3.19 Cumulative Impacts

This section presents an analysis of the cumulative impacts of implementing the Fresno to Bakersfield Locally Generated Alignment (F-B LGA), in combination with other past, present, and reasonably foreseeable future actions that may result in environmental impacts similar to those discussed in this Draft Supplemental Environmental Impact Report/Environmental Impact Statement (EIR/EIS). The focus of this cumulative impacts analysis is on the F-B LGA project area and its regional context. This Draft Supplemental EIR/EIS compares the F-B LGA to the complementary portion of the Preferred Alternative that was identified in the *Fresno to Bakersfield Section California High-Speed Train Final Project EIR/EIS*. The portion of the Preferred Alternative which is comparable to the F-B LGA is referred to as the "May 2014 Project" in this Draft Supplemental EIR/EIS. As discussed in Section 1.1.3 of this Draft Supplemental EIR/EIS, the May 2014 Project consists of the portion of the BNSF Alternative from Poplar Avenue to Hageman Road and the Bakersfield Hybrid from Hageman Road to Oswell Street. The Fresno to Bakersfield Section Final EIR/EIS does not evaluate the May 2014 Project as a discrete subsection of the Fresno to Bakersfield Project (as it did for example for the Allensworth Bypass). The affected environment and impact summary discussion included in this section for the May 2014 Project, therefore, has been extrapolated from the available information contained within the Fresno to Bakersfield Section Final EIR/EIS. For a discussion of the impacts of implementing the Fresno to Bakersfield section, see Section 3.19, Cumulative Impacts, of the Fresno to Bakersfield Section Final EIR/EIS (California High-Speed Rail Authority [Authority] and Federal Railroad Administration [FRA] 2014).

3.19.1 Laws, Regulations, and Orders

3.19.1.1 National Environmental Policy Act

A detailed discussion of the National Environmental Policy Act (NEPA) can be found in Section 3.19.1.1 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014).

3.19.1.2 California Environmental Quality Act

A detailed discussion of California Environmental Quality Act (CEQA) can be found in Section 3.19.1.1 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014).

3.19.2 Methods

The methods employed for the F-B LGA cumulative impact analysis are consistent with the methodology discussed in detail in Section 3.19.2 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014). The F-B LGA cumulative analysis considers study areas consistent with the Final EIR/EIS as well as past, present, and reasonably foreseeable projects within the 2035 planning horizon. To ensure consistency, the methodology to evaluate cumulative impacts for this Draft Supplemental EIR/EIS is the same methodology as was used in the Fresno to Bakersfield Section Final EIR/EIS.

In summary, these methods include the following:

- Review the impacts of the proposed project for each resource area.
- Define the study area for the cumulative effects of each resource.
- Compile a list and description, as well as environmental impact information for past, present, and reasonably foreseeable projects causing related or cumulative impacts (see Technical Appendices 3.19-A and 3.19-B).
- Where relevant to the analysis for a particular resource, include the cumulative impacts of construction and operation of adjacent HSR sections.
- Gather applicable projected growth trends (projections) contained in adopted local, regional or statewide plans.

- Identify the resource areas where the proposed project, and other past, present, and reasonably foreseeable projects could, together, cause a significant cumulative effect.
- Determine whether the proposed HSR's incremental contribution to significant cumulative impacts is cumulatively considerable under CEQA, using the two-step CEQA cumulative analysis process.
- Provide a comprehensive discussion of the project's potential impacts in terms of context, intensity, and duration under NEPA.
- Identify reasonable, feasible options for avoiding or mitigating the project's contribution to significant cumulative impacts.

For additional discussion of the methods used for the cumulative impact analysis, see Section 3.19.2 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014).

3.19.3 Cumulative Projects and Growth Forecasts

This section discusses projected development trends and describes how future urbanization is projected to change the character of the Bakersfield area to the year 2035.

3.19.3.1 Historical Context of Project Area

For a regional history of the Fresno to Bakersfield project area, see the Fresno to Bakersfield Section Final EIR/EIS, Chapter 3.19, Cumulative Impacts (Authority and FRA 2014), and *Fresno to Bakersfield Section: Archaeological Survey Technical Report* (Authority and FRA 2012).

3.19.3.2 Projected Growth Trends

As discussed in Chapter 2.0, Alternatives, of the Fresno to Bakersfield Section Final EIR/EIS, projections show that Kern County will continue to grow an average of 2 percent a year (Authority and FRA 2014). By 2035, Kern County is projected to grow to a population of 1.3 million, which is a net increase of 767,000 people and 115,000 new jobs (Authority and FRA 2014: Kern Council of Governments 2014). This increase could result in approximately 68,400 acres of new development to support the increased population. Much, although not all, of this development would take place on what is currently agricultural land (Authority and FRA 2014). Land and the construction of new residential areas, roadways, electric power generation facilities, utilities, schools, hospitals, and commercial and industrial facilities would be required to accommodate the new population. The combined environmental influence of these future changes in conjunction with the F-B LGA is referred to as the "cumulative condition" for 2035.

In addition to considering the potential impacts from project-related population growth, the cumulative project list discussed in the following section identifies the known projects that would become a part of the cumulative condition.

3.19.3.3 Cumulative Project List

Technical Appendix 3.19-A provides detailed information about the reasonably foreseeable development projects and plans, and Technical Appendix 3.19-B provides similarly detailed information about transportation projects considered in the cumulative condition. These two combined lists form the cumulative project list, which includes projects that are intended to help accommodate the projected 2035 population in the study area. Technical Appendix 3.19-A includes a series of tables that list major capital or new development projects by jurisdiction for the study area, which were generated by contacting city and county planning departments to determine which projects had been entitled. Technical Appendix 3.19-B includes transportation improvements ranging from restriping roads and bike lane construction to interchange and capacity expansions and rail infrastructure.

The projects included were generated by consulting the 2014 Kern Council of Government's Regional Transportation Plan/Sustainable Communities Strategy, environmental documents found on CEQANet, city and county General Plans, as well as by contacting city and county planning departments to determine which projects have been entitled (entitlement refers to the

process of obtaining permits, land use approval, and utility easement approval). The tables in Technical Appendices 3.19-A and 3.19-B include projects entitled and in progress at the time of research, as well as developments planned for the near term (10 years or less). Additionally, long-term (35-year) development and urbanization was determined by reviewing General Plan proposed land-use, including the conversion of agricultural land anticipated to occur with the corresponding growth in population.

The development projects identified in the cumulative project list represent only a portion of the projects that are likely to be constructed within the study area through 2035 because the list is predominantly based on data that represent planned development activity in progress at the time of research and anticipated over the next three or four years. The general plans of the City of Bakersfield, the City of Shafter, and Kern County include provisions for substantial future growth beyond existing development levels under their respective land use elements. Additional development projects that are not included on this list because they are not programmed or entitled at this time (and therefore not reasonably foreseeable), are expected to proceed in the future on the basis of the general plans' land use designations.

3.19.4 Analysis of Cumulative Impacts

Under NEPA, cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions" (40 CFR § 1508.7). The CEQA Guidelines Section 15355 defines cumulative impacts as two or more individual effects, which when considered together, are considerable or which compound or increase other environmental impacts.

The cumulative impacts discussion for each resource area considers the resource-specific study area, the existing condition of the resource, all reasonably foreseeable projects and their effects, cumulative effects with the project, and the contribution of the F-B LGA project to those cumulative effects. The cumulative condition, as defined below, includes planned and projected development projects and transportation projects listed in Technical Appendices 3.19-A and 3.19-B. The cumulative impact analysis includes consideration of the whole Fresno to Bakersfield Section, the adjacent HSR sections, the San Joaquin Valley Air Basin, or State of California, where appropriate for the environmental resource under consideration.

