., 1989; Evans et al., 1989; Dahl et al., 1997, 2000; Reksen et al., 1999). Burchard et al. (1998) could not demonstrate an effect of E&MF exposure on nocturnal MLT concentrations in pregnant lactating cows. Nevertheless, when MLT was measured for 24-h period in lactating pregnant and nonlactating, nonpregnant cows exposed to EMF during short photoperiods, it revealed a decrease in circulating MLT during the photophase, but not during the scotophase (Rodriguez et al., 1998).

An increase in the day length has been associated with a decrease in nocturnal MLT in pre-pubertal heifers (Tucker, 1992) and an increase in voluntary DMI (Dominique et al., 1992) body weight (BW) and prolactin in sheep (Forbes et al., 1979) and red deer (Suttie and Kay, 1985). A hypothetical decrease in MLT caused by exposure to E&MF in this experiment might have increased prolactin in plasma, leading to an increase in voluntary DMI, analogous to the effect of a longer day length. Data from our laboratory, submitted

TABLE 2. Covariance Parameter Estimates for Milk Yield, Fat-Corrected Milk Yield, Dry Matter Consumption, and Milk Fat Percentage Obtained in 15 Lactating Nonpregnant Dairy Cows During the First Three Weeks for Each of Three Consecutive Estrous Cycles During E&MF Nonexposure (off) and Exposure (on) Periods

	Estimates			
Covariance parameter	Milk yield	Fat-corrected milk yield	Dry matter consumption	Milk fat percentage
σ^2Cow	17.34	25.78	4.11	0.10
σ^2Time trend	1.15	2.41	5.88	0
Correlation between days	0.53	0.74	0.25	0.88
σ^2e	6.4	19.0	7.65	1.08

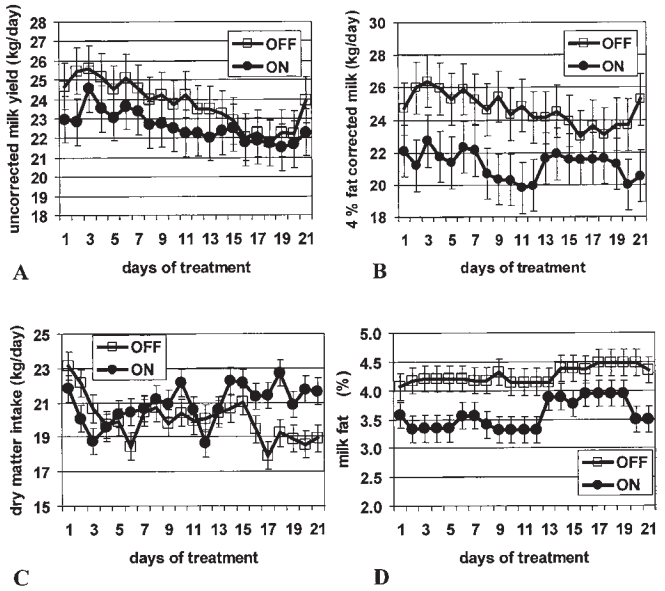

Fig. 1. Milk yield (**A**), fat corrected milk yield (**B**), dry matter consumption (**C**), and milk fat percentage (**D**) by day of treatment within each period (estrous cycles) obtained in 15 lactating nonpregnant dairy cows during the 21 days in three consecutive periods during E&MF nonexposure (off) and exposure (on) periods. Results are least squares means and their standard errors (SE).

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for publication, indicate that E&MF exposure increases prolactin in dairy cattle This increase in DMI associated to E&MF has been observed previously concomitant with increases in milk yield (Burchard et al., 1996) and no changes in milk yield, but increased body weight (Rodriguez et al., 2002). It is possible that the increase in DMI observed in this experiment, at this stage of lactation, resulted in weight gain rather than milk production.

CONCLUSIONS

From this study, it can be concluded that E&MF exposure (10 kV/m, 30 μT, 60 Hz) similar to that encountered under worst case scenario underneath a 735 kV transmission line, resulted in a moderate decrease in milk yield and milk fat percentage; and an increase in DMI in non lactating, non pregnant dairy cows.

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REFERENCES

Algers B, Hennichs K. 1985. The effects of exposure to 400 kV transmission lines on the fertility of cows. A retrospective cohort study. Prev Vet Med 3:352–361.

Algers B, Hultgren J. 1987. Effects of long-term exposure to 400-kV, 50 Hz transmission line on estrous and fertility in cows. Prev Vet Med 5:21–26.

Algers B, Ekesbo I, Hennichs K. 1981. The effects of ultra high-voltage transmission lines on the fertility of dairy cows. A preliminary study. Rep. No. 5 Swed. Univ. Agric. Sci. Dep. Anim. Hygiene with Farrier school, Skara, Sweden.

Amstutz HE, Miller DB. 1980. A study of farm animals near 765 kV transmission lines. Bovine Pract 15:51–62.

Bilodeau PP, Petitclerc D, St. Pierre N, Pelletier G, St. Laurent GJ. 1989. Effects of photoperiod and pair-feeding on lactation of cows fed corn or barley grain in total mixed rations. J Dairy Sci 72:2999–3005.

Burchard JF, Nguyen DH, Richard L, Block E. 1996. Biological effects of 60 Hz of electric and magnetic fields on productivity of dairy cattle. J Dairy Sci 79(9):1549–1554.

Burchard JF, Nguyen DH, Block E. 1998. Progesterone concentrations during estrous cycle of dairy cows exposed to electric and magnetic field. Bioelectromagnetics 19:438–443.

Burchard JF, Nguyen DH, Block E. 1999. Macro- and trace element concentrations in blood plasma and cerebrospinal fluid of dairy cows exposed to electric and magnetic fields. Bioelectromagnetics 20:358–364.

Busby K, Driscoll D, Washbon WE. 1974. A field survey of farmer experience with 765 kV transmission lines. Agric. Res. Commiss. State of New York, Albany, New York, NY.

Canadian Council of Animal Care (CCAC). 1984. Guide to the Use and Care of Experimental Animals. Vol. 1. Ottawa Ont., Canada.

Cochran WG, Cox GM. 1957. Experimental designs. New York, NY: John Williams and Sons, p 141.

Dahl GE, Elsasser TH, Capuco AV, Erdman RA, Peters RR. 1997. Effects of a long daily photoperiod on milk yield and circulating concentrations of insulin-like growth factor 1. J Dairy Sci 80:2784–2789.

Dahl GE, Buchanan BA, Tucker HA. 2000. Photoperiodic effects on dairy cattle: A review. J Dairy Sci 83:885–893.

Dominique BMF, Wilson PR, Dellow DW, Barry TN. 1992. Effects of subcutaneous melatonin implants during long daylength on voluntary feed intake, rumen capacity, and heart rate of red deer (*Cervus elaphus*) fed on a forage diet. British J Nutr 68:77.

Evans NM, Hacker RR. 1989. Effect of chronobiological manipulation of lactation in the dairy cow. J Dairy Sci 72:2921–2927.

Evans NM, Hacker RR, Hoover J. 1991. Effect of chronobiological alteration of the circadian rhythm of prolactin and somatotropin release in the dairy cow. J Dairy Sci 74:1821–1829.

Forbes DM, Driver PM, Brown WB, Scannes GG, Hart IC. 1979. The effect of daylength on the growth of lambs. 2. Blood concentrations of growth hormone prolactin, insulin, and thyroxine, and the effect of feeding. Anim Prod 29:43.

Kato M, Honma K, Shigemitsu T, Shiga Y. 1994. Circularly polarized 50 Hz magnetic field reduces pineal melatonin and blood concentrations in Long-Evans rats. Neurosci Lett 168: 205–208.

Kaune WT, Forsythe WC. 1988. Current densities induced in swine and rat models power-frequency electric fields. Bioelectromagnetics 9:1–24.

Kaune WT, Gillis MF. 1981. General properties of the interaction between animals and ELF electric fields. Bioelectromagnetics 2:1–11.

Lucas LH Jr. 1957. Chapter 13. Monograph # 18. Design and analysis of feeding experiments with milking dairy cattle. Raleigh, NC: Institute of Statistics, North Caroline State University.

Martin FB, Bender A, Steuernagel G, Robinson RA, Revsbech R, Sorensen DK, Williamson N, Williams A. 1986. Epidemiological study of Holstein dairy cow performance and reproduction near a high-voltage direct-current powerline. J Toxicol Environ Health 19:303–324.

Nguyen DH, Richard L, Burchard JF, Block E. 1995. An electric and magnetic field exposure chamber for studies of biological effects on dairy cows. The annual review of research on biological effects of electric and magnetic fields from the generation, delivery, and use of electricity. November 12–16, 1995. Palm Springs: CA, USA.

NRC. 1989. Nutrient Requirements of Dairy Cattle. 6th revision. ed. Nat Acad Sci, Washington DC.

Oman SD, Seiden E. 1988. Switch-back designs. Biometrika 75: 81–89.

Peters RR, Tucker HA. 1978. Prolactin and growth hormone responses to photoperiod in heifers. Endocrinology 103: 229–234.

Peters RR, Chapin LT, Leining KB, Tucker HA. 1978. Supplemental lighting stimulates growth and lactation in cattle. Science 199:911–912.

Raleigh RJ. 1988. Rep. DOE/BP-21216-3. Joint HVDC agricultural study. Oregon State University, Boneville Power Administration Portland, Oregon. DOE. Portland, OR.

Reiter RJ. 1991. Pineal melatonin: Cell biology of its synthesis and of its physiological interactions. Endocr Rev 12:151–180.

Reiter RJ. 1993. Static and extremely low frequency electromagnetic field exposure reported effects on the circadian production of melatonin [Review]. J Cell Biochem 51:394–403.

Reksen O, Tverdal A, Landsverk K, Kommisrud E, Boe KE, Ropstad E. 1999. Effects of photointensity and photoperiod on milk yield and reproductive performance of Norwegian red cattle. J Dairy Sci 82:810–816.

Rodriguez M, Petitclerc D, Burchard J, Block E. 1998. Effects of exposure to electric and magnetic fields on melatonin and prolactin levels in dairy cows subjected to short photoperiods. Brussels, Belgium: 3rd International Conference on Farm Animal Endocrinology.

Rodriguez M, Petitclerc D, Nguyen DH, Block E, Burchard JF. 2002. Effect of electric and magnetic fields (60 Hz) on production, and levels of growth hormone and insulin-like growth factor 1, in lactating, pregnant cows subjected to short days. J Dairy Sci 85:2843–2849.

Stanisiewski EP, Mellenberge RW, Anderson CR, Tucker HA. 1985. Effect of photoperiod on milk yield and milk fat in commercial dairy herds. J Dairy Sci 68:1134–1140.

Suttie JM, Kay RNB. 1985. Influence of plane of winter nutrition on plasma concentrations of prolactin and testosterone and their association with voluntary feed intake in red deer stags (*Cervus elaphus*). Anim Reprod Sci 8:247–258.

Takebe H, Shiga T, Kato M, Masada E. 1999. Cracinogenic test. In: Takebe H, Shiga T, Kato M, editors. Biological and health effects from exposure of power-line frequency electromagnetic fields. Chiyoda-ku, Tokyo: Masada IOS press.

Tenforde TS. 1989. Electroreception and magnetoreception in simple and complex organisms. Bioelectromagnetics 10: 215–221.

Thompson JM, Stormshak F, Lee JM, Hess DL, Painter L. 1995. Cortisol secretion in ewe lambs chronically exposed to electric and magnetic fields of a 60-Hz 550-kV AC transmission line. J Anim Sci 73:3274–3280.

Tucker HA. 1992. Prolonged suppression of serum concentrations of melatonin in prepubertal heifers. J Pineal Res 12:181–189.

Williams JH, Beiler JE. 1979. An investigation of dairy farm operations in association with 765-kV transmission in Ohio. Rep.Ohio Power Siting Commission and Cleveland Electric Illuminating Co. Cleveland, OH.

Wilson BR, Anderson LE. 1989. ELF electromagnetic field effect on the pineal gland. In: Wilson BW, Stevens RG, Anderson LE, editors. Extremely low frequency electromagnetic fields: The question of cancer. Columbus, OH: Battelle Press. p 157.

Yellon SM. 1994. Acute 60 Hz magnetic field exposure effects on the melatonin rhythm in the pineal gland and circulation of the adult Djungarian hamster. J Pineal Res 16:136–144.

Response to Submission BO099 (Jeff Fleming, Western Dairy Design Associates, Inc., October 18, 2012)

BO099-1

Refer to Standard Response FB-Response-AG-06.

People and businesses in California use electric power and radio frequency (RF) communications for many purposes and services, in homes, businesses, farms, and factories. The intensive use of electric power and RF communications in California and all developed countries has ensured that the potential health effects of electromagnetic fields and resulting currents and voltages on people and animals have been thoroughly studied. As a result, the levels at which electromagnetic fields (EMF) and RF fields can cause health or behavior effects are well established. Broadly used international standards were created based on intensive investigation to ensure that:

* EMF and RF fields and resulting stray currents and voltages are measured and controlled.
* Fields do not disturb or injure people or animals.

In regard to dairy production, McGill University conducted a study with cows in pens exposed to controlled EMF levels of 330 mG and 10 kV/m, the projected magnetic and electric fields that occur at ground level under a 735-kV line at full load. The researchers measured the following: melatonin levels, prolactin levels, milk production, milk fat content, dry-matter intake by cows, and reproductive outcomes. While a few statistically significant changes in these factors were found, none of the changes was outside the normal range for cows (McGill University 2008). The study concluded that the EMF exposure did not harm the cows or reduce milk productivity. Various studies cited by other researchers regarding EMF and wildlife suggest a range of effects similar for livestock, from nonexistent to relatively small to positive. One study suggests a beneficial application for ELF-EMF in broiler chickens to fight a common parasitic infection called Coccidiosis (Golder Associates 2009).

Since 735-kV utility power transmission lines run up and down the state, cattle and people near those lines are exposed to these levels on a continuing basis. Consistent with the McGill study, epidemiological evidence does not indicate that cattle or people near existing 735-kV utility power transmission lines are generally or broadly affected by the fields.

BO099-1

The California HST traction power 60-Hz current will flow in the overhead contact system (OCS) and in the running rails to provide power to trains. The traction power system is called a 2x25 kV system because it uses 25-kV voltage for the trains, and uses two nearby cables with opposite phase of the 25 kV to distribute the power down the tracks. Currents in this HST 2x25 kV system create EMFs and static electric fields near the HST tracks. However, the HST levels will be lower than the fields typical of a 735-kV utility power transmission line. This is because the separation between HST OCS cables is less, cable-to-cable voltage levels and cable current levels are less, and the HST cables are closer to the ground so that they are closer to the reducing effect of the fields in the ground, all compared to the 735-kV utility power cables.