3.19.4.1 Cumulative Condition

As analyzed in Section 3.18 of this Draft Supplemental EIR/EIS, the HSR project would induce growth, but not substantially beyond what is projected in city and county general plans. The F-B LGA would encourage compact, efficient land use in the region by providing an economic driver for higher-density infill development around the downtown HSR station. Over the 25-year planning horizon, incremental population increases and associated development would have environmental impacts that are cumulatively considerable in some areas and would provide beneficial effects in others.

Projections of growth and of conversion of land to urban uses associated with the cumulative condition are drawn from adopted city and county general plans, as well as from the cumulative project list. The cumulative condition is anticipated to have a substantial environmental effect in the area crossed by the F-B LGA section of the HSR system over the 2010 to 2035 planning period. Between 2010 and 2035, the population is projected to grow in Bakersfield by approximately 107 percent, in Shafter by approximately 135 percent, and in Kern County by approximately 55 percent (see Section 3.18, Regional Growth, of this Draft Supplemental EIR/EIS). The Kern Council of Governments and the Metropolitan Bakersfield General Plans call for preservation of agricultural land, increased infrastructure to support higher density urban development, and a focus on growing existing urban populations over the spread of rural development.

Nevertheless, urban development would continue to result in the conversion of agricultural land, especially for future housing and associated development consistent with the general plans of the

area. Under the cumulative condition, traffic would increase; ambient noise levels would increase; the demand for energy and water would increase; habitat for wildlife would become less available; the amount of impervious surfaces would increase and affect the quality and amount of stormwater runoff; demand for public facilities and parks would increase; the land available for agricultural production would decrease; and the visual character of many locations in the study area would change from rural to urban.

For each of the resource topics analyzed below, the cumulative condition includes build-out of the general plans in the Bakersfield, Shafter areas, and portions of Kern County areas, including the cumulative development listed in Technical Appendices 3.19-A and 3.19-B, unless otherwise noted.

3.19.4.2 F-B LGA Contributions

The F-B LGA has evolved throughout the EIR/EIS process and the project design has been refined to avoid and minimize effects, while meeting the project purpose and objectives. As described in the preceding chapters and as applicable, each resource analysis includes a description of design features, including standards, regulations, and Best Management Practices (BMP) that would be implemented during construction and operation to further avoid or minimize effects. For each resource area, where appropriate, this Draft Supplemental EIR/EIS also identifies feasible mitigation measures that could be adopted to minimize or avoid the impacts.

The analysis below first considers the impacts of the F-B LGA in combination with the other cumulative projects (listed in Technical Appendices 3.19-A and 3.19-B) to determine if there is a cumulatively significant impact to the resource. If significant cumulative impacts are identified, the second consideration is whether the F-B LGA would have an incremental effect (after project mitigation) that would be cumulatively considerable. Additional feasible mitigation measures are proposed where appropriate to mitigate the incremental but cumulatively considerable contribution to a cumulative impact.

Transportation

The study area for the transportation cumulative analysis is located within Kern County between and including the cities of Shafter and Bakersfield. The F-B LGA has the greatest potential to have long-term impacts on traffic at and near the proposed F Street Station, which would attract and concentrate traffic that is entering or exiting the station parking lots and drop-off areas. Therefore, the primary study area as well as the cumulative study area for traffic analysis consists of the potentially affected intersections and roadways surrounding the proposed F Street Station site. The study area for analysis for the proposed F Street Station includes the extent of the roadway networks and intersections that may experience change in traffic volume of more than 50 peak hour vehicular trips as a result of the project.

As a conservative approach, additional intersections and roadway segments were included in the analysis based on recommendations from City staff where the project adds fewer than 50 peak hour trips and the project may have significant impacts under CEQA. Therefore, the study area was defined based on the 50-peak hour project trips threshold and in consultation with representatives at the public works and transportation planning agencies for Kern County, the City of Bakersfield, and the California Department of Transportation (Caltrans, District 6). Because the analysis of operational impacts presented in Chapter 3.2 of this Draft Supplemental EIR/EIS addresses the F-B LGA in combination with other present, and foreseeable future projects in the study area, the operational impacts on transportation discussed in Chapter 3.2 also describe the cumulative impacts of the F-B LGA on transportation.

The cumulative impact analysis for transportation presented here is based on the planned and potential project lists (Appendices 3.19-A and 3.19-B) as well as plans/projections listed in Table 3.2-1 (page 3.2-2) of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014).

Construction

Traffic impacts associated with the F-B LGA construction, taken together with other past, present and future reasonably foreseeable projects (which have construction schedules that overlap),

would have a cumulatively significant impact under CEQA. Temporary impacts at the station area as well as within the rural areas of the alignment due to construction, such as road closures, increased construction-related vehicles and workers, would result in reductions in intersection and roadway levels of service and reductions in emergency, school bus, and nonvehicular access. Such cumulative impacts may include:

- Within the F Street Station area, cumulative impacts could occur from the F-B LGA, developments under the Downtown Bakersfield HSR Station Area Plan (SAP), as well as the Hageman Flyover, the Rosedale Highway off ramp and widening, 24th Street improvements, and construction of the Centennial Corridor. Within the City of Bakersfield and along the alignment, each of these projects would require both temporary and permanent street closures, which would result in a cumulatively significant impact to public and private transportation under CEQA.
- Circulation within rural areas and non-station areas would be impacted from road closures as a result of the F-B LGA in combination with the North and West Beltway constructions, and Santa Fe Way intersection improvements in the City of Shafter.
- Within the City of Bakersfield, there is a cluster of development and construction projects in various stages within one mile of the F-B LGA. These include office and retail space as well as residential units. In the City of Shafter, there are ongoing industrial, commercial, and residential developments within 0.5 mile of the F-B LGA, including the drilling of a new water well in the vicinity. These projects would temporarily cause detours, road closures, and worsened levels-of-service along many heavily used roadways and intersections.

The Authority would implement a Construction Transportation Plan before commencing construction activities. The Construction Transportation Plan would reduce impacts by requiring staggered construction periods for overlapping projects in coordination with City and County building permits. Staggering construction activities will reduce cumulative construction impacts by spacing activities out over multiple years. The project would have no incremental cumulative effects with the Construction Transportation Plan and, as such, would not be cumulatively considerable. Through the implementation of mitigation measures provided in Section 3.2.6 of this Draft Supplemental EIR/EIS, construction impacts to traffic from the F-B LGA would not be cumulatively considerable under CEQA.

Operations

In the regional setting, the F-B LGA would result in similar changes to both vehicle movement and volume on the regional highway system and changes to the air traffic as that of the May 2014 Project. A discussion of regional impacts that would be applicable to the F-B LGA can be found in Section 3.18 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014).

Along the F-B LGA, cumulative traffic impacts were evaluated for all four sub-areas included for analysis – Shafter, Kern County, F Street Station, and Bakersfield. Following is a summary of cumulative impacts for each sub-area:

City of Shafter

Within the City of Shafter, beginning near the Poplar Avenue overhead crossing, both the BNSF track and the HSR would begin rising in order to eliminate the existing at-grade crossings in Shafter eliminating conflict with existing BNSF trains and future HSR. While this is a safety improvement, it would also improve circulation and would reduce future delay with the project. The following at-grade crossings would be eliminated: Fresno Avenue, Shafter Avenue, Central Avenue, and E Lerdo Highway. The project would not have any cumulative traffic impacts at any of the roadway segments but would have significant cumulative impacts under CEQA at the following intersections:

- SR 43 and Ash Avenue (increased delay and reduced level of service during the a.m. and p.m. peak hours under Future Plus Project conditions)
- Beech Avenue and Riverside Avenue (increased delay and reduced level of service during the p.m. peak hour under Future Plus Project conditions)

However, through the implementation of mitigation measures (TR-MM # 8, TR-MM #9, and TR-MM # 10) provided in Section 3.2.6 of this Draft Supplemental EIR/EIS, the incremental contribution to impacts associated with the F-B LGA would not be cumulatively considerable under CEQA.

Kern County

South of the Shafter city limits, the F-B LGA would turn east along the north side of Burbank Street and then turn southeast at the Union Pacific Railroad. The alignment would continue on fill/embankment until just after crossing the Beardsley Canal and would use individual bridges to cross over Driver Road, Zachary Avenue, the Calloway Canal, Zerker Road, and the Friant-Kern and Lerdo Canals. Verdugo Lane would remain open as a farm road crossing rather than a full roadway opening. At 7th Standard Road, the F-B LGA would pass through the existing roadway fill section; therefore, the roadway would be raised to cross over the HSR. The modifications to the 7th Standard Road profile would begin at the east edge of the Beardsley Canal Bridge rising up and over the F-B LGA and Union Pacific Railroad and coming back down to meet existing grade near Quinn Road, east of SR 99. The 7th Standard Road profile increase will require the removal and construction of bridges over the Union Pacific Railroad and SR 99 as well as raising the intersections with Coffee Road and Golden State Avenue. As part of the roadway work, a new on-ramp connection to SR 99 southbound would be added for westbound traffic. The project would not have any cumulative traffic impacts at any of the roadway segments but would have significant cumulative impacts under CEQA at the following intersections:

- Dole Court and Snow Road (increased delay and reduced level of service during the a.m. peak hour under Future Plus Project conditions)
- Norris Road and Snow Road (increased delay and reduced level of service during the p.m. peak hour under Future Plus Project conditions)

However, through the implementation of mitigation measures (TR-MM # 3 and TR-MM # 10) provided in Section 3.2.6 of this Draft Supplemental EIR/EIS, the incremental contribution to impacts associated with the F-B LGA would not be cumulatively considerable under CEQA.

F Street Station Area

While on a broad level the HSR would reduce traffic congestion by offering alternative inter-city travel options, at the F Street Station area, permanent operational impacts include increased traffic due to passengers traveling to and from the station. This increase in traffic is cumulatively considerable because of the station's location in Bakersfield's growing city center. Future and foreseeable projects such as development under the HSR SAP, the Hageman Flyover, the Rosedale Highway off ramp and widening, 24th Street improvements, and construction of the Centennial Corridor, as well as other city-focused street improvements and development projects, would have cumulative impacts on transportation in the station area. These projects could cause street closures and worsen levels-of-service to which the F-B LGA would incrementally contribute. Additionally, the F Street Station would have significant cumulative impacts under CEQA on the following roadway segments:

- F Street, between 30th Street and 24th Street (reduced level of service under Future Plus Project conditions)
- 30th Street, between F Street and H Street (reduced level of service under Future Plus Project conditions)

The F Street Station would also have significant cumulative impacts under CEQA at the following intersections:

- Mohawk Street and Hageman Road (increased delay and reduced level of service during the p.m. peak hour under Future Plus Project conditions)
- Mohawk Street and Rosedale Highway (increased delay and reduced level of service during the p.m. peak hour under Future Plus Project conditions)

- Oak Street and Rosedale Highway-24th Street (increased delay and reduced level of service during the p.m. peak hour under Future Plus Project conditions)
- Oak Street and Truxtun Avenue (increased delay and reduced level of service during the p.m. peak hour under Future Plus Project conditions)
- F Street and 24th Street (increased delay and reduced level of service during the p.m. peak hour under Future Plus Project conditions)
- F Street and 23rd Street (increased delay and reduced level of service during the p.m. peak hour under Future Plus Project conditions)
- M Street and SR 204 and 28th Street (increased delay and reduced level of service during the p.m. peak hour under Future Plus Project conditions)
- Union Avenue and California Avenue (increased delay and reduced level of service during the p.m. peak hour under Future Plus Project conditions)
- Beale Avenue and Jefferson Street-SR 178 Westbound Ramps (increased delay and reduced level of service during the p.m. peak hour under Future Plus Project conditions)

Therefore, in conjunction with other planned and future projects in the station area, the F-B LGA would result in cumulatively significant impacts under CEQA due to the increased traffic associated with vehicles traveling to and from the station. However, through the implementation of mitigation measures (TR-MM # 3, TR-MM # 4, TR-MM # 5, TR-MM # 6, TR-MM # 7, TR-MM # 8, TR-MM #9, and TR-MM # 10) described in Section 3.2.6 of this Draft Supplemental EIR/EIS, the incremental contribution to impacts associated with the proposed F Street Station area would not be cumulatively considerable under CEQA.

City of Bakersfield

Outside of the Station Area, the alignment would continue southeast, crossing over 24th Street, Sumner Street, and Union Avenue, and would then run down the center of Sumner Street on viaduct. The alignment would continue east on Sumner Street, crossing over Baker Street, Beale Avenue, the BNSF and Union Pacific Railroad corridors, and Truxtun Avenue. East of Truxtun Avenue, the alignment would continue on viaduct and transition to the north side of the Edison Highway corridor, passing over connecting streets such as Washington Street, Ogden Street, Chamberlain Avenue, and Mt. Vernon Avenue. Once on the north side of Edison Highway, the highway can be built completely south of the HSR such that connecting streets (e.g., Exchange Street, Webster Street, Quantico Avenue, and California Avenue) would not have to cross under the viaduct. The HSR would then terminate near Oswell Street and the Bakersfield to Palmdale project would begin. The project would not have any cumulative significant impact under CEQA on any roadway segments or intersections within this sub-area because the 50 peak hour vehicular trip threshold, described above, is not exceeded.

Summary of Impacts

The F-B LGA, when considered in combination with other large transportation and development projects that may be constructed concurrently and within the vicinity, could result in cumulatively significant impacts under CEQA due to temporary and permanent road closures, temporary construction traffic, and permanently increased traffic in the station area. These cumulatively significant impacts under CEQA are similar to those discussed in Section 3.2 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.2-72). As in the May 2014 Project, incorporated project mitigation measures would ensure that the cumulative operation impacts of the F-B LGA would not be cumulatively considerable under CEQA.

Mitigation Measures

No mitigation measures are required beyond those presented in Section 3.2.6 of this Draft Supplemental EIR/EIS.

Air Quality and Global Climate Change

The California Air Resources Board divides California geographically into air basins for the purpose of managing the air resources of the State on a regional basis. The F-B LGA would traverse much of the San Joaquin Valley Air Basin, therefore, consistent with guidance from the San Joaquin Valley Air Pollution Control District (SJVAPCD 2015), the study area for cumulative air quality impacts from criteria pollutants (which are regional in nature) is the San Joaquin Valley Air Basin.[1] Impacts of localized pollution, including carbon monoxide and particulate matter, were evaluated for an area specific to the vicinity of the project alignment. Impacts associated with ballast hauling outside the San Joaquin Valley Air Basin were evaluated at the project level in Section 3.3 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014). The study area for greenhouse gas (GHG) emissions encompasses the State of California to evaluate potential changes in air quality from large-scale, nonlocalized impacts, such as HSR power requirements, changes in air traffic, and project conformance with the State Implementation Plan. Both study areas are discussed in Section 3.3 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.3-14).