California HST TM 300.07, EIR/EIS Assessment of CHST Alignment EMF Footprint, shows that at the closest fence line to the HST tracks, the expected magnetic field is 60 mG, less than one-fifth the level from a transmission line. Since cattle cannot be inside the fence line and people can only be inside the fence line at passenger stations, the possible HST EMF exposure is:

* Low compared to the 735-kV utility power transmission line.
* Therefore, below the level at which the McGill study showed no effect on cows and milk production.

Similarly, the electric field from the California HST 25 kV 60 Hz OCS will be low compared to the exposure from a 735-kV utility power transmission line.

For these reasons, EMF effects on livestock and poultry are expected to have negligible intensity under NEPA, and the impact would be less than significant under CEQA. See Standard Response FB-Response-AG-06: Confined Animal Facilities regarding the impact of EMF emissions on dairies.

BO099-2

Refer to Standard Response FB-Response-SO-01, FB-Response-AG-02, FB-Response-AG-04.

For more information on the property acquisition and compensation process see

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BO099-2

EIR/EIS Volume II Technical Appendix 3.12-A.

BO099-3

Refer to Standard Response FB-Response-TR-02, FB-Response-AG-02.

BO099-4

Refer to Standard Response FB-Response-SO-01.

BO099-5

Refer to Standard Response FB-Response-GENERAL-04, FB-Response-SO-01, and FB-Response-AG-06, FB-Response-GENERAL-14.

The Authority will fairly compensate landowners for loss or disruptions to their operations during the right-of-way acquisition process, including the relocation of existing storage ponds and the regulatory costs of permitting relocated storage ponds.

The Authority will work with individual landowners and operators to permit new wastewater lands to make up for the loss of those from the HST footprint. Lost business revenue from the HST will be dealt with on a case-by-case basis.

BO099-6

Refer to Standard Response FB-Response-AG-04.

BO099-7

Impacts on irrigation systems, resulting curative work, and/or potential ramifications will be addressed during the appraisal process with consultation from experts in the hydraulic engineering and agriculture management fields. The timing of any restorative work or reconfigurations will be addressed at the acquisition stage and documented in the right-of-way contract.

BO099-8

Refer to Standard Response FB-Response-GENERAL-04, FB-Response-SO-01, FB-Response-AG-06, FB-Response-GENERAL-14.

BO099-8

The Authority will fairly compensate landowners for loss or disruptions to their operations during the right-of-way acquisition process, including the relocation of existing storage ponds and the regulatory costs of permitting relocated storage ponds.

The Authority will work with individual landowners and operators to permit new wastewater lands to make up for the loss of those from the HST footprint. Lost business revenue from the HST will be dealt on a case-bycase basis.

BO099-9

Refer to Standard Response FB-Response-AG-04, FB-Response-SO-01.

BO099-10

Refer to Standard Response FB-Response-PU&E-03, FB-Response-AG-04.

BO099-11

Refer to Standard Response FB-Response-AG-02, FB-Response-TR-02.

While the project will result in increased travel time for Gaspar & Son Dairy, access will remain. During the right-of-way process, a private overcrossing or undercrossing may be provided as described in FB-Response-AG-02. Please see Section 3.12.11, Mitigation Measures, Mitigation Measure SO-4: Provide access modifications to affected farmlands, for more information on possible overcrossings or undercrossings.

BO099-12

Refer to Standard Response FB-Response-SO-01, FB-Response-AG-06.

The Authority has committed to compensating landowners at a fair market value for any permanent takings of their land as well as any temporary or permanent losses of income they may experience.

BO099-13

Refer to Standard Response FB-Response-AG-06, FB-Response-AG-04, FB-

Response to Submission BO099 (Jeff Fleming, Western Dairy Design Associates, Inc., October 18, 2012) - Continued

BO099-13

Response-AG-05.

The Agricultural Working Group (AWG) was established in July, 2011 to assist the Authority with an independent advisory group that could address the issues being raised by the agricultural community. The representatives of this group are specialists and experts in their specific fields of agriculture. They include university, governmental agencies, county agricultural commissioners, and agribusiness representatives. A series of White Papers were produced by this group and were presented to the Authority's Board. The information contained in the White Papers produced by the AWG is included in the Final EIR/EIS in FB-Response-AG-04, Severance – Farm Impacts; FB-Response-AG-05, Pesticide Spraying/Dust/Pollination; and FB-Response-AG-06, Confined Animal Facilities. For more information on the White Papers, see Section 3.14.

People and businesses in California use electric power and radio frequency communications for many purposes and services, in homes and businesses, farms and factories. The intensive use of electric power and radio frequency communications in California and all developed countries has ensured that the potential health effects of electromagnetic fields (EMF) and resulting currents and voltages on people and animals have been thoroughly studied. As a result, the levels at which EMF and radio frequency (RF) fields can cause health or behavior effects are well established. Broadly used international standards were created based on intensive investigation to ensure that:

* EMF and RF fields and resulting stray currents and voltages are measured and controlled.
* Fields do not disturb or injure people or animals.

Regarding EMF, as noted in the Draft EIR/EIS document, the 2008 McGill University study of cows in pens noted no significant health or behavior effects on the cows or milk production from exposure to EMF levels typical of a full load 735 kilovolt (kV) utility power transmission line. The test levels were a magnetic field of 330 mG and a 60 Hz electric field of 10 kV/m. The researchers measured melatonin levels, prolactin levels, milk production, milk fat content, dry matter intake by cows, and reproductive outcomes. While a few statistically significant changes in these factors were found, none of the changes was outside the normal range for cows. The study concluded that the EMF

BO099-13

exposure did not harm the cows or reduce milk productivity. Since 735 kV utility power transmission lines run up and down the state, cattle and people near those lines are exposed to these levels on a continuing basis. Consistent with the McGill study, epidemiological evidence does not indicate that cattle or people near existing 735 kV utility power transmission lines are generally or broadly affected by the fields.

California HST traction power 60 Hz current will flow in the overhead contact system (OCS) and running rails to provide power to trains. The traction power system is called a 2x25 kV system because it uses 25 kV voltage for the trains, and uses two nearby cables with opposite phase of the 25 kV to distribute the power down the tracks. Currents in this HST 2x25 kV system create EMFs and static electric fields near the HST tracks. However, the HST levels will be lower than the fields typical of a 735 kV utility power transmission line. This is because the separation between HST OCS cables is less, cable-to-cable voltage levels and cable current levels are less, and the HST cables are closer to the ground (which makes the cables closer to the reducing effect of the fields in the ground) compared to the 735 kV utility power cables.

The California HST Technical Memorandum 300.07, EIR/EIS Assessment of HST Alignment EMF Footprint, shows that at the closest fenceline to the HST tracks, the expected magnetic field is 60 mG, less than one-fifth the level from a transmission line. Since cattle cannot be inside the fenceline and people can only be inside the fenceline at passenger stations, the possible HST EMF exposure is low compared to the 735 kV utility power transmission line, and therefore below the level at which the McGill study showed no effect on cows and milk production.

Similarly, the electric field from the HST 25 kV 60 Hz OCS will be low compared to the exposure from a 735 kV utility power transmission line.

BO099-14

Refer to Standard Response FB-Response-AG-06.

The Revised DEIR/Supplemental DEIS contains extensive discussions of the HST project's impact on confined animal facilities in Impact AG #7 – Effects on Confined Animal Agriculture in Section 3.14, Agricultural Lands, and in Appendix 3.14-B, High-

Response to Submission BO099 (Jeff Fleming, Western Dairy Design Associates, Inc., October 18, 2012) - Continued

BO099-14

Speed Train Effects on Confined Animal Agriculture. In addition, the Agricultural Working Group has undertaken studies related to the HST project's potential impacts on confined animal facilities, which confirm the conclusions of the Revised DEIR/Supplemental DEIS.

BO099-15

Refer to Standard Response FB-Response-PU&E-02.

BO099-16

Refer to Standard Response FB-Response-AG-06.

Stray voltage happens when there is a potential difference between the neutral conductor on an electrical system and the ground (earth). Stray voltage results in shocks, which are addressed in the EIR/EIS under Impact EMF/EMI #8 - Potential for Nuisance Shocks. A study by Amstutz and Miller (1980) appears to be the most appropriate reference for the effects of stray currents and electromagnetic fields (EMF) on livestock (Authority and FRA 2012e). That study of 11 livestock farms concluded that livestock health, behavior, and performance were not affected by electrical and magnetic fields created by a very large (765 kV) overhead transmission line. The HST System would operate on a much smaller 2x25 kV overhead contact system. In regard to dairy production, McGill University conducted a study with cows in pens exposed to controlled EMF levels of 330 mG and 10 kV/m, the projected magnetic and electric fields that occur at ground level under a 735 kV line at full load. The researchers measured the following: melatonin levels, prolactin levels, milk production, milk fat content, dry matter intake by cows, and reproductive outcomes. While a few statistically significant changes in these factors were found, none of the changes was outside the normal range for cows (McGill University 2008). The study concluded that the EMF exposure did not harm the cows or reduce milk productivity. Various studies cited by other researchers regarding EMF and wildlife suggest a range of effects similar to livestock, from non-existent to relatively small to positive. One study suggests a beneficial application for ELF-EMF in broiler chickens to fight a common parasitic infection called *Coccidiosis* (Golder Associates 2009). For these reasons, EMF effects on livestock and poultry would have negligible intensity under NEPA, and the impact would be less than significant under CEQA.

BO099-17

Refer to Standard Response FB-Response-GENERAL-10, FB-Response-GENERAL-14, FB-Response-SO-01.

The Authority and FRA have been working with counties, cities, and the public to identify and minimize impacts.
There are two primary proposed alternative alignments in the vicinity of Hanford: the BNSF Alternative (east of Hanford) and the Hanford West Bypass Alternative. Each has its own set of impacts.

The Authority used the information in the Revised DEIR/Supplemental DEIS and input from agencies and the public to identify the Preferred Alternative. The decision included consideration of the project purpose and need and the project objectives presented in Chapter 1, Project Purpose, Need, and Objectives, as well as the objectives and criteria in the alternatives analysis and the comparative potential for environmental impacts. Refer to Chapter 7, Preferred Alternative, of this Final EIR/EIS for more information.

BO099-18

Refer to Standard Response FB-Response-PU&E-02.

Submission BO100 (Gary Wilson, Wilson Ag, August 20, 2012)

wilson ag
p.o. box 1300
shafter, california 93263
office (661) 746-2623
fax (661) 746-4260

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California High Speed Rail Authority
770 L St., Suite 800
Sacramento, CA 95814
Email: Fresno_Bakersfield@hsr.ca.gov
Fresno to Bakersfield Draft EIR/EIS Comment

August 15, 2012

The revised EIR for HSR from Fresno to Bakersfield is incomplete and inaccurate, especially in addressing the concerns of Agriculture. I will re-state my original concerns for which you have not provided adequate mitigation.

Problems with the Shafter Wasco Alternate

BO100-1

1. Table S-3 states there are no construction impacts to Agriculture. This is incorrect. How will permanent crops be sustained during the construction phase if irrigation water must be provided to both sides of a bisected field? Note that most ag irrigation systems (supply, in-field, drainage) are basically gravity systems and flow in the direction the field is graded. The HSR corridor will isolate portions of farms without water. The construction phase will last 1-3 years and involve more farmland than the corridor. What is the impact on water sources, permanent crops and native wildlife corridors during this period? Land cannot be returned to normal after construction. How is dust and weeds mitigated during construction? It can take a year to get power from PG&E. If a new well is needed resolving bisected properties could take 2-3 years. Is HSR going to finance modifications well in advance of construction to avoid further loss?

BO100-2
BO100-3
BO100-4

2. The Shafter Wasco alternate has more road closures. What is the impact on VMT, ag traffic (tractor and commodity transport), and wildlife corridors? Closures require driving the long way around, decreasing efficiency and creating disruptions. What is the impact of road closures to emergency response in rural areas isolated by road closures and the HSR corridors?

BO100-5
BO100-6

3. Water drainage will be affected during construction and HSR operation by ag irrigation and potential rainfall. What is the impact of a bisected field where one side may pond due to the presence of construction or a corridor? Can the HSR short out due to flooding? What happens during a weather event if normal drainage is blocked by HSR berms? What happens to farmland blocked by HSR berms?

BO100-7

BO100-8

4. The Shafter Wasco alternate has many acres of producing almonds. What effect shall wind created by HSR (frequency and speed) and vibration have on pollination by bees in almonds?

BO100-9

5. Who will be responsible for maintenance of roads next to HSR fencing? Turn roads outside the fence on both sides must be maintained with dust control, weed control, and trash removal. Tumble weeds are noxious weeds that will lodge in the HSR cyclone fencing. How is HSR planning to maintain these roads?

BO100-10

6. What is the noise impact from construction and the HSR on farm animals (cattle, horses, sheep) and wildlife (bees, birds, coyotes, etc)? How will the impact be mitigated?

BO100-11

7. The Balkanization of Ag parcels will, in some cases, create non-farmable areas, which will result in non-desirable development and place people and activities closer than desirable to the HSR corridor. What is being done to maintain farm and community fabric? Are there any agencies to resolve parcel division?

BO100-12

8. The Shafter Wasco alternate passes through the North Shafter oil field. Oxy Oil has a tank farm in its path. There are many producing wells, new wells under construction, and a myrid of pipelines connecting wells affecting the proposed route. If the Shafter Wasco alternate is chosen, how will the impact be mitigated? Who will pay for lost opportunity? I believe the cost of this alternate has been grossly underestimated and understated in the EIR.

BO100-13

9. The HSR consumes a great deal of electricity. Will it be obtained locally? Will it impact local service? Especially during brownouts and rolling black outs? How will the HSR impact the electrical needs of local communities, commercial and agricultural users? What criteria will be used for emergency response power (water, sewer, flood control, hospital, etc)?

BO100-14

10. S.8.1 states, "No substantial effect on energy and HSR's goal is to purchase all the power from renewable sources." Has the EIR validated this renewable energy is available and at what cost? A 1% draw on the state electrical supplies will have an effect, especially at peak use.