Construction

As discussed in Section 3.3, Air Quality and Global Climate Change, of this Draft Supplemental EIR/EIS, air quality construction impacts associated with the HSR project would be above the SJVAPCD significance thresholds for regional criteria pollutants, including the ozone precursors nitrous oxide and volatile organic compounds, and carbon monoxide. Together with other projects within the study area, these impacts would be cumulatively significant under CEQA. Other projects in the region include large solar projects such as Lost Hills, Maricopa, Smyrna, Goose lake, Elk Hills, and Orion Solar Projects; water pipeline and storage projects like the Buena Vista Water District Northern Area Project, Westside Pipelines Project, and Kern Water Bank Storage Project; transportation projects like the California Department of Water Resources Seismic Bridge Retrofits and the BNSF Railway/UP Railroad Mojave Subdivision Tehachapi Rail Improvement Project; and the Bakersfield General Plan Update and Shafter General Plan Update. However, with implementation of mitigation measures AQ-MM#1, AQ-MM#2, and AQ-MM#4 identified in Section 3.3.9 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.3-86), the project's emissions would be net zero with offsets. Therefore, consistent with the SJVAPCD 2015 Guidance for cumulative impacts analysis, the F-B LGA's incremental construction contribution to cumulative regional air quality impacts after mitigation would not be cumulatively considerable under CEQA.

Section 3.3 of this Draft Supplemental EIR/EIS similarly describes localized construction impacts associated with the F-B LGA. The localized impacts from asbestos and lead-based paint exposure would be less than significant under CEQA because lead-based paint and asbestos will be handled and disposed of in accordance with applicable standards and a project-specific health and safety plan. Construction of the HSR alignment, F Street Station, and maintenance of infrastructure facility could also potentially expose sensitive receptors to health impacts from elevated concentrations of criteria pollutants and cancer risks associated with toxic air contaminants. However, air dispersion modeling and health risk assessments estimate that concentration levels and health risks would be below applicable standards and, therefore, localized air quality impacts associated with the construction of the alignment, F Street Station, and maintenance of infrastructure facility would be less than significant under CEQA. Air dispersion modeling conducted for the concrete batch plants associated with the HSR project determined that the localized air quality impacts from concrete batch plants would be significant under CEQA to sensitive receptors within 1,000 feet of the batch plant. Mitigation measure AQ-MM# 3 identified in Section 3.3.9 of the Fresno to Bakersfield Section Final EIR/EIS (Authority

[1] The San Joaquin Valley Air Basin includes eight counties in California's Central Valley: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and a portion of Kern. The San Joaquin Valley Air Basin is governed by the San Joaquin Valley Air Pollution Control District.

and FRA 2014: pages 3.3-87 and 3.3-88) would reduce the localized air impact to sensitive receptors to a less than significant level under CEQA by ensuring concrete batch plants are sited at least 1,000 feet from sensitive receptors. AQ-MM#3 would also require the utilization of typical control measures to reduce fugitive dust, which would reduce particulate matter concentrations to a less than significant level under CEQA. For these reasons, the F-B LGA's incremental construction contribution to cumulative localized air quality impacts after mitigation would not be cumulatively considerable under CEQA.

Operations

Overall, the F-B LGA would decrease GHG emissions by reducing vehicle and aircraft trips and also would result in a net reduction in carbon dioxide emissions as described in Section 3.3, Air Quality, of this Draft Supplemental EIR/EIS. This reduction in GHG emissions would more than offset the increase in GHG emissions associated with the project. The F-B LGA would result in a net decrease in GHG, carbon monoxide, particulate matter less than 10 microns in size, and particulate matter less than 2.5 microns in size emissions over the no project conditions with operation. Thus, the F-B LGA reduces the cumulative condition for the study area and offsets a portion of the incremental cumulative impacts for other projects. A detailed discussion of operational impacts can be found in Section 3.3, Air Quality, of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.3-57). Because no operational GHG impacts would occur with the F-B LGA, there is no contribution to cumulative impacts.

Cumulative impacts are discussed in further detail in Section 3.19 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-9).

Summary of Impacts

The F-B LGA, when considered in combination with other large projects that may be constructed concurrently and within the vicinity, could result in similar cumulative air quality impacts to those discussed in Section 3.19 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-9). As such, the air quality impacts associated with the F-B LGA in combination with these other regional projects would not be cumulatively considerable under CEQA after mitigation. Mitigation Measure AQ-MM#4, which was required for the May 2014 Project and which would also be required for the F-B LGA, would offset construction emissions above the SJVAPCD thresholds for ozone precursors and particulate matter through the Voluntary Emission Reduction Agreement (VERA). With this mitigation measure, the F-B LGA's incremental contribution to air quality impacts would not be cumulatively considerable under CEQA.

Mitigation

No additional mitigation is required.

Noise and Vibration

Consistent with the analysis conducted for the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-16), and FRA and Federal Transit Administration guidelines, the study area for the cumulative analysis of noise is 2,500 feet and vibration is 275 feet on either side of the centerline of the F-B LGA project. The noise screening distance of 1,300 feet was replaced by a screening distance of 2,500 feet because the proposed HSR operations are projected to operate at 225 trains per day (northbound and southbound trips combined) compared to operations of 50 trains per day (northbound and southbound trips combined) assumed for the FRA screening distance of 1,300 feet. The study area was determined based on the screening distances defined by the FRA (FRA 2012) and project-specific conditions. If sensitive receivers are located outside of this analysis area, FRA has determined that noise and vibration impacts would be unlikely. Potential noise and vibration impacts within the study area related to the F-B LGA are described in Section 3.4 of this Draft Supplemental EIR/EIS.

Concentrations of residences and other potential noise- and vibration-sensitive receivers exist in the cities of Shafter and Bakersfield and the community of Oildale. Outside of these urban and suburban areas, land is mostly agricultural, with scattered sensitive receivers. Existing measured day-night sound levels ranged from 47.7 to 80.9 A-weighted decibels day-night sound levels.

Sources of existing noise and vibration along the F-B LGA include freight trains, Amtrak passenger trains, and truck and automobile traffic on highways.

Construction

It is possible that multiple projects in the urban areas in close proximity to the F-B LGA, such as the Gossamer Grove Development in the City of Shafter, and the cluster of development sites within central and east Bakersfield, would be under construction at the same time as the F-B LGA and could contribute to higher cumulative construction noise impacts.

Portions of the F-B LGA that extend through predominantly rural agricultural areas would contribute to fewer cumulative construction-noise impacts than those in urban areas because there are fewer existing and anticipated additional sensitive receivers, based on the reasonably foreseeable future projects in rural areas.

Construction of elevated sections of the F-B LGA is likely to require pile driving, which has both vibration and noise impacts. It is possible that other projects in urban areas that are in close proximity to elevated sections of the F-B LGA would also require pile driving. This is most likely to occur in the City of Bakersfield where the F-B LGA is elevated throughout the community, with several future projects in proximity including the Baker Street Village Redevelopment Project and development under the HSR SAP, as well as transportation projects such as the Hageman Flyover and 24th Street Improvements.

Construction of the F-B LGA concurrently with these future projects could result in exceedance of significance thresholds for noise and vibration at adjacent sensitive receivers defined in Section 3.4.3.3 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.4-5). The F-B LGA's incremental contribution would be cumulatively considerable under CEQA.

Operations

The HSR system operations would create long-term noise impacts from the introduction of a new transportation system as described in Section 3.4.4 of this Draft Supplemental EIR/EIS. In combination with noise impacts of other projects in the study area, the F-B LGA's impacts would be cumulatively significant and the incremental impacts would be cumulatively considerable under CEQA.

Several planned transportation projects listed in Appendix 3.19-B could have the potential to increase vibration levels in the study area, such as the Hageman Flyover and 24th Street Improvements. However, there would be no significant vibration impacts created by the project, so the F-B LGA's contribution to cumulative vibration impacts would be minimal. Therefore, the F-B LGA's contribution to vibration impacts would not be cumulatively considerable under CEQA.

Cumulative operational noise and vibration impacts of the HSR System are discussed in further detail in Section 3.19 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-14).

Summary of Impacts

When considered in combination with other large projects that may be constructed concurrently and within the vicinity, the F-B LGA would result in similar cumulative construction-related and operational noise and vibration impacts to those discussed in Section 3.19 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-16). The project, in combination with other projects in the study area such as residential and commercial construction particularly in the cities of Shafter and Bakersfield and the community of Oildale, as well as in unincorporated Kern County, would contribute to cumulatively significant noise impacts under CEQA, and its incremental contribution would be cumulatively considerable, even after mitigation. The project would not contribute to cumulatively considerable vibration impacts.

Mitigation

During construction and operation, even with implementation of mitigation measures for noise provided in the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-

17) and Section 3.4.6 of this Draft Supplemental EIR/EIS, the project's contribution to cumulative effects of construction and operational noise would be cumulatively considerable under CEQA. This contribution would result because there would be some sensitive receptors near the F-B LGA for which additional mitigation would not be practical because construction of a sound barrier is not economically feasible and there is no practical amount of sound insulation that can be added to the structure to reduce interior noise levels to acceptable standards. While it is not feasible to fully mitigate operational noise impacts, construction noise may be reduced through coordination with other agencies during construction. Therefore, Mitigation Measure CUM-N&V-MM#1 will be implemented as follows:

CUM-N&V-MM#1: Consult with agencies regarding construction activities. To minimize the potential overlapping noise-generating construction activities within the same area, the Authority would consult with local city and county planning department and other agencies as determined necessary. Consultation would entail notifying the departments/agencies regarding the anticipated HSR construction schedule and would allow for adjustment of construction schedules for adjacent projects or projects in close proximity to the HSR alignment, to the extent feasible.

Electromagnetic Fields and Electromagnetic Interference

The study area for the cumulative analysis of electromagnetic fields (EMF) and electromagnetic interference (EMI) is 200 feet on either side of the centerline of the F-B LGA and HSR transmission supply lines. This study area was selected because computer modeling shows that the EMF level associated with HSR facilities would decrease to a level below 2 milligauss at 200 feet. Based on the Electromagnetic Field Footprint Report (Authority and FRA 2010) prepared for the proposed project, 2 milligauss is used as a screening level for potential disturbance to unshielded sensitive equipment. In addition, early epidemiological studies have shown that 2 milligauss is the lowest level of chronic, long-term magnetic field exposure with no statistical association with a disease outcome (Savitz et al. 1988; Severson et al. 1988).

Construction

As discussed in Section 3.5 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.5-14), existing standards for human exposure to EMF or EMI would not be exceeded during construction within the mainline right-of-way of the HSR, let alone those outside the right-of-way. Because the past, present, or foreseeable future projects in the study area are construction projects with the same types of impacts that would result from construction of the HSR project, and because these projects would not result in the types of activities that may cause general EMF or EMI interferences during operation, the projects would not approach the standards for human exposure to EMF. Therefore, those projects in combination with the HSR project would not result in cumulatively significant EMF impacts to humans under CEQA.

Operations

As discussed in Section 3.5 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.5-17), radio systems used for the project would comply with standards that have been established to prevent interference with other neighboring communications systems. These standards are listed in Appendix 2-D of the Final EIR/EIS. Other past, present, and foreseeable future projects using electromagnetic communications systems also must comply with these standards. Therefore, those projects in combination with the HSR project would not result in cumulatively significant EMF/EMI impacts to communications equipment under CEQA.

For the F-B LGA, the potential sensitive locations identified are the San Joaquin Community Hospital, the Bakersfield Memorial Hospital, and associated imaging and diagnostic medical facilities near both of the hospitals. However, all of these medical facilities are greater than 1,000 feet from the proposed F-B LGA. At these distances, these facilities would not be impacted by any HSR-produced EMF/EMI, and thus, there is no contribution to cumulative impacts. F-B LGA EMF/EMI impacts are not significant or under CEQA.

Summary of Impacts

EMI/EMF impacts associated with F-B LGA implementation would not contribute to cumulatively considerable EMI/EMF impacts under CEQA.

Mitigation

No mitigation is required.

Public Utilities and Energy

As with the analysis of public utilities and energy provided for the May 2014 Project, this analysis for the F-B LGA uses one study area for utilities, and a different study area for energy generation and transmission. The study area for evaluating conflicts with public utilities consists of the construction footprint (area of temporary disturbance during project construction) as well as the project footprint (area of permanent disturbance associated with project features), and includes surface, subsurface, and overhead utilities. The cumulative study area for energy encompasses the State of California to evaluate potential changes in public utilities and energy requirements from large-scale, non-localized impacts, such as HSR power requirements.

Coordination with utility providers would take place throughout project construction. The Authority and all other developments in the San Joaquin Valley would adhere to standard practices for provision and relocation of utilities. This includes location and marking of utilities prior to construction, design and relocation of utilities, where necessary, under the supervision of the utility provider prior to the initiation of project construction, and planning and notification of any utility interruptions prior to connecting project facilities to existing utilities or tying in relocated utility infrastructure to the existing utility system.

The cumulative impacts of public utilities and energy policies are discussed in Section 3.19 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-18).

Construction

The cumulative construction-related impacts to public utilities and energy are similar between the May 2014 Project and the F-B LGA.

Construction of the F-B LGA in combination with other past, present, and reasonably foreseeable future projects would not result in cumulatively significant impacts under CEQA to public utilities.

Access to utilities will be maintained during construction of the F-B LGA with minimal disruptions associated with coordinated outages when needed to install or interconnect new utility infrastructure. Construction of the F-B LGA would require changes to electrical interconnection facilities to power operation of the HSR System. Construction activities would increase temporary energy demands, which would be paid back during the first four years of project operation; the F-B LGA would not require significant additional electrical capacity. The F-B LGA would use less water during construction than existing water uses, therefore, the project would not cumulatively contribute to impacts on water infrastructure and resources. The amount of construction waste that would be generated over the life of the project (estimated at 468,000 cubic yards) would be diverted from landfills by reusing or recycling as much as 75 percent of the waste. This estimate is an extrapolation based on the length of the F-B LGA. The remaining approximately 117,000 cubic yards of solid waste represents 0.5 percent of the annual landfill capacity in the project area and therefore would incrementally contribute to cumulative impacts on solid waste but these impacts would not be cumulatively significant under CEQA. Construction impacts to public utilities and energy would not be cumulatively considerable under CEQA.

Operations

Cumulative operations-related impacts to public utilities and energy are also consistent with the May 2014 Project.