BO100-15

11. HSR only improves air quality at maximum ridership. What is the effect on air quality at different ridership levels? The EIR states the construction phase adversely affects air quality. The EIR does not address the adverse effect on air quality should construction be underestimated and ridership less than maximum.

Submission BO100 (Gary Wilson, Wilson Ag, August 20, 2012) - Continued

BO100-16

12. The legislation passed stated the HSR was to be built along existing corridors. The public's conception was the HSR would be built along I5 or Hwy 99. Have you conducted any polls that show how people would vote today? A recent poll showed voters now against HSR along the currently proposed routes. With escalating cost projections and no relief in sight for state and federal economies, is this project viable?

BO100-17

13. In many instances procedural requirement for NEPA and CEQA were not followed. The manner in which the EIR was written in segments and many alternates makes it impossible to analyze properly.

The Shafter Wasco Alternate grossly underestimates the costs to mitigate agriculture and oil. The EIR largely ignores impact to ag and oil during the construction phase. This is a bad choice for all involved.

The project is ill conceived and should not be built.

Yours,

Gary Wilson

Pat Wilson

Aarin Wilson

Michele McManus

Response to Submission BO100 (Gary Wilson, Wilson Ag, August 20, 2012)

BO100-1

Refer to Standard Response FB-Response-GENERAL-04, FB-Response-SO-01, FB-Response-AG-01, FB-Response-AG-04.

Section 3.14.5.3, discusses impacts on agricultural lands due to temporary use of agricultural land, temporary utility and infrastructure interruption, and parcel severance. As stated in Section 3.14.5.3, land would be leased from the landowner and used for 1 to 3 years for construction. Because the land would be returned to its original use, construction impacts from the HST are less than significant. The land acquisition process occurs before construction. It is during this phase that the Authority's right-of-way agent will work with individual landowners to mitigate impacts from both construction and operation of the HST; this includes impacts on water sources, crops, and wells. The Authority is working to begin the right-of-way process as soon as possible so as to decrease impacts on farmers. Prior to destruction of affected wells, the farm owner would have time to restore infrastructure before construction begins so as to minimize impacts on farm infrastructure. Temporary impacts that would result in a loss of income will be compensated by the Authority at a fair market value.

BO100-2

Refer to Standard Response FB-Response-BIO-01, FB-Response-TR-02, FB-Response-S&S-01.

In regards to the potential impacts on wildlife corridors in the vicinity of the Wasco-Shafter Bypass, both alternatives lie predominantly outside of any regions identified as wildlife corridors. The habitat in the vicinity of the Wasco-Shafter Bypass was mapped as predominantly agricultural land uses, which provide poor dispersal and foraging habitat for terrestrial wildlife species, and therefore provide poor corridors for wildlife movement. The closest corridors have been identified along Poso Creek to the north, and in the vicinity of urban Bakersfield to the south.

BO100-3

Refer to Standard Response FB-Response-TR-02.

BO100-4

The Authority's policy is to provide roadway overpasses approximately every 2 miles, resulting in no more than 1 mile of out-of-direction travel for vehicles to cross the HST tracks. In most locations in the Fresno to Bakersfield Section, roadway overpasses would be provided more frequently, approximately every mile or less, because of the existing roadway infrastructure. Consequently, out-of-direction travel would be limited to approximately 1 mile in nearly all locations in the project area. The Revised DEIR/Supplemental DEIS, Section 3.11.6, explains that the project design would include coordination with emergency responders to incorporate roadway modifications that maintain existing traffic patterns and fulfill response route needs, resulting in negligible effects on response times by service providers. Section 3.11.5, Safety and Security Environmental Consequences, of the Revised DEIR/Supplemental DEIS provides additional detail regarding emergency response time during HST operations.

BO100-5

Refer to Standard Response FB-Response-AG-02, FB-Response-AG-04, FB-Response-HWR-02.

The design of the HST will incorporate drainage facilities (e.g., culverts) at the HST embankment to preserve existing drainage patterns and to minimize ponding against the HST embankment.

BO100-6

It is unlikely that flooding would short out the HST. The electrical current would be carried by a contact system consisting of a series of mast poles approximately 23.5 feet higher than the top of the rail, with contact wires suspended from the mast poles between 17 to 19 feet from the top of rail. Trains would not operate if sections of the rail were flooded.

BO100-7

Refer to Standard Response FB-Response-SO-01, FB-Response-HWR-02.

In overland areas subject to shallow flooding during large storm events, flood water is ponded and drains slowly with minimal energy due to the flat topography and shallow

Response to Submission BO100 (Gary Wilson, Wilson Ag, August 20, 2012) - Continued

BO100-7

land gradient. Openings in the embankment (e.g., culverts) would continue to allow drainage to pass in the down-gradient direction. Farmlands in adjacent fields would continue to flood, similar to existing conditions.

Federal and State laws require that the Authority pay fair market value for the land that is acquired. The land acquisition process begins before construction. It is during this phase that the Authority's right-of-way agent will work with individual landowners to mitigate impacts from both construction and operation of the HST. If farmland is not farmable, the Authority will compensate the landowner at fair market value.

BO100-8

Refer to Standard Response FB-Response-AG-05.

The studies undertaken by the Agricultural Working Group confirm the findings of the Revised DEIR/Supplemental DEIS. The July 2012 Agricultural Working Group White Paper entitled "Bees and Pollination" examines the potential for wind generated by the HST to adversely affect bees. It concludes that:

"Depending on their strength, wind gusts may blow pollinators off blossoms if the crops are planted right near the tracks, but they most likely would right themselves and return to the blossom. Some pollinators are going to be killed upon impact with the trains, but this is no different from what they experience with more slowly moving cars, trucks, busses, etc. (sic) Beekeepers may need to consider different hive placement to avoid impacts should fast moving trains produce winds above the thresholds discussed."

The July 2012 White Paper entitled "Induced Wind Impacts" examined whether the HST would generate wind with its passage. It concluded that:

"The HST-induced wind is not excessive at the edge of the right-of-way.

"The effect of the HST on blossoms and flowering trees is minimal due to the expected wind speed at the edge of the right-of-way."

The Final White Papers are available on the Authority's website.

BO100-9

The Authority would maintain all HST facilities, including the right-of-way and fence, and provide appropriate weed and pest control. Maintenance activities are described in Chapter 2, Section 2.6, Operations and Service Plan of the Revised DEIR/Supplemental DEIS. Section 2.2.8, Maintenance Facilities, describes the different maintenance facilities and activities that would be in place to ensure continued maintenance of the tracks, right-of-way, and train sets. The Authority would not be responsible for maintaining lands outside of the project footprint.

BO100-10

Refer to Standard Response FB-Response-AG-06, FB-Response-N&V-01.

BO100-11

Refer to Standard Response FB-Response-SO-01, FB-Response-AG-03, FB-Response-GENERAL-05.

Federal and State laws require that the Authority pay fair market value for the land that is acquired. The land acquisition process begins before construction. It is during this phase that the Authority's right-of-way agent will work with individual landowners to mitigate impacts from both construction and operation of the HST. If farmland is not farmable, the Authority will compensate the landowner at fair market value. The Authority would maintain all HST facilities, including the right-of-way and fence, and provide appropriate weed and pest control. Maintenance activities are described in Chapter 2, Section 2.6, Operations and Service Plan, of the EIR/EIS. Section 2.2.8, Maintenance Facilities, of the EIR/EIS describes the different maintenance facilities and activities that would be in place to ensure continued maintenance of the tracks, right-of-way, and train sets. The Authority would not be responsible for maintaining lands outside of the project footprint.

The Authority will undertake a Farmland Consolidation Program as part of the project design (see Section 3.14.6, Project Design Features, of the Final EIR/EIS). Under this program, Authority right-of-way agents, who generally follow Caltrans procedures, will sell remnant parcels to neighboring landowners for consolidation with adjacent farmland properties, assist the owners of remnant parcels in selling those remnants to adjacent

Response to Submission BO100 (Gary Wilson, Wilson Ag, August 20, 2012) - Continued

BO100-11

landowners, and assist landowners in obtaining lot line adjustments, where appropriate, to incorporate remnant parcels into a larger parcel that is consistent with size requirements under the local government's general plan. The program will operate for no fewer than 5 years after the construction of the Fresno to Bakersfield Section is completed.

In April 2013, the Authority reached an agreement with agricultural interests on mitigation of agricultural land impacts for the Merced to Fresno Section of the HST System (Authority 2013). Under that agreement, the Authority will acquire agricultural conservation easements for its impact on Important Farmland (i.e., land classified as prime farmland, farmland of statewide importance, farmland of local importance, and unique farmland) at the following ratios:

- Important Farmland converted to nonagricultural uses either by direct commitment of the land to project facilities or by the creation of remnant parcels that cannot be economically farmed will be mitigated at a ratio of 1:1.
- Where HST project facilities would create a remnant parcel of 20 acres or less in size, the acreage of that remnant parcel will be mitigated at a ratio of 1:1.
- An area 25 feet wide bordering Important Farmland converted to nonagricultural uses by project facilities (not counting remnant parcels) will be mitigated at a ratio of 0.5:1.

BO100-12

The effect to future oil revenues is not a physical consideration assessed under CEQA, but is an economic consideration. CEQA Guidelines Section 15382 states that an economic or social change by itself shall not be considered a significant effect on the environment. Section 3.6 Public Utilities and Energy of the Revised Draft EIR/Supplemental Draft EIS acknowledges that the Wasco-Shafter Bypass would avoid the oil storage tank facility. A limited number of oil wells would also be affected. The cost for well decommissioning and replacement would be borne by the Authority, and the effect on the capacity or viability of the petroleum resource and industry extraction operations relative to public utilities and energy were determined to be less than significant. The discussion in Section 3.6.5.3 has been updated to include more specific information about the number of oil and gas and related injection wells that would be affected by the project. See also the updated discussion in Impact GSS #5 (Section 3.9.5.3).

BO100-12

Impact GSS#5 (see Section 3.9.5.3) discusses the oil and gas wells located along the alignments of the project alternatives, based on data obtained in 2012 from the Department of Conservation, Division of Oil, Gas, and Geothermal Resources. This data indicates that there are a total of 12 oil and gas wells and two produced water injection wells located within 210 feet of the centerline of the Wasco-Shafter Bypass Alternative alignment. Of these wells, only three active oil wells are located within the project footprint. The small number of affected wells, combined with the project design feature providing for the replacement of said wells, provisions for reimbursement for the loss of income, and continued production after replacement, means that the effect on mineral holders' revenues will be minimal.

BO100-13

Refer to Standard Response FB-Response-PU&E-02.

The HST project would not result in the need for additional emergency response power, nor would it inhibit current emergency response power needs.

BO100-14

Refer to Standard Response FB-Response-PU&E-02.

BO100-15

The ridership and revenue model was developed by a nationally recognized leader in forecasting, Cambridge Systematics, Inc. (2007). The ridership model is not deficient, but “produces results that are reasonable and within expected ranges for the current environmental planning and Business Plan applications,“ according to a ridership and revenue peer review panel of leading U.S. and international experts in travel forecasting (Independent Peer Review Panel 2011). Also, the air quality and greenhouse gas analyses in the Revised DEIR/Supplemental DEIS that are related to ridership have been updated to reflect two ridership scenarios—one with fares at 50% of airfare prices and one at 83% of airfare prices—to provide a range of potential impacts.

Although the air quality analysis has identified emission impacts from the project during

Response to Submission BO100 (Gary Wilson, Wilson Ag, August 20, 2012) - Continued

BO100-15

the construction phase, these impacts will be completely offset to below a level of significance through the Voluntary Emissions Reduction Agreement between the Authority and the San Joaquin Valley Air Pollution Control District.

BO100-16

Refer to Standard Response FB-Response-GENERAL-02, FB-Response-GENERAL-17.

The Authority and FRA have not conducted any recent polls that show how people would vote today on the HST project.

The project EIR/EIS for the Fresno to Bakersfield Section relies on information from the 2005 Statewide Program EIR/EIS for the California HST System. The Statewide Program EIR/EIS considered alternatives on I-5 and SR 99 as well as on the BNSF corridor. The Record of Decision for the Statewide Program EIR/EIS rejected
those routes and selected the BNSF corridor as the preferred alignment for the Fresno to Bakersfield Section. Further engineering and environmental studies within the broad BNSF corridor have resulted in practicable alternatives that meet most or all project objectives, are potentially feasible, and would result in certain environmental impact reductions in comparison to one another. Accordingly, the Project EIR/EIS for the Fresno to Bakersfield Section focuses on alternative alignments along the general BNSF Railway corridor.

BO100-17

Refer to Standard Response FB-Response-GENERAL-01.

With the various alternative alignments considered for the project, there are a total of 72 alternative permutations for a single alignment to run from Fresno to Bakersfield. Providing an individual analysis of all 72 permutations would have made the document unreadable and, in reality, there are generally two or three alternatives along the BNSF corridor. In order to provide information to compare alternatives in as concise a format as possible, the impacts of a single alternative from Fresno to Bakersfield, termed the BNSF Alternative, were described first. This was followed by a description of impacts of each individual alternative segment (e.g., Hanford West Bypass 1 and Bypass 2

BO100-17

alternaties and the Allensworth Bypass Alternative) and a comparison of the difference in impacts between that alternative segment and the corresponding segment of the BNSF Alternative. In this way, a reader can quickly understand the implications of taking either the BNSF Alternative or one of the alternative segments for the particular environmental topic being evaluated.

Submission BO101 (Barbara Ybarra, Ybarra Company Public Affairs with Solutions Strategies International, Inc., October 18, 2012)

ybarracompany
public affairs

SOLUTIONS strategies INTERNATIONAL

October 17, 2012

Fresno to Bakersfield Revised Draft EIR/Supplemental Draft EIS Comment
770 L Street, Suite 800
Sacramento, CA 95814

Dan Richard, Chair
Board of Directors
California High-Speed Rail Authority

RE: Revised Draft EIR/Supplemental Draft EIS Comment – Fresno to Bakersfield

Dear California High-Speed Rail Authority:

This letter submits comments on the Revised Draft EIR/Supplemental Draft EIS for the Fresno to Bakersfield Section of the proposed California High-Speed Train System ("RDEIR/SDEIS"). **We conclude that the RDEIR/SDEIS must be revised and recirculated, for the reasons outlined in the attached comments.**

Thank you for taking our comments into account, and for complying with both the California Environmental Quality Act ("CEQA") and the National Environmental Policy Act ("NEPA") before proceeding with the proposed high-speed train project.