Similar to the May 2014 Project, operation of the F-B LGA together with past, present, and reasonably foreseeable projects would not result in significant cumulative impacts under CEQA to public utilities and energy. Operation of the F-B LGA would increase demand for electricity to

operate the proposed trains, but would remove less energy-efficient cars and planes from the system, and would therefore result in an overall savings in energy, such that operation of the F-B LGA would not be cumulatively considerable with respect to energy use. The F-B LGA would reduce water demand within the study area by converting it from agricultural land use to a transportation use, offsetting project operation water use and partially offsetting water use associated with regional growth. Therefore, the project would not result in a contribution to a cumulative impact on water demand. Future cumulative demand for wastewater treatment would be cumulatively significant; however, the incremental contribution of the HSR facilities to this cumulative impact would not be cumulatively considerable under CEQA because the F-B LGA would reduce water demand within the study area, offsetting project operation water use and associated wastewater generation. Operational impacts to public utilities and energy would not be cumulatively considerable under CEQA.

Summary of Impacts

Construction and operations effects of the F-B LGA in combination with other past, present, and reasonably foreseeable future projects would not result in cumulatively significant impacts under CEQA to electricity demand, solid waste disposal/recycling or water demand. Effects of the F-B LGA in combination with other past, present, and reasonably foreseeable future projects would have cumulatively significant impacts for wastewater treatment. However, the incremental contribution of the HSR facilities to this cumulative impact would not be cumulatively considerable under CEQA.

Cumulative impacts on groundwater levels during operations are discussed below under Hydrology and Water Resources.

Mitigation

No mitigation is required.

Biological Resources and Wetlands

The study area for the biological resources cumulative impact analysis considers the habitats and features of the Tulare Lake Basin; specifically, three United States Geological Survey Hydrologic Unit Code Eight-digit sub-watershed basins (Figure 3.7-2 in this Draft Supplemental EIR/EIS):

- Tulare–Buena Vista Lakes Watershed (18030012)
- Upper Poso Watershed (1803004)
- Middle Kern–Upper Tehachapi–Grapevine Watershed (1803003)

Background and description of the Tulare Basin is available in Section 3.7 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.7-22).

For wetlands, the study area includes the project footprint plus a 250-foot area. The Special-Status Plant Study Area is the project footprint plus a 100-foot buffer. The Habitat Study Area is the project footprint plus a 1,000-foot buffer. The study areas and methods for direct and indirect impacts related to the F-B LGA are described in detail in Section 3.7, Biological Resources and Wetlands, of this Draft Supplemental EIR/EIS.

Existing development trends affecting biological resources are expected to continue and potentially further degrade some natural systems because development, such as new residential communities, agriculture production, and transportation infrastructure, would convert undeveloped habitat to other uses. In addition, the developments would degrade remaining habitat through pollution, noise, and dust; would threaten species with mortality from vehicle strikes and habitat fragmentation; and would degrade or remove jurisdictional waters.

Construction

Construction of the F-B LGA in combination with other past, present, and reasonably foreseeable projects may result in:

- The loss of special-status plant and wildlife species within the Tulare Lake Basin at temporary construction sites such as laydown and staging areas. Future projects within this region,

which in combination with the construction impacts of the F-B LGA would be cumulatively significant under CEQA, include but are not limited to the Rosedale Highway improvements in Bakersfield, the North and West Beltway constructions in Shafter; solar projects such as Lost Hills, Maricopa, Smyrna, Goose Lake, Elk Hills, and Orion, and water pipelines and storage such as the Kern Water Bank Storage Project, and various industrial, commercial, and residential projects in both cities. Each of these projects either is located within or crosses areas, which contain similar habitat requirements for special status plant and wildlife species also impacted by the F-B LGA.

- The temporary destruction or degradation of special-status plant communities; impediment of the implementation of recovery plans; temporary placement of fill, or increase in erosion, siltation, and runoff in jurisdictional waters (e.g., seasonal wetlands); and removal or modification of protected trees (e.g., native oaks). Cumulative impacts to jurisdictional wetlands and waters may be caused by the combined construction of numerous transportation and development projects, such as the solar and water storage projects listed above. Additionally, the construction of the portion of the Fresno to Bakersfield Project north of the F-B LGA and the adjacent Bakersfield to Palmdale HSR section to the south would contribute to the net loss of other habitats of concern in the cumulative study area. Cumulative impacts to recovery plans, such as the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (United States Fish and Wildlife Service 1998), as well as the additional removal of protected trees as a result of past, present, and foreseeable projects, including those listed above, would be cumulatively significant under CEQA.
- The placement of wildlife movement barriers or increased lighting, noise, and activity within and near construction staging areas, which would interrupt wildlife movement corridors. The F-B LGA intersects one wildlife movement corridor: the Kern River linkage. The Kern River linkage is discussed in further detail in Section 3.7 of this Draft Supplemental EIR/EIS and in Section 3.7.4.6 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: Page 3.7-44). Other foreseeable projects that would contribute to this impact include, but are not limited to, the Hageman Flyover and the Rosedale Highway improvements in Bakersfield, and the North and West Beltway constructions in Shafter. These linear projects would contribute to impacts on wildlife movement corridors in the region. Additionally, the construction of the portion of the Fresno to Bakersfield Project north of the F-B LGA and the adjacent Bakersfield to Palmdale HSR section to the south would contribute to limiting wildlife movement. The combination of these projects with the F-B LGA would be cumulatively significant under CEQA. However, a viaduct will span the Kern River linkage, which would allow wildlife movement during ground-disturbing activities. There would also be measures to aid in predation prevention for vulnerable wildlife using the Kern River linkage including use of wildlife exclusion fencing and a Construction Avoidance and Minimization Plan that will limit construction and avoid permanent fencing in this area. All of this avoidance and mitigation corresponds with Fresno to Bakersfield Section Final EIR/EIS BIO-MM#52 (Authority and FRA 2014, pages 3.7-194). Implementation of these measures would mean that the incremental impacts of the F-B LGA construction to biological resources would not be cumulatively considerable under CEQA.

Operations

Operation of the F-B LGA in combination with other past, present, and foreseeable projects could result in permanent habitat loss (including loss of special-status plant and wildlife species); permanent placement of fill, increasing erosion, siltation and runoff in jurisdictional waters; habitat fragmentation (including placement of wildlife movement barriers within the cumulative project area); the introduction of invasive species; and harassment due to increased noise, lighting, and human disturbance similar to those discussed above under Construction. Along with other projects in the area (see Construction above), particularly the growth of the cities of Shafter and Bakersfield reflected in their General Plans and the resultant road improvements such as the North and West Beltways in Shafter, these impacts would be cumulatively significant under CEQA. The F-B LGA would adopt the mitigation measures developed for biological resources and wetlands in the Fresno to Bakersfield Section Final EIR/EIS, as listed in Section 3.7.9, Table

3.7-27 (Authority and FRA 2014: page 3.7-233). With implementation of these mitigation measures, the incremental operations impacts of the F-B LGA to biological resources would not be cumulatively considerable under CEQA.

Summary of Impacts

Construction of past, present, and reasonably foreseeable projects, together with the F-B LGA, would result in significant cumulative impacts to biological resources under CEQA. However, construction impacts associated with the F-B LGA would be mitigated: construction sites would be located to avoid biological resources to the extent possible, and other minimization and mitigation measures would be implemented to reduce habitat loss and impact, as well as to restore and enhance impacted habitats; therefore, the project contribution would not be cumulatively considerable under CEQA.

The F-B LGA's operational impacts in combination with past, present, and reasonably foreseeable projects would result in significant cumulative impacts to biological resources under CEQA. However, mitigation measures, provided for the May 2014 Project and applicable to the F-B LGA, will restore, enhance, and preserve jurisdictional waters and riparian habitats, as well as other habitat occupied by special-status plant and wildlife species (see Section 3.7.7 of the Fresno to Bakersfield Section Final EIR/EIS, Authority and FRA 2014). Habitat preservation in combination with restoration, enhancement, and preservation of jurisdictional waters will maintain or improve biological resources in the region over existing conditions. The F-B LGA's incremental contribution to the impacts on biological resources, therefore, would not be cumulatively considerable under CEQA.

Mitigation

No further mitigation is required.

Hydrology and Water Resources

Issues addressed in hydrology and water resources include surface water, groundwater, floodplains, and water quality. The project area lies within the South Valley Floor in the Tulare Lake Basin. The South Valley Floor of the Tulare Lake Basin, which is under the jurisdiction of the Central Valley Regional Water Quality Control Board, is the study area for the cumulative effects of the F-B LGA on hydrology and water resources.

The cumulative impact analysis for hydrology and water quality is based on the planned and potential project lists (Appendices 3.19-A and 3.19-B) as well as plans/projections of groundwater pumping and urban development. Projects in the study area with potentially cumulative impacts include solar projects like Lost Hills, Smyrna, Goose Lake, Elk Hills, and Orion; commercial and residential development in the area such as the Bakersfield Crossroads Plaza project and the Gossamer Grove and Mission Lakes Specific Plans; and water storage and wastewater treatment facilities. Projections of groundwater pumping are contained in the California Water Plan (California Department of Water Resources 2009, 2013) and in urban water master plans developed by the cities, counties, and water supply districts (see Table 3.8-1 of the Fresno to Bakersfield Section Final EIR/EIS, Authority and FRA 2014: page 3.8-7) in the study area. Projections of increasing urbanization and changes to land use are described in Section 3.18 of this Draft Supplemental EIR/EIS.

Past, present, and reasonably foreseeable projects that could cumulatively affect hydrology and water resources in the study area include transportation projects with new or altered river or creek crossings such as the Centennial Corridor and Oak Street and 24th Street Expansion at the Kern River; projects at or near floodplains like the Bakersfield Commons as well as other development projects intended to meet with growing population demands; and other projects in areas with perched or shallow groundwater.

Construction

Natural Water Bodies

Construction activities associated with the F-B LGA would alter existing drainage patterns of natural water bodies. During construction, the F-B LGA would be required to comply with the Construction General Permit, which requires the preparation of a Stormwater Pollution Prevention Plan to identify project-specific construction BMPs to be implemented as part of the project. The Stormwater Pollution Prevention Plan would be prepared prior to construction and would describe temporary drainage patterns within the construction sites and identify storm water discharge locations from the construction sites to the existing drainage system. In-water work during construction would be performed during the dry season and would require the use of cofferdams. Therefore, construction activities associated with the F-B LGA would not contribute to cumulative impacts under on natural water bodies under CEQA.

Floodplains

Construction in a floodplain could temporarily impede or redirect flood flows because of the presence of construction equipment and materials in the floodplain. Standard measures, including BMPs, would be implemented during construction to minimize impacts to floodplains, as specified in Mitigation Measure HWR-MM-#1, described in Section 3.8 of this Draft Supplemental EIR/EIS. With implementation of HWR-MM-#1 and HYD-AM-#5, impacts to floodplains would be mitigated below a level of significance, therefore, incremental impacts to floodplains from construction would not be cumulatively considerable under CEQA.

Surface Water Quality

Construction activities associated with the F-B LGA would affect surface water quality. During construction, the F-B LGA would be required to comply with the Construction General Permit, which requires the preparation of a Stormwater Pollution Prevention Plan to identify project-specific Construction BMPs to be implemented as part of the project, as described in Avoidance and Minimization Measure HYD-AM #3. Construction BMPs include, but are not limited to, Erosion and Sediment Control BMPs designed to minimize erosion and retain sediment on site and Good Housekeeping BMPs to prevent spills, leaks, and discharges of construction debris and waste into receiving waters. In-water work during construction would be performed during the dry season and would require the use of cofferdams. Therefore, construction activities associated with the F-B LGA would not contribute to cumulative impacts under on surface water quality under CEQA.

Groundwater

Agricultural and municipal water use accounts for more than 4 million acre-feet per year of groundwater extraction within the Tulare Lake basin. The F-B LGA would account for a maximum of about 68-acre feet per year of potential direct groundwater use. Additionally, the average annual water use over the construction period would be significantly less than existing demand due to the elimination of water use for existing agricultural purposes within the F-B LGA construction footprint. The F-B LGA would not contribute to cumulative impacts to groundwater levels under CEQA.

Operations

Natural Water Bodies

Development of the F-B LGA would alter existing drainage patterns of natural water bodies due to the placement of fill, construction embankments, retaining walls, elevated and viaduct structures, concrete track bed, and new underpasses, overpasses, and roadways. The proposed drainage system would collect, convey, and discharge surface runoff from the track right-of-way through a network of channels, ditches, and culverts while maintaining the existing drainage pattern to the maximum extent practicable. Additionally, the new drainage facilities would incorporate vegetation or gravel linings to control erosion and decrease the velocity of storm water runoff. Where the F-B LGA travels through urban areas primarily consisting of impermeable surfaces, existing drainage systems would convey track runoff, maintaining the existing drainage pattern. Due to the design elements of the F-B LGA, it would not contribute to cumulative impacts on natural water bodies under CEQA.

Floodplains

Placement of fill within the floodplain would reduce storage capacities and reduce the effectiveness of existing flood protection. Operation of the F-B LGA, in conjunction with other past, present, and reasonably foreseeable projects would be cumulatively significant under CEQA. With the implementation of HWR-MM-#2 and HYD-AM-#2, impacts to floodplains would be minimized below a level of significance; therefore, incremental impacts to floodplains would not be cumulatively considerable under CEQA.

Surface Water Quality

Operational activities associated with the F-B LGA would affect surface water quality. The project would not introduce new pollutants into the surface waters; however, it would result in a net increase of approximately 147 acres in impervious surface area, which would increase the total amount of pollutants reaching these waters. Operation of the F-B LGA, in conjunction with other past, present, and reasonably foreseeable projects would be cumulatively significant under CEQA. With implementation of HYD-AM #1, incremental impacts to surface water quality would not be cumulatively considerable.

Groundwater

Even though the presence of the F-B LGA would increase the amount of pollutants associated with rail operations in the study area, operational activities would not affect groundwater quality because there would not be a direct path for operational-related contaminants to reach groundwater due to the depth of groundwater near the F-B LGA. The F-B LGA would not contribute to cumulative impacts to groundwater levels under CEQA.

Summary of Impacts

Other than floodplains, the construction impacts on water resources of the F-B LGA would not be cumulatively significant under CEQA.

The operational impacts on natural water bodies and groundwater of the F-B LGA would not be cumulatively significant under CEQA.

The construction and operational impacts on floodplains and operational impacts on surface water quality of the F-B LGA in combination with other past, present, and reasonably foreseeable future projects could potentially be cumulatively significant under CEQA. However, the incremental contribution from the proposed project would not be cumulatively considerable under CEQA.

Mitigation

No mitigation is required.