Sincerely,

Barbara Ybarra,
Ybarra Company Public Affairs

Linda Mitrovich,
Solutions Strategies International, Inc.

SOCIOECONOMICS, COMMUNITIES, & ENVIRONMENTAL JUSTICE

Based on the comments below, the RDEIR/SDEIS has failed to fully evaluate and mitigate for the impacts of the California High-Speed Train (HST) to Environmental Justice (EJ) neighborhoods and communities. The problems range from such basics as the size of the study area, the areas considered to be EJ neighborhoods and communities, the lack of detailed discussion of the impacts, the difficulty of understanding the impacts due to the construction of the document, the lack of coordination with the EJ community, and inadequate mitigation measures. **Therefore the RDEIR/SDEIS should be revised to correct the failings of the current draft and be recirculated for additional public review and comment.**

The following provides a brief description of the project, the project area, and our major concerns:

1. The Fresno to Bakersfield HST Section would cross both urban and rural lands and include stations in Fresno and Bakersfield, a potential Kings/Tulare Regional Station in the vicinity of Hanford, a potential heavy maintenance facility (HMF), and power substations along the alignment.

2. According to the RDEIR/SDEIS, the proposed alignment of the HST project cuts through approximately 114 miles (350.4 square miles) of the Central Valley that is characterized as follows:

   - Approximately 43 percent of the impacted population is Hispanic, with a total minority population of 56.6 percent, which is greater than the California minority population average (RDEIR/SDEIS 3.12-15)
   - Approximately 11 percent of the impacted population are linguistically isolated. (RDEIR/SDEIS 3.12-15)
   - Annual median income is substantially below the California average of $61,062 (i.e., ranges from $43,747 in Fresno County to $50,962 in Kings County). (RDEIR/SDEIS 3.12-15)
   - The unemployment rate is greater than the California average.

3. The corridor takes out homes, businesses, churches, shelters, and other community facilities where minority and low-income individuals live, work, and play. The proposed HST project would, according the Community Impact Assessment (CIA), a technical appendix to the RDEIR/SDEIS, do the following:

Submission BO101 (Barbara Ybarra, Ybarra Company Public Affairs with Solutions Strategies International, Inc., October 18, 2012) - Continued

- Cut through neighborhoods and communities altering their character and cohesion, causing these neighborhoods and communities to deal with the operational impacts of the train into perpetuity. The train will:
  - Disrupt traffic, lengthen commute times, prevent access, etc.
  - Cause noise, dust, and other related issues.
- Cause the loss of 451 homes and the relocation of 1,430 residents in urban (322 homes) and rural (129 homes) areas. (RDEIR/SDEIS 3.12-78)
- Cause the relocation of 395 urban businesses and 2,458 jobs. (RDEIR/SDEIS 3.12-86)
- Cause the loss of rural homes, farmland, agricultural businesses, and 350 jobs. (RDEIR/SDEIS 3.12-103)

Page 3.12-8 of the RDEIR/SDEIS, in the section on Environmental Justice, notes that **this project will result in disproportionately high adverse effects on minority and low-income populations.**

BO101-1

4. In view of the fact that the alignment proposed would have such devastating impacts on the EJ community, the RDEIR/SDEIS should fully explore alternatives and propose effective mitigation measures, to eliminate EJ impacts or to reduce them to the maximum degree feasible.

   In fact, however, the RDEIR/SDEIS demonstrates no interest in eliminating or minimizing the identified EJ impacts, and that does not meet the requirements of the California Environmental Quality ACT (CEQA) and the National Environmental Policy Act (NEPA). **The document should be revised to address this failing in the current draft, and should then be recirculated for additional public review and comment.**

5. Not only does the RDEIR/SDEIS ignore or minimize many of the impacts to the EJ community, discussions regarding the potential adverse impacts to the community are not located in one easily understandable section of the document.

BO101-2

   To become fully informed regarding the potential impact to the EJ community one must read numerous chapters, as well as several technical appendices. **The structure of the document discourages any effective public review by those most directly affected by the project as proposed, and in order to comply with the requirements of CEQA and NEPA it must be revised and recirculated.**

6. The mitigation measures proposed to address the few identified impacts on the EJ community almost always require additional studies or documents to be prepared. Therefore, it is impossible to determine if these measures are adequate, and the concept of "deferring" mitigation measures, evidenced here, is not permissible under CEQA and NEPA.

In addition to these issues, other problems with the RDEIR/SDEIS are as follows:

DEFINITION OF THE EJ COMMUNITY

The EJ Community is defined as any census block that contains 50 percent, or more, minority persons and/or the census block group that contains 25 percent or more, low-income persons or the percentage of minority and/or low-income persons in any census block or block group is more than 10 percent greater than the county average. **Due to fact that the project region, as a whole, has an average minority and low-income population larger than the State's average, shouldn't the entire project area be considered an EJ community?**

Latino community-outreach efforts are seldom effective, if even considered. Effectively communicating with multiple generations involves addressing language barriers. Our expertise in effectively organizing Latinos is based on 50 years of experience. In San Benito County and Redwood City, we involved Latinos in civic action toward Environmental Impact Report issues. One of the best practices we implemented includes bilingual communication to make the community feel more included, therefore, more apt to get involved and engaged, which has had a lasting influence and growth in those communities.

Another successful community-outreach effort was with Annie E. Casey Foundation, in San Diego, where we provided outreach to the lowest-income and –participant neighborhoods, resulting in tripling turnouts based on utilizing community leaders, also known as *promotoras*, whom YCPA trained to develop civic and voter involvement on community needs, not politician promises. This outreach resulted in the largest turnout ever for a forum at Barrio Station, with 245 participants and 11 candidates. Community residents were involved as time keepers, stage hands, translators, and head set distributors and effectively conducted a Spanish/English bilingual event. YCPA implemented a community-based format in which the residents presented issues, requiring candidates to address issues relevant to their community, not the politicians' agenda.

Had the Authority implemented a proper community outreach program, such as those described examples above, it is highly probable that the community would have raised issues that required changes in the project description/mitigation to fully address community needs.

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DOCUMENT ORGANIZATION

To highlight a point made previously, while the document recognizes that there are disproportional impacts to the EJ community, the description of the impacts to minority, low-income, and other socioeconomically challenged populations is difficult to determine due to the drafting and organization of the document. Rather than explaining the potential impacts in a manner and language that can be easily found and understood by all, the RDEIR/SDEIS is designed to be virtually impenetrable to members of the EJ community.

For example, within the first five pages of this chapter the reader has been sent to three different reports and chapters in the RDEIR/SDEIS. The RDEIR/SDEIS also is constantly referencing the Community Impact Assessment (CIA), many times without summarizing the information in that document. If the information in the CIA is so important, it should have been included in its entirety in the RDEIR/SDEIS. This cross referencing of materials required considerable time in reading and rereading of the documents in an effort to understand an issue. At times, the writing was so dense that the impact was never understood.

BO101-3

The EJ community has little experience with the CEQA/NEPA process, and the RDEIR/SDEIS document becomes another obstacle to understanding the potential impacts of the HST project on their community. Providing the document in Spanish would likely not alleviate these problems. The problem is the basic structure of the documents.

COMMUNICATION WITH THE EJ COMMUNITY

Even with the disproportionately high adverse effects on the EJ community, there seems to have been little done to bring this community into the planning process so that they could fully understand the impact of this project on their lives. Of the more than 100 meetings listed in the CIA Technical Appendix page 4-43, less than 10 percent appear to deal directly with the EJ community. This is also true of the list of meetings in Chapter 7 (RDEIR/SDEIS 7-13). Rather, the meetings listed tended to be with those that have political power or influence. Had this percentage been different, there would have been a higher probability that the outreach efforts would have informed the local residents of the EJ community. Non-traditional methods of communication and outreach should have been employed and documented.

BO101-4

The California High-Speed Rail Authority (Authority) has put forth a working document regarding a process to address EJ issues. However, this document was not adopted until early this year and it does not appear that it was used prior to its adoption. For example, Section 3.12.2.2 notes that in May 2012, the Authority adopted a Limited English Proficiency policy and plan. The policy states:

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- It is the policy of the Authority to communicate effectively and provide meaningful access to limited English proficient (LEP) individuals to all the Authority's programs, services, and activities. The Authority will provide free language assistance services to LEP individuals encountered or whenever an LEP individual requests language assistance services.

- The Authority will treat LEP individuals with dignity and respect. Language assistance will be provided through a variety of methods, including staff interpreters, translation and interpreter service contracts, and formal arrangements with local organizations providing interpretation or translation services or telephonic interpreter services.

Fine words! Clearly, the preparation and circulation of the current RDEIR/SDEIS was not carried out using these principles. The fact that English-speaking experienced reviewers of this document are having trouble understanding the impacts to the EJ community, makes it difficult to comprehend how the Authority has made the information understandable to LEP individuals and other members of the EJ community. The only documents provided in Spanish via the Authority's website on the Fresno to Bakersfield section of the HST include: a public notice, fact sheet brochures, and the Executive Summary of the RDEIR/SDEIS. These documents presented a simplified overview of the HST; however, they did not adequately discuss the numerous adverse impacts or potential repercussions to the EJ community. Waiting to develop an outreach plan as a mitigation measure after the project is approved does not address this issue – yet that is what the RDEIR/SDEIS is proposing.

Because minority communities represent the majority of residents in this region and along the HST route, extra steps should have been taken to insure that understandable information reached this community. While it appears that an effort was made to meet with United Farm Workers of America, there is no evidence that meetings were held with other important groups that work with or are supported by the EJ community. In the Fresno area, organizations such as Centro La Familia, Fresno Latino Environment Advancement Project (LEAP), Fresno Unified School District Migrant Education Department, and the Archdiocese of Fresno should have been consulted; similarly organizations in the Bakersfield area such as the Lamont Family Resource Center and South Chester Partnership should have been consulted.

PROJECT BOUNDARIES

The documents note that there is a difference in how the urban and rural communities function, with the implication being that rural communities are generally more spread out and therefore are larger in size. Despite this accurate observation, the boundary used to define the project area in the RDEIR/SDEIS is kept uniformly at 0.5 miles on each side of the proposed alignment. **If there is a difference in community size in rural**

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areas, including the fact that neighbors in such rural areas will travel further to visit and help each other, shouldn't the 0.5 mile boundary be expanded or made wider in rural areas?

BO101-5

IMPACTS TO HOMES AND RESIDIENTS

The HST, according to the CIA, will potentially displace 451 homes and 1,430 individuals. The assumption is that these persons will be able to relocate within their existing communities because of the availability of existing housing (RDEIR/SDEIS 3.12-78). **With the potential impacts to the character and quality of the remaining portion of the neighborhood, is this assumption valid?**

BO101-6

ACCESS TO CREDIT

There has been a huge change in the ability of lower income persons to obtain credit and housing loans since many of the existing residents acquired their current homes. **How does the relocation service mentioned in the RDEIR/SDEIS help those persons who have an existing mortgage and would likely be unable to qualify today for a loan to purchase/relocate into a new home?**

IMPACTS TO BUSINESSES

According to the RDEIR/SDEIS, the proposed project has the potential to close businesses and cause the relocation of 395 urban business and 2,458 jobs. While the potential direct impacts to the number of existing business appear to have been identified, the documents fail to look at indirect impacts to the business owners and the communities they serve. Rather, they only look at the availability of replacement business opportunities. The analysis then assumes that because for most cases there are replacement business opportunities, this is not a significant problem (RDEIR/SDEIS 3.12-89).

Instead of assuming that there is not a problem, the RDEIR/SDEIS should ask (and answer) questions like these:

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- **Even if help is given to relocate a successful business, will it continue to be successful?**
- **How will the business closing impact its supplier and the companies where the employee's wages are spent?**
- **Also in need of consideration is if the businesses will lose a critical employee or too many of its customers?**
- **Can displaced businesses remain viable until they are rebuilt in a new location? If not, what happens to the owner and employees?**

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- **What happens to those businesses and the families that they support that are identified as having nowhere to go?**
- **Will the impacted businesses continue to employ at the same level that they do now?**
- The long-term impacts and changes in their daily patterns and other quality of life elements will be significant in the medium to very small sized communities along the proposed route; **how will these impacts be minimized and/or what measures will be taken to mitigate the impacts?**

For the discussion regarding job losses to be complete, all of these issues need to be addressed. In addition, indirect job losses need to be discussed. For example, in the discussion of HST job benefits, both direct and indirect impacts are discussed. The project estimates that it will directly employ between 182 -1,100 persons annually over the nine-year construction period and indirectly employ between 367 and 2,214 persons annually, with the total annual employment of 549 and 3,314 persons or 21,944 1-year full time job equivalents (CIA 5-23). The number of total new jobs, therefore, is based on direct employment by the HST and indirect employment by supporting companies and services during the construction period. These jobs could go to residents of the valley with the caveat that the residents need to have the proper skills.

However, the same analysis was not used in describing potential job losses. Assuming that all of the jobs are lost with the relocation of the urban businesses and in addition there are 350 jobs lost from agriculture, this project has the potential to increase unemployment in the region (CIA 5-58). Using a multiplier of approximately 2, as used to describe job benefits, approximately 2,808 persons would be directly or indirectly losing their jobs because of the proposed project or 23,656 1-year full time job equivalents over the 9-year construction period. **The RDEIR/SDEIR must undertake this kind of analysis and then it must be recirculated for further public comment.**

PUBLIC FACILITIES

The RDEIR/SDEIS states that the primary concern of the EJ community is the loss of public facilities. The Authority and the Federal Rail Administration's (FRA) preferred alternative, the BNSF Railway route, would nevertheless affect 11 community facilities. The majority are in Bakersfield, where the BNSF Alternative would affect 8 parcels containing community facilities: the Mercado Latino Tianguis, Bakersfield High School's Industrial Arts Building, and 6 parcels housing religious facilities. The Fresno Rescue Mission, which provides beds, living space, and other support services for up to 250 homeless people, would also be displaced. Finally, the BNSF Alternative would also acquire the Amtrak Station and a church in the community of Crome. And, the Wasco Amtrak passenger platform may need to be relocated.

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While the document states that these features will be replaced prior to being impacted, there appears to be additional planning needed to achieve this goal. In addition, the mitigation measure listing those public facilities to be replaced does not list all of the facilities affected. Missing from the mitigation measure are the Fresno Rescue Mission and the Mercado Latino Tianguis. Therefore, the adequacy of this mitigation measure is questionable (CIA 5-62).

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SPECIFIC COMMENTS

Page 3.12 -1, Paragraph 1 – Having to go to several different sections and documents makes it difficult to understand the total impacts of this project on the EJ community.

Page 3.12-3, California High-Speed Rail Authority Title VI Plan – This plan was not enacted until March 2012. It does not appear that there has been sufficient time to ensure that it has been implemented, even marginally.

Page 3.12-3, Section 3.12.2.3 – Again, having to go to several different sections and documents makes it difficult to understand the total impacts of this project on the EJ community.

Page 3.12-4, Section 3.12.3.1 – Once more, having to go to several different sections and documents makes it difficult to understand the total impacts of this project on the community. There is now a third report, *Environmental Consequences*, and other sections of the document (Sections 3.2, 3.4, and 3.16), that requires review to understand the impacts of this project on the community.

Page 3.12-5, Section 3.12.3.1, Paragraph 4 – **Are records of the discussions with persons knowledgeable about local community conditions and neighbors available for review? If so, where?** If not, these discussions should be made available.

Page 3.12-6, Section 3.12.3.1, Paragraph 1 – This paragraph is misleading. While the Valley is one of the wealthiest agricultural areas in the nation, it also has a high percentage of communities that are classified as minority or low-income – a regional average of 56.5 percent.

Page 3.12-6, Economic Effects – This paragraph only discusses potential regional impacts without any supporting information. There is absolutely no information on the economic effects this project will have on individual communities and neighborhoods as well as individuals impacted by its construction and operation.

Page 3.12-7, Property and Sales Tax Revenue Changes – **On what assumptions and studies are the projections of Property and Sales Tax Revenue Changes based? Is the only change in the land tax base due to the Williamson Act?** An argument could also be made that Property and Sales Tax Revenue could be expected to decrease due to the project as discussed in subsequent impact sections. The RDEIR/SDEIS must analyze this possibility.

Page 3.12-7, Employment – **Where is the long-term employment expansion study?** Once again, without all of the information being made available one cannot adequately review this RDEIR/SDEIS. While it is understandable that jobs will be created during

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the construction period, a reasonable argument could be made that current agricultural jobs largely held by minority and low-income segments of the population will decline. In fact, the document states that 350 agricultural jobs will be lost due to the project. The impact of the proposed project on employment needs to be more detailed and comprehensive.

BO101-17

Page 3.12-8, Changes in School District Funding – It is impossible to understand what is being said in this section.

BO101-18

Page 3.12-8, Economic Effects on Agriculture – This section only addresses effects on agricultural production. The effects on the agricultural labor force, a force that is largely minority and low-income, also needs to be addressed. **What will this loss in production mean in loss of jobs? What about the ability to find new jobs? Will this mean that workers will need to move? Are retraining programs going to be provided? If so, what will they be and who will run them?**

BO101-19

Page 3-12-8. Environmental Justice – It is true that **this project will result in disproportionately high adverse effects on minority and low-income populations**. However, until this section, the project has not recognized this potential. The effects to other socio-economic changes reviewed should also address how these changes will impact minority and low-income populations. The use of the 0.5-mile radius from all proposed alignments may not be sufficient to address the full impact of the project on disadvantaged communities.

Again, referencing documents without them being available for review and citing additional sections in the RDEIR/SDEIS for review makes it difficult to fully understand the potential impacts of this project on the EJ community.

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Page 3.12-10, Section 3.12.3.2 – The definition of negligible, moderate, and substantial intensity effects need to be redefined. As a member of a community it would be difficult, if not impossible, to distinguish between moderate and substantial impacts.

BO101-21

Page 3.12-10, Section 3.12.3.3 – The list of significant impacts appears too limited. Additional issues that should be considered in establishing significant criteria include: the loss of jobs; the inability to readily find new jobs due to the lack of needed skills or language ability; and the inability to use the project once completed to service local needs. While it is stated that the CEQA Guidelines do not treat such issues as significant impacts, without understanding the impact of the project in minority and low-income populations, the full impact of the project is not being considered. Furthermore, such socioeconomic impacts can (and will) have impacts on the physical communities in which the EJ community lives. Just as "blight" in central cities must be evaluated when a new shopping center project is being proposed, the physical impact on EJ

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communities must also be evaluated in connection with the environmental analysis of the proposed HST project.

BO101-22

Page 3.12-11 – Section 3.12.3.4 - The rationale for limiting the study area to 0.5 miles from the centerline of the proposed alignment needs to be provided. This appears to be inadequate to evaluate the impacts to communities and neighborhoods, especially in the "agricultural community." There needs to be a rationale provided as to why the project area shouldn't be wider in rural areas to adequately address impacts to the EJ community.

BO101-23

Page 3.12-12, Section 3.12.3.5 – Public outreach is documented in Chapter 7. According to the statements found in the RDEIR/SDEIS, the following was done:

- Identify and engage minority and/or low-income interest groups within the HST project area.
- Engage the EJ community leaders and organizations.
- Identify how project information would be made available to the community.
- Conduct EJ-specific community meetings to inform community members of the project and solicit input about community-based concerns; establish opportunities for participation by potentially affected communities of concern.
- Develop alignment alternatives or modifications to avoid or minimize impacts on communities of concern.
- Document public information meetings and other EJ outreach.

More specific information on outreach efforts must be provided. It appears that the Authority provided meeting notices, listed advertisements in Spanish-language newspapers, and posted meeting notices (in English and Spanish) at community facilities that service low-income and minority populations. If this is the case, the actual public outreach conducted is blatantly overstated in Section 3.12.3.5.

What the Authority clearly did not do was widely utilize the most important communication media for the EJ community – radio. After contacting all of the 12 major Spanish language radio stations from Fresno to Bakersfield, we have determined that the necessary outreach to the Latino community by means of the radio has been non-existent.

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Page 3.12-19, Table 3.12-2 – The regional average is 56.6 percent minority, with 43 percent being Hispanic. This indicates that the areas being impacted have minority percentages significantly higher than the State average. **Why were alternative alignments selected that disproportionately impact minority and low-income populations?**

BO101-25

Page 3.12-30, HST Study Area Economic Setting – It is interesting to note the high percent of unemployment in the project area. Impacts to agriculture – the largest direct and indirect employer – caused by the HST project could increase these percentages. The RDEIR/SDEIS must analyze this possibility.

BO101-26

Page 3.12-33, Agricultural Economic Setting – There is a statement that 20 percent of all jobs in the project area are due to agriculture. **Is this percentage based on the number directly involved or does it include businesses related to this sector such as food processing, manufacturing, warehousing, and distribution?** How the 20 percent was derived needs to be clarified, and both numbers should be provided. A summary of the information in Section 3.14 should also be provided so that the issue can be more completely understood when reading this section.

BO101-27

Page 3.12-34, Section 3.12.4.4, HST Study Area Community Settings – The importance of rural areas for jobs within the EJ community needs to be discussed. Once again, the reader is being sent to another section of the document to understand the issue.

BO101-28

Page 3.12-35, Section 3.12.4.4, City of Fresno – The BNSF alterative would enter Fresno northwest of the downtown area and move southeastward through three of Fresno's oldest and poorest neighborhood. "**Residents of this area represent much higher percentages of minority status than the city of Fresno as a whole, larger average family sizes, lower educational attainment levels, lower median household incomes and substantially higher rates of unemployment.**" The RDEIR/SDEIS does not adequately analyze the impacts associated with this route selection, or investigate alternatives and mitigation measures that could eliminate or reduce the disproportionate impacts that the EJ community will have to bear if the project goes forward as currently proposed.

BO101-29

Page 3.12-40, Section 3.12.4.5 – From Table 3.12-6, it is obvious that this route impacts a much larger percentage of minority and low-income families than found in other parts of the State. The rationale for this selection must be provided. **Also, why are census blocks with over 50 percent minority and 25 percent low-income the only areas considered to be an EJ community?** Regionally, the minority population is 56.5 percent. Based on the above average minority population regionally, **shouldn't the entire planning area be considered an EJ community, rather than just 32.1 percent of the census blocks that were mapped (Page 3.12-41)?**

BO101-30

Page 3.12-41, Paragraph 5 – Because the Fresno Rescue Mission is one of the facilities slated to be removed, a more complete discussion of the homeless community in Fresno should be provided.

BO101-31

Page 3.12-46, Section 3.12.5 – This section focus on the benefits of the project. It should also comment on the potential for job losses, which will include the 2,458 jobs lost from the relocation of existing businesses and 350 jobs due to the loss of farmland and other agricultural businesses.

BO101-32

Page 3.12-49, Section 12.5.2 – It is estimated that project construction will take seven to nine years. For those living through the construction period, the impacts may feel permanent, not temporary. The RDEIR/SDEIS must explore whether a "temporary" impact of seven to nine years is properly called "temporary" at all. In fact, it is unlikely that current patterns can or will reassert themselves after the construction period is done. Therefore, the RDEIR/SDEIS needs to evaluate alternatives and possible mitigation measures that properly consider the so-called "temporary" impacts to be "permanent" impacts. The current document does not do this.

BO101-33

Page 3.12-51, BNSF Alternative – The finding is made that the effects of construction related to disruption or severance of community interactions or division of established communities would be of moderate intensity under NEPA, and less than significant under CEQA. **On what basis was this finding made?** From the description, it appears that the magnitude of the impact is being ignored.

BO101-34

Page 3.12-53 – This is another instance that the reader must go to another section or document to obtain the relevant information. A summary of the findings from the Children's Health and Safety Risk Assessment should have been provided in this section.

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Page 3.12-54, Impact SO #5 – See General Comments on employment.

BO101-36

Page 3.12-55, Impact SO #5 – The RDEIR/SDEIS contains a comment that no new government or community facilities will be needed, but there will be a need for additional government services. **Without additional analysis as to the current level of services compared to the need for more government services, how can this impact be found to be less than significant?**

BO101-37

Page 3.12-55, Impact SO #6, Table 3.12-7 – The findings in this table do not seem consistent with the Impact Summary. The planning area has a large EJ population and the alignment is proposed to go through some of the poorest sections of the planning area.

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BO101-38

Page 3.12-63, Table 3.12-8, Noise and Vibration – **Does an entire community or neighborhood need to be impacted to find that there will be a significant impact from noise and vibration?** Noise, vibration, and unwanted visual impacts caused by the proposed mitigation could all be considered to impact the quality of life for those living and working in the area.

BO101-39

Page 3.12-64 through 69 – We agree that the impacts to the Fresno homeless community are significant. We also agree that the impacts to the Ponderosa Road community, the area between Shafter and Bakersfield, and through the three districts of Bakersfield, are significant. However, it is unclear if the proposed mitigation measures will reduce the impact to less than significant and, in some cases, if any mitigation measures are even being proposed to avoid or lessen the proposed impacts. We are unsure that the impacts to Corcoran and some of the other smaller communities should be considered less than significant. **How does the Authority justify its determinations that it has properly and fully mitigated the adverse impacts mentioned?**

BO101-40

Page 3.12-73 & 74, Station Alternatives – For the analysis of impacts of the proposed stations, the only factor being considered is the splitting of a community. Changes in traffic patterns and intensity, changes in nearby land uses, and widening an existing corridor could have the same results and should be discussed.

BO101-41

Page 3.12-76, Impact SO #8 – We agree that the impacts to the Regional Agricultural Community are significant. **What, if any, mitigation is being proposed to avoid or lessen this impact?**

BO101-42

Page 3.12-76 – Impact SO #9 – This is another instance that the reader must go to another section to obtain the relevant information. A summary of the findings from the Air Quality Section should have been provided in this section.

BO101-43

Page 3.12-78, Impact SO #10 – It is difficult to believe that relocating 451 families is a less than significant impact, as is the relocation of the Fresno Rescue Mission. **How does the Authority justify this finding?**

BO101-44

Page 3.12-86, Impact SO #11 – It is unclear if the RDEIR/SDEIS considered the impact on 395 businesses, including the Mercado Latino Tianguis in Bakersfield, a significant impact. **Does the Authority consider the impacts significant? If not, why not? If so, what alternatives or mitigations are proposed to eliminate or to reduce the impacts?**

BO101-45

Page 3.12-92, Impact SO #12 – **Is the loss of Agricultural Businesses considered to a significant impact?** The RDEIR/SDEIS is unclear. The potential loss of 350 agricultural jobs is not discussed, and impact must be discussed and evaluated in the Final EIR/EIS.

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Page 3.12-96, Economic Effects – While there may be some improved accessibility to labor and customer markets in the region, the real benefit appears to be increased access between the major markets – Los Angeles and San Francisco. **Have there been any studies on potential local ridership, especially by the EJ community?** With only two stations, and possibly a third, it seems unlikely that there will be many local riders. **Will this project benefit them and if so, how?** The discussion of benefits on property values is highly restricted to the lands near the HST stations. **What will be the impact on properties along the project alignment that are not near the HST stations?** The next section suggests that it is negative.

BO101-47

Page 3.12-97, Impact SO #13 – **How can the impacts on property values be minimal when the benefits appear to be related to the proximity of a property to a station?** There would be approximately 114 miles of track and only two stations. The discussion recognizes that there may be an initial loss of property tax revenue to the Counties in the region and there would be potential local budget deficits. However, the RDEIR/SDEIS says that this impact is not of concern because the losses would not be perceptible to the community residents. This statement is not adequate, and represents a complete failure to analyze actual impacts that the document recognizes will be present. The Final EIR must contain a full exploration of what the loss of tax revenues will mean in general, and to the EJ community, in particular, which is likely to suffer significant impacts when tax revenues fall.

It is unclear what the RDEIR/SDEIS believes about the impact of the project on sales tax. The benefit appears to be negligible because of the losses associated with business relocations. Again this will ultimately impact the services that can be provided to the EJ community, and must be fully analyzed, to comply with CEQA and NEPA.

BO101-48

Page 3.12-99, Impact SO#14 – The employment gains in this section may be overstated based on the incomplete analysis of the employment issues. In addition, it is unclear how these gains, if any, will aid the EJ community. **What is being done to assure that these jobs will be available to them?** Please review previous comments on employment issues.

BO101-49

Page 3.12-100, Impact SO #15 – The discussion of impacts to the school system has been incomprehensible throughout the document. There is no basis for assuming that the impact is minimal because students will be relocated within the same school system. As with much of this document, the finding are conclusionary and not based on any facts presented.

BO101-50

Page 3.12-102, Impact SO#16 – The loss of 350 agricultural jobs in the region could be significant to the EJ community. An analysis of the agricultural work force is needed to

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BO101-50 understand the magnitude of this job loss on the EJ community. Also, the ability to get to work may be impacted by the project, due to road closures, and needs to be assessed.

BO101-51 Page 3.12-107, Impact SO #17 – The presence of HST operations close to residential neighborhoods could affect community character and perceptions of quality of life in small rural communities along the route. There may be economic consequences linked to these effects. The previous section discusses the loss of property values and, therefore, there could be the potential for physical deterioration of rural communities.

BO101-52 Page 3.12-107, Impact SO #18, Table 3.12-17 – This table may not accurately reflect the impact of the project on the EJ community. **What facts justify the statements made in Table 3.12-17?**

BO101-53 Page 3.12-115, Section 3.12.6 – The relocation plan has yet to be developed. Therefore, there is no way to determine its adequacy. This kind of "deferral" of a required mitigation is inadequate.

BO101-54 Page 3.12-117, Mitigation Measure SO-1 – This mitigation describes a program that will be developed in the future to reduce impacts associated with the division of existing rural residential communities. Because the program still needs to be developed, there is no way to determine its adequacy. Again, this kind of "deferral" of a required mitigation is inadequate.

BO101-55 Page 3.12-117, Mitigation Measure SO-2 – This mitigation describes a program that will be developed in the future to reduce impacts associated with the division of existing communities in the Bakersfield Northeast District. Because the program still needs to be developed, there is no way to determine its adequacy. This kind of "deferral" of a required mitigation is inadequate.

BO101-56 Page 3.12-118, Mitigation Measure SO-3 – This mitigation describes a program that will be developed in the future to reduce impacts associated with the division of existing communities in the Bakersfield Northwest District. Because the program still needs to be developed, there is no way to determine its adequacy. This kind of "deferral" of a required mitigation is inadequate.

BO101-57 Page 3.12-118, Mitigation Measure SO-4 – This mitigation describes a program that will be developed in the future to reduce impacts associated with the impacts associated with the relocation of important facilities. Because the program still needs to be developed, there is no way to determine its adequacy. This kind of "deferral" of a required mitigation is inadequate. In addition, the measure does not include either the Fresno Rescue Mission or the Mercado Latino Tianguis. These two facilities should also be included.

BO101-58 Page 3.12-119, Mitigation Measure SO-5 – This mitigation measure describes providing access modification to affected farmlands. No access plan has in fact been developed. The timing of these access modifications should be described. As with the other mitigation measures, it is not possible to assess if this mitigation measure is adequate, and this kind of "deferral" of a required mitigation is inadequate.

BO101-59 Page 3.12-119, Mitigation Measure SO-6 – The program for continued outreach to disproportionately and negatively impacted EJ communities of concern needs to be developed and fully reviewed. No plan has been developed. Based on previous outreach, much additional work would be required to develop an adequate plan. Like the other mitigation measures, it is not possible to assess if this mitigation measure is adequate; and this kind of "deferral" of a required mitigation is inadequate.

BO101-60 Page 3.12-119, Mitigation Measure SO-7 – Again, it is impossible to assess the adequacy of this mitigation measure to minimize the potential for physical deterioration. No program has been developed, and this kind of "deferral" of a required mitigation is inadequate.

Submission BO101 (Barbara Ybarra, Ybarra Company Public Affairs with Solutions Strategies International, Inc., October 18, 2012) - Continued

STATEMENT OF QUALIFICATIONS

Ybarra Company Public Affairs (YCPA) and Solutions Strategies International, Inc. (Solutions) are providing these comments on the Environmental Justice section (Section 3.12 SOCIOECONOMICS) of the CALIFORNIA HIGH-SPEED TRAIN PROJECT REVISED DEIR/ SUPPLEMENTAL DEIS, FRESNO TO BAKERSFIELD SECTION 3.12 (RDEIR/SDEIS). Together, YCPA and Solutions have over 50-years of experience in community building and addressing Environmental Justice issues in the Central Valley and throughout California. In addition to this work, we have considerable experience with both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). Both firms are familiar with and have completed multiple community outreach projects in the communities between Bakersfield and Fresno that would be impacted by the proposed project.

YBARRA COMPANY PUBLIC AFFAIRS

YCPA's extensive experience in organizing Environmental Justice community-building efforts began in the early 1970s with organizing farm workers and their communities with Cesar Chavez and the National Farm Worker Service Center, and later United Farm Workers of American Union. During the 1980s, they were involved in organizing Central Valley communities, such as McFarland, around pesticide and cancer cluster issues facing the communities, as well as conducting studies on air quality impacts on Latinos and valley fever. Additionally, YPCA led a case study project on air and water quality and oil severance tax issues that resulted in the prevention of heavy crude oil extraction at California State University, Bakersfield (CSUB). Furthermore, as a CSUB adjunct professor, Barbara Ybarra, YCPA's Director of Operations, assisted in conducting studies on the impact of air pollution at China Lake Weapons Station and its impacts on agriculture in the Central Valley. YCPA also provided consulting services to residents and existing businesses on the successful *Save the Valley* campaign that prevented the relocation of a senior mobile home park in order to build 5,000 homes in the area.

YCPA's experience and involvement in community building across California speaks to their ability to truly understand Latino communities and their priorities, including health, wealth, politics, education, poverty, and environmental justice. Despite the Latino community's significant political influence, they are often overlooked by government and major policy processes. In YCPA's community-building efforts, they have supported and consulted San Diego's Barrio Station in removing junk yards from residential areas. Their work on this issue has resulted in creation of many new policies to protect the community. This project was a forerunner to the Environmental Health Coalition, which continues to perform extensive follow-up community work to address the community's needs. YCPA makes a concerted effort to work with clients who make community-building efforts a priority. In addition, YCPA consulted with a community

developer to get Latinos involved in environmental issues tied to growth in Hollister and Redwood City.

Barbara Ybarra

Barbara serves as YCPA's Director of Operations. As a managing partner, Barbara directs strategies for the firm and its clients. Barbara has a unique combination of work history and education. During her early years, she worked summers and after school hours with her grandfather, Cesar Chavez. Barbara learned the valuable fundamentals of organizing, management, and community outreach working with her grandfather. In addition, Barbara earned an MBA and a Bachelor of Science degree in Political Science. The synthesis of her work experience and education is a winning combination for her clients. During the past 25+ years, Barbara has developed her expertise in public affairs, political campaigns, and community outreach, serving as a consultant in the corporate and non-profit sectors.

Richard Ybarra

Richard serves as YCPA's Senior Partner. He is the lead advisor in community outreach, campaign strategies, elections, government relations, and consulting.

In 1980, Richard received a Fellowship to Harvard University's John F. Kennedy School of Government where he earned a master's degree in Public Administration. Richard began private consulting, handling political campaigns, lobbying, and assisting non-profit organizations. He closely worked with bipartisan legislators as a management and professional coach to numerous state organizations, political campaigns, and commissions from the 1980s though today. His 35 years of experience has given him the chance to work across the USA, Mexico, Canada, and Europe.

In addition, Richard's coaching work has allowed him the opportunity to be a part of private meetings and strategy sessions with renowned leaders such as Cesar Chavez, management expert Peter Drucker, Producer Edward Lewis, and Smith & Hawken Founder Dave Smith.

SOLUTION STRATEGIES INTERNATIONAL, INC.

For over twenty years, Solution Strategies International, Inc. (Solutions) has provided land use consulting services to business, public agencies and non-profits. The firm is known for its ability to achieve broad based support among project stakeholders. This is due in large part to our in-depth understanding of how the technical and environmental aspects of a project fit with local community and economic development needs.

Solutions takes great pride in working with local communities. We work hard to listen to residents and community leaders so we can fully understand their beliefs, goals, and

Submission BO101 (Barbara Ybarra, Ybarra Company Public Affairs with Solutions Strategies International, Inc., October 18, 2012) - Continued

visions for the future. By listening and understanding what makes a community unique, we are able to bring the needs of our clients and the community together for their mutual benefit.

Our community outreach and educations programs include:

- Translating technical concepts into community concepts
- Facilitating meaningful public participation
- Balancing diverse interests
- Empowering communities to achieve their goals
- Providing bi-lingual informational materials and interpreters

Many of our outreach programs include Environmental Justice (EJ) communities. Solutions outreach programs in these communities are hands-on, bi-lingual, often one-on-one with individuals, and extend to neighborhoods, schools, businesses, healthcare providers, churches, and community groups. This approach enables our team to fully access project impacts and address impacts in ways that meet the community's specific needs.

For example, on behalf of Vulcan Materials Company (Vulcan), Solutions worked with many EJ communities throughout the Central Valley, San Bernardino County, and the Sun Valley area in Los Angeles to determine impacts of Vulcan's projects on these communities. Solutions hands on efforts in these EJ communities, allowed Vulcan to identify specific community needs and provide effective and meaningful mitigation for impacts from their sand and gravel mining operations. Mitigation implemented by Vulcan materials included increased street sweeping in neighborhoods, additional noise and dust controls, providing street improvements such as paving and sidewalks, truck rerouting, improved operational hours, school access improvements, flood control measures, local beautification programs, etc.

In addition to working with Vulcan on community issues, Solutions was also the lead consultant for the Sun Valley Air Quality Project for the City of Los Angeles. The close mix of residential and heavy industrial uses along with increased incidences of cancer and asthma in the Los Angeles community of Sun Valley prompted the Los Angeles City Council to designate the community as an Environmental Justice Area and initiate the Sun Valley Air Quality Project. The project was two pronged and included conducting a community wide air toxics study with the South Coast Air Quality Management District and carrying out a community outreach program to gain a better understanding of the community's environmental perceptions. The project resulted in a final report entitled "Sun Valley Air Quality Project Report."

Mr. Dan Richard
RDEIR/SDEIS Comment Fresno to Bakersfield
October 17, 2012

Solutions is also experienced in addressing CEQA and NEPA issues. They have aided clients in preparing documents, in conducting peer reviews of documents prepared by others, and in reviewing and commenting on the adequacy of documents. For example, their principals have overseen the preparation of the EIR for the Pamo Valley Residential Development, prepared the NEPA document for the Seraphina Project, and peer reviewed the EIR/EIS for the Playa Vista Project.

Linda Mitrovich
Linda Mitrovich is the co-founder and President of Solutions, which has been helping private- and public-sector clients create solutions and resolve conflicts for business, public agencies and non-profits since 1990.

A former City Councilmember and Deputy Mayor, Ms. Mitrovich has an in-depth understanding of politics at the community, regional, and state levels, as well as the impact national policies have on these entities, including sovereign Indian nations.

She has a unique talent and capability to balance the interests of diverse and often conflicting stakeholders, and she is widely recognized as a specialist in policy negotiations, strategy development, coalition building, and dispute resolution. Her demonstrated leadership and ability to see the big picture and to create focus and momentum enables the Solutions team to accomplish what is often considered seemingly impossible.

She has also served on numerous governmental boards and committees, including the San Diego County Water Authority, the Clean Water Governance Advisory Group for the San Diego Metro Sewer District, and the State of California Drinking Water Technical Committee. Ms. Mitrovich was voted Woman of the Year twice by the California State Senate and State Assembly.

Sharon Lockhart
Ms. Lockhart has worked in both the public and private sectors. In the public sector, she worked for the U.S. Fish and Wildlife Service as a project manager for several U.S. Army Corps of Engineers projects. In this capacity she was responsible for designing and carrying out project biological studies on endangered and non-endangered species and preparing project reports on impacts. She also prepared special reports on resource problems to assess environmental impacts and/or compliance with applicable legislation, regulations, and policies. She served as office coordinator on California Coastal Commission and National Environmental Policy Act issues.

On leaving the U.S. Fish and Wildlife Service, Ms. Lockhart has served as a consultant on environmental and policy issues related to proposed developments that would either impact wetlands, sensitive habitat areas, and/or endangered species. Her

Submission BO101 (Barbara Ybarra, Ybarra Company Public Affairs with Solutions Strategies International, Inc., October 18, 2012) - Continued

responsibilities have included providing input into the project design to meet environmental compliance requirements; identifying required local approvals, as well as Federal and State permits; and preparing impact assessments for environmental documents.

Ms. Lockhart received her Juris Doctor degree and is a member of the California Bar Association, Environmental Law Section. She has taken an active role in processing permits/entitlements with the regulatory agencies and is an expert on NEPA and CEQA compliance issues.

Response to Submission BO101 (Barbara Ybarra, Ybarra Company Public Affairs with Solutions Strategies International, Inc., October 18, 2012)

BO101-1

Refer to Standard Response FB-Response-SO-07.

For information on the Environmental Justice analysis and methodology, see Volume 1, Section 3.12, Impacts SO #17 and SO #18, and Mitigation Measure SO-6, as well as Sections 4.3 and 5.3 in the Community Impact Assessment Technical Report. Determination of potential environmental justice effects includes consideration of all possible mitigation. Mitigation of impacts to less than significant is not possible in every instance, so the effect is acknowledged and considered in decisions about project alternatives.

The EIR/EIS provides documentary evidence that the Authority and FRA are fulfilling their duties to comply with CEQA, NEPA, and Executive Order 12989 (Environmental Justice). Project alternatives were identified, the impacts were evaluated at an equal level of detail and fully disclosed, and input was sought and received from the public, including groups identified as minority, low income, or disadvantaged. No evidence has been presented contradicting the Authority's obligation to comply with CEQA, or FRA's obligations to comply with NEPA and Executive Order 12989. In the absence of any substantial evidence, there is no compelling reason to withdraw the EIR/EIS and recirculate it at some future date.

BO101-2

The structure and format of the document is consistent with the requirements and guidelines for preparing EIRs and EISs under CEQA and NEPA. The length of the document and amount of information presented is necessary for a project that spans 114 miles and traverses numerous communities and environments.

BO101-3

The structure and format of the document is consistent with the requirements and guidelines for preparing EIRs and EISs under CEQA and NEPA. The length of the document and amount of information presented is necessary for a project that spans 114 miles and traverses numerous communities and environments.

BO101-4

Refer to Standard Response FB-Response-SO-07.

BO101-5

Refer to Standard Response FB-Response-GENERAL-05, FB-Response-SO-01, FB-Response-SO-04.

See the EIR/EIS, Volume I, Section 3.12, Impact SO #6, for the impact on community cohesion or on division of communities from the project operation. Please see the Draft Relocation Impacts Report for more information on residential displacements and for an analysis of available vacant residential units.

BO101-6

Refer to Standard Response FB-Response-SO-01.

For more information on the property acquisition and compensation process, including replacement housing payments and mortgage differential, see the Revised DEIR/Supplemental DEIS, Volume II, Appendix 3.12-A.

BO101-7

Refer to Standard Response FB-Response-SO-01, FB-Response-SO-03.

Please see the Draft Relocation Impacts Report for more information on commercial and industrial business displacements and for an analysis of available vacant units.

BO101-8

See Section 5.3.2 of the Community Impact Assessment Technical Report for a summary of the potential environmental justice effects by resource area.

BO101-9

Refer to Standard Response FB-Response-SO-07.

The Environmental Justice (EJ) Guidance document and Authority's Title VI Program were vetted by the Federal Railroad Administration (FRA).The adoption of the EJpolicy

Response to Submission BO101 (Barbara Ybarra, Ybarra Company Public Affairs with Solutions Strategies International, Inc., October 18, 2012) - Continued

BO101-9

and Title VI policy formalized the Authority's long-standing efforts to address EJ and Title VI mattersin a comprehensive manner. Actions before its adoption do not suggest noncompliancewith these laws.

BO101-10

In order to produce Volume I of the EIR/EIS within a manageable length, in some instances a brief summary and section reference were provided in Volume I, Section 3.12, when impacts from other resource areas were referred to. The Community Impact Assessment Technical Report provides more detail on the potential effects of all other resource areas.

BO101-11

In order to produce Volume I of the EIR/EIS within a manageable length, in some instances, a brief summary and chapter reference were provided in Volume I, Section 3.12, when impacts from other resource areas were referred to. The Community Impact Assessment Technical Report provides more detail on the potential effects of all other resource areas.

BO101-12

Transcripts of conversations with stakeholders are not available and are not considered to be part of the public record under CEQA/NEPA. Full transcripts of public testimony from each public hearing are considered to be part of the public record.

BO101-13

Refer to Standard Response FB-Response-SO-07.

It is true that the Central Valley is one of the most productive agricultural areas in the world. However, a complete environmental justice analysis was also performed to detail the occurrence of minority and low-income populations in the region.

BO101-14

Refer to Standard Response FB-Response-GENERAL-01, FB-Response-GENERAL-04,

BO101-14

FB-Response-GENERAL-05.

BO101-15

Refer to Standard Response FB-Response-SO-05.

Section 5.4.4.2 of the Community Impact Assessment Technical Report examines the reduction in property tax revenues that would result from acquisition of land for project construction. As discussed in Section 3.12, Impact SO #12, the economic impact from the reduction in property tax revenues is insignificant and would not be perceptible to community residents, and no mitigation is required.
The analysis looked at each Williamson Act and FSZ contracted parcel to see if the HST footprint removed enough acreage for the parcel to be below-the-minimum-acreage size. Final determinations of whether an individual parcel can remain in the Williamson Act or FSZ contract is at the discretion of each county. All parcels that could be removed in a worst-case scenario were counted. Regarding property tax losses as a result of properties removed from Williamson Act contract, tax revenues would increase as a result of the loss of tax exemptions.

The short-term reductions in sales tax revenues are discussed in Section 3.12, Impact SO #12, because the need to acquire land will necessitate the relocation of businesses along the project alignment. With the relocation assistance provided under the Uniform Act—including assistance in finding replacement properties, moving expenses, and obtaining permits—temporary reductions in sales tax revenue from business displacement would be minimal. A detailed discussion of potential sales tax revenue losses is presented in Section 5.4.4.4 of the Community Impact Assessment Technical Report. Losses would be an insignificant amount of the annual revenue from sales tax collected by the cities and counties. Therefore, the economic impact is measurable but would not be perceptible to community residents, and no mitigation is required.

Additionally, the expected annual gain in sales tax revenue from project spending is greater than the expected loss from business relocation. Construction- and operation-related sales tax gains are examined in Section 5.4.6 of the Community Impact Assessment Technical Report. The impacted cities and counties will have considerable additional revenues attributable to the construction and operation of the HST.

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BO101-16

Refer to Standard Response FB-Response-GENERAL-04, FB-Response-GENERAL-14.

For information on the economic effects on agriculture, see the EIR/EIS, Volume I, Section 3.12, Impact SO #15. For a detailed analysis of the effects of the HST project on agricultural production, see Appendix C of the Community Impact Assessment Technical Report. The analysis in this appendix provides these results by county and by project alternative in terms of the number of acres of agricultural production loss, the resulting annual revenue loss in both dollar and percentage terms for each type of agricultural product, and the employment loss. For information on new job creation and the resulting impacts to the regional economy, see Volume I, Section 3.12, Impacts SO #5 and SO #13. Also see Section 5.1.2 of the Community Impact Assessment Technical Report for more detailed information on short-term and long-term job creation.

BO101-17

Refer to Standard Response FB-Response-SO-05.

See the Revised DEIR/Supplemental DEIS, Volume II, Appendix 3.12-B, for analysis of the potential effects on school district funding.

BO101-18

For information on the economic effects on agriculture, see the EIR/EIS, Volume I, Section 3.12, Impact SO #15. For a detailed analysis of the effects of the HST project on agricultural production, see Appendix C of the Community Impact Assessment Technical Report. The analysis in this appendix provides these results by county and by project alternative in terms of the number of acres of agricultural production loss, the resulting annual revenue loss in both dollar and percentage terms for each type of agricultural product, and the employment loss.

BO101-19

Refer to Standard Response FB-Response-SO-07.

The environmental justice analysis adheres to the definition given by Executive Order 12898 and U.S. Department of Transportation Order 5610.2, which defines an

BO101-19

environmental justice effect as a "disproportionately high and adverse effect on minority and low-income populations." This is an adverse effect that is predominately borne by a minority population and/or a low-income population, or that would be appreciably more severe or greater in magnitude for the minority and/or a low-income population than the adverse effect that would be suffered by the nonminority and/or non-low-income population along the project.

Section 4.3 in the Community Impact Assessment Technical Report (Authority and FRA 2012) identifies the environmental justice populations along the project. The methodologies for identifying these populations are detailed in Appendix A of the Community Impact Assessment Technical Report. Section 5.3 in the Community Impact Assessment Technical Report provides detailed information on the potential for substantial environmental justice effects across resources along the project. Impacts SO #17 and SO #18 in the EIR/EIS, Volume 1, Section 3.12, summarize these findings. All documents are available at the California High-Speed Rail Authority website.

BO101-20

The definitions of terms used to describe the magnitude of the project effect significance criteria were developed to adhere to NEPA regulations (40 CFR 1500-1508), where project effects are evaluated based on the criteria of context and intensity. Each subsection in Chapter 3 documents the methods use (by environmental topic) for evaluating impacts under NEPA and the CEQA significance criteria.

The environmental evaluation has been conducted following the Authority's environmental methods, which can be found at the Authority's website.

BO101-21

The significance criteria were developed to adhere to CEQA guidelines. See the EIR/EIS, Volume 1, Section 3.12, Impacts SO #17 and SO#18, and Mitigation Measure SO-6. See also Sections 4.3 and 5.3 in the Community Impact Assessment Technical Report (Authority and FRA 2012h) for information on the Environmental Justice analysis and methodology. Determination of potential environmental justice effects includes consideration of all possible mitigation. Mitigation of impacts to less than significant is not possible in every instance, so the effect is acknowledged and considered in

Response to Submission BO101 (Barbara Ybarra, Ybarra Company Public Affairs with Solutions Strategies International, Inc., October 18, 2012) - Continued

BO101-21

decisions about project alternatives.

Jobs created by construction and operation of the project would likely be filled by workers in the region. To help offset any disproportionate effects, the Authority has approved a Community Benefits Policy that supports employment of individuals who reside in disadvantaged areas and those designated as disadvantaged workers.

BO101-22

Please see Appendix A of the Community Impact Assessment Technical Report for a complete description of the methodologies used. Further analysis on the effects to the regional agricultural community was performed (see Volume I, Section 3.12, Impact SO #7).

BO101-23

Refer to Standard Response FB-Response-GENERAL-16; FB-Response-SO-07.

BO101-24

Refer to Standard Response FB-Response-SO-07.

There is no intent on the part of the Authority or FRA to place alignments in locations that would disproportionately affect minority and low-income communities. As discussed in the Community Impact Assessment Technical Report, minority and low-income communities are common along all potential routes through the Central Valley. The Authority and FRA have complied with the provisions of Executive Order 12898 regarding outreach to and consideration of environmental justice communities.

At the same time, the minority group representation in the region is very similar to that in the state. In 2000, the population in the region was 56.5% minority, while the state population was 53.3% minority. Since then, the minority group representation has risen in both the region and the state. In 2008, the population in the region was 62.6% minority and the population in the state was 58.0% minority. These figures show that the minority group representation in the region is very similar to the minority group representation of the entire state.

BO101-24

Impacts on neighborhoods and communities within the study area, including Environmental Justice communities, are evaluated in the EIR/EIS in Section 3.12, Socioeconomics, Communities, and Environmental Justice, and in the *Fresno to Bakersfield Section: Community Impact Assessment Technical Report*. The Community Impact Assessment considered four key neighborhood and community issues: changes in neighborhood quality; barriers to social interaction in the analysis of potential impacts of the HST project on neighborhoods, community cohesion, and community facilities; impacts on community facilities; and impacts on public services, safety, and security. The Community Impact Assessment also provides a demographic analysis with complete race, ethnicity, income, and housing characteristics for socioeconomics, communities, and environmental justice, and identifies potential mitigation and strategies for socioeconomics, communities, and environmental justice resources.

BO101-25

For a detailed analysis of the effects of the HST project on agricultural production, see Appendix C of the Community Impact Assessment Technical Report. The analysis in this appendix provides these results by county and by project alternative in terms of the number of acres of agricultural production loss, the resulting annual revenue loss in both dollar and percentage terms for each type of agricultural product, and the employment loss.

BO101-26

For a detailed analysis of the effects of the HST project on agricultural production, see Appendix C of the Community Impact Assessment Technical Report. The analysis in this appendix provides these results by county and by project alternative in terms of the number of acres of agricultural production loss, the resulting annual revenue loss in both dollar and percentage terms for each type of agricultural product, and the employment loss. In order to produce Volume I of the EIR/EIS within a manageable length, in some instances a brief summary and chapter reference were provided in Volume I, Section 3.12, when impacts from other resource areas were referred to.

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BO101-27

Refer to Standard Response FB-Response-SO-07.

See the EIR/EIS, Volume I, Section 3.12, Impact SO #7, for effects to the regional agricultural community.

BO101-28

Refer to Standard Response FB-Response-SO-07.

See the Revised EIR/EIS, Volume 1, Section 3.12, Impact SO #17 and Impact SO #18, and Mitigation Measure SO-6, as well as Sections 4.3 and 5.3 in the Community Impact Assessment Technical Report for information on the Environmental Justice analysis and methodology. Determination of potential environmental justice effects includes consideration of all possible mitigation. Mitigation of impacts to less than significant is not possible in every instance, so the effect is acknowledged and considered in decisions about project alternatives.

BO101-29

The region, as a whole, has a high percentage of minority and low-income individuals. According to the 2000 census, 56.5% of the total regional population are minority, and 22.2% are living below the U.S. census poverty threshold. Within the EJ study area, these percentages are even higher in some locations, with minority and low-income individuals totaling 68.7% and 28.2% of the EJ study area population, respectively.

The presence of large concentrations of communities of concern is not surprising given the importance of agriculture and agricultural workers in the region. In the 1997 National Agricultural Workers Survey, almost 70% of farm workers surveyed were migrant workers. Overall, the census blocks in the EJ study area total 350.4 square miles, and 112.3 square miles (or 32.1%) of this area are identified as census blocks containing communities of concern. The vast majority of these blocks with EJ populations are in very large census blocks that are rural, with low-density populations (102.8 of the 112.3 square miles), and with only 9.5 square miles (or 8%) of the EJ study area blocks encompassing more urbanized populations.

The region's urban cities, Fresno, Hanford, Corcoran, Wasco, Shafter, and Bakersfield,

BO101-29

have many communities of concern as defined by high proportions of minority and low-income populations. See the EIR/EIS, Volume 1, Section 3.12, Impacts SO #17 and SO #18, and Mitigation Measure SO-6, as well as Sections 4.3 and 5.3 in the Community Impact Assessment Technical Report for information on the Environmental Justice analysis and methodology. Determination of potential environmental justice effects includes consideration of all possible mitigation. Mitigation of impacts to less than significant is not possible in every instance, so the effect is acknowledged and considered in decisions about project alternatives.

BO101-30

The Fresno Rescue Mission is mentioned throughout the EIR/EIS, Volume I, Section 3.12, and specifically in Table 3.12-18, under Impact SO #6 and Mitigation Measure SO-3.

BO101-31

Refer to Standard Response FB-Response-SO-03.

The analysis of potential job loss due to business displacement and relocation was performed by alternative, and the results are presented in the EIR/EIS, Volume I, Section 3.12, Impact SO #10. The analysis does not conclude that all potentially displaced employees would lose their jobs. A gap analysis of available properties was performed in Section 5.2.3 of the Community Impact Assessment Technical Report. The analysis examines all potentially relocated businesses and the results show that there are a suitable number of replacement properties in the surrounding locations in each community. Because the Authority is required to provide relocation assistance under the Uniform Relocation Assistance and Real Property Acquisition Policies Act, all the displaced businesses would be relocated: most, if not all, within the surrounding area, with their employees remaining employed.

BO101-32

Project construction is expected to be completed within 7–9 years (see Table 2-17, Approximate Construction Schedule). This period extends from the beginning of the first phase of construction and continues through operational testing of the HST system. It is

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BO101-32

expected that heavy-construction activities, such as grading, excavating, and laying the HST railbed and trackway, would be accomplished within a 5-year period. The specific construction impacts on each community would not occur throughout the entire duration of the project construction period. Please see Appendix A of the Community Impact Assessment Technical Report for a complete description of the methodologies used for property displacement analysis. To be conservative in this analysis and avoid underestimating displacements, it was assumed that residences and businesses located on acquired parcels, including those only temporarily impacted, would be counted as permanent displacements. This was done because it is not possible at this stage of the project to predict the outcome of the parcel-by-parcel property acquisition phase. These conservative displacement numbers were then used in all community division, fiscal revenue, and physical deterioration analysis, and therefore do not underestimate the potential impacts.

BO101-33

The findings of the EIR/EIS, Volume I, Section 3.12, Impact SO #1 and SO #6, disruption to community cohesion or division of existing communities by project construction and operation is based on an examination of the affected environment compared to the environmental consequences, on secondary research, field research, a review of findings from other sections (such as Aesthetics and Visual Resources [3.16], Noise and Vibration [3.4], Transportation [3.2]), and from professional judgment.

BO101-34

See the EIR/EIS, Volume I, Section 3.12, Impact SO #8, Effects of Project Operations on Children's Health and Safety.

BO101-35

Refer to Standard Response FB-Response-GENERAL-04, FB-Response-GENERAL-14.

For information on new job creation and the resulting impacts on the regional economy, see the EIR/EIS, Volume I, Section 3.12, Impacts SO #5 and SO #13. Also see Section 5.1.2 of the Community Impact Assessment Technical Report for more detailed information on short-term and long-term job creation.

BO101-36

The employment created through project construction would employ workers in the regional labor force and has the potential to attract small numbers of workers to the region as a result of employment opportunities. The increase in population from in-migrating construction workers would not affect the ability of local jurisdictions to provide governmental and public services because the number expected is small.

BO101-37

Table 3.12-7 shows the results of the analysis of disproportionately high and adverse effects on communities of concern, as determined by reviewing the construction impacts associated with the environmental elements addressed in the other sections of Chapter 3, Affected Environment, Environmental Consequences, and Mitigation Measures, in the EIR/EIS.

BO101-38

Refer to Standard Response FB-Response-N&V-05.

No, the entire community or neighborhood does not need to be impacted for there to be a significant impact.

Secondary visual impacts resulting from the soundwalls required for noise mitigation are acknowledged in Table 3.16-2 in Section 3.16, Aesthetics and Visual Resources, of the Revised DEIR/Supplemental DEIS. Mitigation Measure AVR-MM#2g specifically describes measures required to address the visual impacts of such walls.

BO101-39

Refer to Standard Response FB-Response-GENERAL-01.

BO101-40

The station alternatives are also discussed in Volume I, Section 3.2, Transportation, and Section 3.13, Station Planning, Land Use, and Development.

Changes in land use surrounding the station alternatives are discussed in section

Response to Submission BO101 (Barbara Ybarra, Ybarra Company Public Affairs with Solutions Strategies International, Inc., October 18, 2012) - Continued

BO101-40

3.13.5.3.

The traffic impact analysis of station alternatives is discussed in Section 3.2, Transportation.

BO101-41

Refer to Standard Response FB-Response-GENERAL-04.

BO101-42

In order to produce Volume I of the EIR/EIS within a manageable length, in some instances a brief summary and chapter or section reference were provided when impacts from other resource areas were referred to in Section 3.12.

BO101-43

Refer to Standard Response FB-Response-SO-01.

The finding in the EIR/EIS, Volume I, Section 3.12, Impact SO #9, is based on the availability of replacement housing resources, and is not a statement about the impact on the community as a whole. See Mitigation Measures SO-1 and SO-2 for proposed mitigation for impacts on communities.

BO101-44

Refer to Standard Response FB-Response-SO-03.

The level of significance of the impact related to business relocations is provided for each alternative in the EIR/EIS, Volume I, Section 3.12, SO #10.

BO101-45

The level of significance of the impact related to agricultural businesses is provided for each alternative in the EIR/EIS, Volume I, Section 3.12, SO #11.

BO101-46

Refer to Standard Response FB-Response-SO-02.

BO101-46

In accordance with Executive Order 12898, offsetting benefits should also be considered when evaluating potential disproportionately high and adverse effects on minority and low-income populations. The proposed HST project would bring economic benefits to the study region, including jobs and related income. HST construction and operation jobs would be filled by the regional labor force, so the project would benefit regional workers broadly, and the Community Benefits Policy adopted by the Authority would support employment of disadvantaged workers.

Although elevated guideways would introduce substantial adverse aesthetic and visual effects through urban areas, station construction and planned station area improvements in downtown Fresno and downtown Bakersfield would improve the aesthetics and visual environment in these locations, benefiting the nearby minority and low-income communities. Other station-related benefits, including improved accessibility and potential property value increases, would most benefit those who live closest to the new stations. In Fresno and Bakersfield, the people who live closest to the new stations would be the adjacent minority and low-income communities. The optional Kings/Tulare Regional Station is in a sparsely populated area and would bring neither disproportionate adverse effects nor benefits to minority and low-income populations. For information on potential HST project impacts on property values, see Section 5.4.4.3 in the Community Impact Assessment Technical Report.

BO101-47

Refer to Standard Response FB-Response-SO-02, FB-Response-SO-05.

For information on potential HST project impacts on property values, see Section 5.4.4.3 in the Community Impact Assessment Technical Report. For information on the HST operation-related property and sales tax revenue effects, see the EIR/EIS, Volume I, Section 3.12, Impacts SO #3, SO #4, and SO #12. These impacts apply to the entire population and are not specific environmental justice impacts. (Environmental justice impacts are adverse effects predominately borne by a minority population and/or a low-income population that would be appreciably more severe or greater in magnitude for the minority and/or a low-income population than the adverse effects that would be suffered by the nonminority and/or non-low-income population along the project.)

Response to Submission BO101 (Barbara Ybarra, Ybarra Company Public Affairs with Solutions Strategies International, Inc., October 18, 2012) - Continued

BO101-48

Refer to Standard Response FB-Response-GENERAL-14.

Jobs created by construction and operation of the project would likely be filled by workers in the region. To help offset any disproportionate effects, the Authority has approved a Community Benefits Policy that supports employment of individuals who reside in disadvantaged areas and those designated as disadvantaged workers, including veterans returning from military service. This policy helps to remove potential barriers to small businesses, disadvantaged business enterprises, disabled veteran business enterprises, women-owned businesses, and microbusinesses that want to participate in building the high-speed rail system.

Under the Authority's Community Benefits Policy, design-build construction contracts will be required to adhere to the National Targeted Hiring Initiative, which states a minimum of 30% of all project work hours will be performed by national targeted workers and a minimum of 10% of national targeted workers hours will be performed by disadvantaged workers. According to the National Targeted Hiring Initiative, disadvantaged workers either live in an economically disadvantaged area or face any of the following barriers to employment: being homeless, being a custodial single parent, receiving public assistance, lacking a GED or high school diploma, having a criminal record or other involvement with the criminal justice system, being chronically unemployed, being emancipated from the foster care system, being a veteran, or being an apprentice with less than 15% of the required graduating apprenticeship hours in a program.

The Community Benefits Policy will supplement the Authority's Small Business Program, which has an aggressive 30% goal for small business participation, and includes goals of 10% for disadvantaged business enterprises and 3% for disabled veteran business enterprises.

BO101-49

Refer to Standard Response FB-Response-SO-05.

See the Revised DEIR/Supplemental DEIS, Volume II, Appendix 3.12-B, for analysis of the potential effects on school district funding.

BO101-50

Refer to Standard Response FB-Response-TR-02.

For information on the economic effects on agriculture, see Volume I, Section 3.12, Impact SO #15, in the EIR/EIS. For a detailed analysis of the effects of the HST project on agricultural production, see Appendix C of the Community Impact Assessment Technical Report. The analysis in this appendix provides these results by county and by project alternative in terms of the number of acres of agricultural production loss, the resulting annual revenue loss in both dollar and percentage terms for each type of agricultural product, and the employment loss.

BO101-51

Refer to Standard Response FB-Response-SO-04.

In addition to Volume I, Section 3.12, Impact SO #16, in the EIR/EIS, see the analysis in the Community Impact Assessment Technical Report, Section 5.4.5, Physical Deterioration.

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Table 3.12-17 is the result of analysis of disproportionately high and adverse effects on communities of concern, determined by reviewing the construction impacts associated with the environmental elements addressed in the other sections of Chapter 3, Affected Environment, Environmental Consequences, and Mitigation Measures, in the EIR/EIS.

BO101-53

Refer to Standard Response FB-Response-GENERAL-01, FB-Response-SO-01.

For more information on the property acquisition and compensation process, see the Revised DEIR/Supplemental DEIS, Volume II, Appendix 3.12-A.

BO101-54

Refer to Standard Response FB-Response-GENERAL-01.

Response to Submission BO101 (Barbara Ybarra, Ybarra Company Public Affairs with Solutions Strategies International, Inc., October 18, 2012) - Continued

BO101-54

Mitigation Measure SO-1 does not defer mitigation. It clearly states that the Authority plans to locate suitable replacement properties for displaced residents in the rural residential areas around Ponderosa Road/Edna Way, Newark Avenue, and Crome. The Authority will also work with residents whose property would not be acquired, to identify measures that could be taken to mitigate impacts on those who remain in these rural residential communities. Those measures may include sound walls and landscaping, and potential uses of remnant parcels that could benefit the community. While this mitigation measure would substantially lessen the impact on the identified rural residential communities, it is uncertain whether it would reduce impacts to a less-than-significant level. Therefore, the division of these communities is still identified as significant in the EIR/EIS following implementation of Mitigation Measure SO-1.

BO101-55

Refer to Standard Response FB-Response-GENERAL-01.

Mitigation Measure SO-2: *Implement measures to reduce impacts associated with the division of existing communities*, was developed to reduce the community division impacts by conducting community workshops before the completion of final design to begin the process of determining potential use of the area adjacent to the HST tracks. Additional details about the plan to involve the Bakersfield community in these decisions have been added to the Final EIR/EIS. These meetings will provide neighborhood residents the opportunity to contribute to the process of identifying desired design concepts that will strengthen community cohesion and be compatible with the character of the adjacent community. The Authority will be responsible for implementing the results of this outreach program into the final project design. As noted in the comment, even with the implementation of these mitigation measures, the division of existing communities in Bakersfield will be significant.

BO101-56

Refer to Standard Response FB-Response-GENERAL-01.

Mitigation Measure SO-3 does not defer mitigation. It states that the Authority will maintain pedestrian, bicylce, and vehicle links across the HST alignment. It will also work with the Bakersfield Northwest District to identify community preferences for

BO101-56

private-property uses or alternative public uses of land acquired by the Authority for the elevated structure through the district to strengthen community cohesion. This coordination will be conducted during final design in order to incorporate future planned uses within the rail corridor that are compatible with the character of the adjacent neighborhood. While this mitigation measure would substantially lessen the impact to the Bakersfield Northwest District, it is uncertain whether it would reduce impacts to a level less-than-significant. Therefore, the division of this community is still identified as significant in the EIR/EIS following implementation of Mitigation Measure SO-3.

BO101-57

Refer to Standard Response FB-Response-GENERAL-01.

Mitigation Measure SO-3 does not defer mitigation. It provides the following performance standard: "The Authority will consult with these respective parties before land acquisition to assess potential opportunities to reconfigure land use and buildings and/or relocate affected facilities, as necessary, to minimize the disruption of facility activities and services, and also to ensure relocation that allows the community currently served to continue to access these services." The Authority has committed to providing replacement facilities that the community currently served can continue to access. This type of mitigation for important community facilities has been successfully accomplished on other linear transportation projects such as the SR 168 freeway project in the city of Fresno.

BO101-58

Refer to Standard Response FB-Response-AG-02, FB-Response-GENERAL-01, FB-Response-SO-01.

Mitigation Measure SO-4 will be undertaken at the time right-of-way acquisition occurs. No "access plan" is proposed as part of this measure. Access modifications will be provided on a case-by-case basis, dependent upon the site-specific situation presented in each case of acquisition. As can be seen from the discussion in Response-FB-SO-01, each acquisition is unique. As a result, it is not possible to describe the access modifications in any greater detail in this mitigation measure.

Response to Submission BO101 (Barbara Ybarra, Ybarra Company Public Affairs with Solutions Strategies International, Inc., October 18, 2012) - Continued

BO101-59

Refer to Standard Response FB-Response-GENERAL-16, FB-Response-SO-07.

Mitigation Measure SO-6 does not defer mitigation. It clearly states that the Authority will continue to conduct outreach in adversely affected neighborhoods to obtain resident feedback on potential impacts, and suggestions for mitigation measures. Outreach and feedback will be used to advise ongoing design efforts to help minimize impacts. No plan needs to be developed and provided for review to carry out this mitigation.

BO101-60

Refer to Standard Response FB-Response-GENERAL-01.

Mitigation Measure SO-7 does not defer mitigation. The aesthetic guidelines for HST structures are provided in Technical Memorandum 200.6, which is available on the Authority's website.The Authority would work to gain the local community's input on the best way to apply these guidelines. Obtaining community input for structure design and landscaping is a common practice for major transportation projects in California. For example, substantial community input was provided to Caltrans on the final design and landscaping for the SR 168 freeway in Fresno during the 1990s, when that freeway was built.

Submission BO102 (Ramona Puente, YMCA Center, October 18, 2012)

CALIFORNIA High-Speed Rail Authority

Comment Card
Tarjeta de Commentarios

Fresno to Bakersfield High-Speed Train Section
Revised Draft Environmental Impact Report/ Supplemental Draft Environmental Impact Statement (Revised Draft EIR/Supplemental Draft EIS)

La Sección de Fresno a Bakersfield del Tren de Alta Velocidad
Proyecto Revisado de Informe de Impacto Ambiental/ Declaración de Impacto Ambiental Proyecto Suplementario (Proyecto Revisado EIR/Proyecto Suplementario EIS)

Please submit your completed comment card at the end of the meeting, or mail to:
Fresno to Bakersfield Revised Draft EIR/Supplemental Draft EIS Comment, 770 L Street, Suite 800, Sacramento, CA 95814

Extended comment period for Fresno to Bakersfield High Speed Train Revised Draft EIR/Supplemental Draft EIS:
July 20 – October 19

Extendido el periodo de comentario público del Proyecto Revisado EIR/Proyecto Suplementario EIS
Julio 20 – Octubre 19

Name/Nombre: Ramona M PUENTE
Organization/Organización: YMCA Center
Address/Domicilio: 1100 DAIRY Ave #19 Corcoran, CA 93212
Phone Number/Número de Teléfono: 559 992 4430
City, State, Zip Code/Ciudad, Estado, Código Postal: same as above
E-mail Address/Correo Electrónico: NONE
(Use additional pages if needed/Usar paginas adicionales si es necesario)

BO102-1 High Speed Rail will have a great impact on the Enviroment in Corcoran We The people are very much against it

Response to Submission BO102 (Ramona Puente, YMCA Center, October 18, 2012)

BO102-1

Refer to Standard Response FB-Response-GENERAL-14.

Your opposition to the proposed project is noted.