Geology, Soils, Seismicity, and Paleontological Resources

The study area for the cumulative analysis of geology, soils, and paleontology is the central San Joaquin Valley. Some geologic and seismic hazards, such as soil failures (e.g., adequacy of load-bearing soils), settlement, corrosivity, shrink-swell, erosion, and earthquake-induced liquefaction risks, are limited to the project site level and are not cumulatively additive across projects; therefore, these issues are not analyzed below. However, other issues such as seismicity, faulting, and dam failure inundation are additive across the cumulative project list and are therefore analyzed below. Impacts to these resources are assessed at a broader regional level (the San Joaquin Valley), which defines the study area.

Construction

Construction of development projects and infrastructure/transportation projects listed in Appendices 3.19-A and 3.19-B would require aggregate, ballast rock, concrete, and steel reinforcement; however, not all of these materials would originate from within the study area. It is anticipated that sufficient materials would be available to meet the demands of the project in combination with other proposed projects in the area. In the context of the amount of aggregate resources in the region, the cumulative impact would not be cumulatively considerable under CEQA."

The potential for the HSR project to affect paleontological resources in combination with other past, present, and reasonably foreseeable projects would be cumulatively significant under CEQA; therefore, mitigation measures would be implemented to require monitoring during construction, and to halt ground-disturbing activities should paleontological resources be encountered. With implementation of these mitigation measures, incremental impacts to paleontology would not be cumulatively considerable. As discussed in Section 3.9 of this Draft Supplemental EIR/EIS, no mitigation measures beyond those in the Fresno to Bakersfield Section Final EIR/EIS would be necessary for the F-B LGA.

The F-B LGA's construction impacts on geology would not be cumulatively significant under CEQA.

The F-B LGA's construction impacts on soils would not be cumulatively significant under CEQA.

The F-B LGA's construction impacts on seismicity would not be cumulatively significant under CEQA.

Operations

Seismically induced dam failure could result in flooding in large areas of the south San Joaquin Valley, which would be considered a secondary seismic hazard (see Section 3.9.4.2, Geology, Soils, and Seismicity, of this Draft Supplemental EIR/EIS).

Cumulative impacts have not changed from the Fresno to Bakersfield Section Final EIR/EIS, and are discussed in further detail in Section 3.19 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-32). An updated list of cumulative projects for the F-B LGA is located in Technical Appendices 3.19-A and B.

The F-B LGA's operation impacts on geology, soils, seismicity and paleontological resources, in combination with other past, present, and reasonably foreseeable future projects, would not be cumulatively significant. Through implementation of standard engineering design measures and BMPs the project would not be cumulatively considerable under CEQA.

Summary of Impacts

In combination with other projects in the study area, the impacts of the F-B LGA on geology, soils, seismicity would not be cumulatively significant under CEQA. In combination with other projects in the study area, the impacts of the F-B LGA on paleontology would have cumulatively significant impacts under CEQA. However, with implementation of mitigation measures, incremental impacts to paleontology would not be cumulatively considerable under CEQA.

Mitigation

No mitigation is required.

Hazardous Materials and Wastes

The study area for the cumulative analysis of hazardous materials and waste extends 1 mile on either side of the F-B LGA and the potential station area. Additionally, analysts attempted to identify potential large or regionally important hazardous materials sites (such as Comprehensive Environmental Response, Compensation, and Liability Act National Priorities List sites) within the 11-mile buffer where the extent of the site or contamination could extend well beyond the mapped address, or sites outside the 11-mile buffer where the extent of the contamination could reach locations within the study area; however, the database search results did not identify any such sites. Based on this approach, this study area encompasses the areas where project impacts from hazardous materials would be greatest. The study area for direct and indirect impacts related to the F-B LGA is described in more detail in Section 3.10.2, Hazardous Materials and Wastes of this Draft Supplemental EIR/EIS.

Construction

With the inclusion of compliance requirements, construction of the F-B LGA and past, present, and reasonably foreseeable projects would not have a cumulatively significant effect under CEQA

on the regional transportation, use, storage, and disposal of hazardous materials and petroleum products (such as diesel fuel, lubricants, paints and solvents, and cement products containing strong basic or acidic chemicals).

Operations

Households, industrial sites, and agricultural operations use hazardous materials and generate hazardous waste. Projects that are anticipated to occur under the cumulative condition would contribute incrementally to the transportation, storage, use, and disposal of hazardous substances within the study area. The F-B LGA would increase use of hazardous materials because the facilities associated with the Alternative, including the station area, would use, store, and dispose of minor amounts of hazardous materials and petroleum products on a regular basis. However, compliance with regulatory requirements described in Section 3.10 would minimize the risk of release and exposure to hazards, reducing potential impacts. Operation of the F-B LGA would therefore not have cumulatively significant impacts under CEQA to the regional transportation, use, storage, and disposal of hazardous materials.

Cumulative impacts are discussed in further detail in Section 3.19 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-32).

Summary of Impacts

Compliance with regulatory requirements would minimize the risk of release and exposure to hazards and would reduce potential impacts from projects constructed and operated under the cumulative condition. Therefore, while the cumulative hazardous materials impacts of the F-B LGA and past, present, and reasonably foreseeable projects would be cumulatively significant under CEQA, they would not be cumulatively considerable.

Mitigation

No mitigation is required.

Safety and Security

This section addresses issues pertaining to increased demand for emergency response services and travel safety, including roadway connectivity for provision of emergency services, as well as crime, risk of fire, and other safety impacts. The study area for the cumulative analysis of safety and security includes the transportation system and fire protection, law enforcement, and other emergency response service areas in Kern County and the Cities of Shafter and Bakersfield. This study area allows a review of other projects under the cumulative condition that would affect emergency response and evacuation routes because of impacts on roadway connectivity and emergency service providers. The study area for direct and indirect impacts related to the F-B LGA is described in Section 3.11, Safety and Security, of this Draft Supplemental EIR/EIS.

As described in Section 3.11, Safety and Security, Kern County Fire Department's goal is to respond to calls in the City of Shafter within 7 minutes. The response goal in the rural areas of Kern County is approximately 15 minutes. The City of Bakersfield has a call-response goal of 7 minutes 90 percent of the time or more.

Construction

The construction of the F-B LGA along with other planned development and transportation projects would require several thousand construction workers per year. However, because of the high unemployment rates in the region and the loss of construction jobs during the recession, the existing regional labor force is anticipated to be sufficient to fill the demand these jobs. Additionally, the F-B LGA will monitor response of local emergency providers and provide a fair share of cost of services to local jurisdictions operating emergency services, as needed. Mitigation Measure S&S MM # 1, described in Chapter 3.11, Safety and Security, of this Draft Supplemental EIR/EIS requires that a transportation plan be developed to include assurances that emergency response times during construction will not be adversely affected. Therefore, there would be no cumulative significant impact under CEQA on emergency services during construction.

Operations

Accommodating the population growth expected by 2035 would result in a cumulative increase in demand for fire protection, law enforcement, and other emergency response services. The operation of the F-B LGA along with a large number of proposed residential projects and mixed-use residential and commercial development, such as the Bakersfield Crossroads Plaza, would contribute to increased demand for emergency services.

Road closures and modified traffic routing along the F-B LGA could cumulatively contribute to increased response times for emergency responders. Chapter 3.2, Transportation, of this Draft Supplemental EIR/EIS indicates existing roads would either remain unchanged where elevated track would cross them or would be modified into overcrossings (a total of 40 for the F-B LGA) or undercrossings (a total of 2 for the F-B LGA) where at-grade track would conflict with them. Road segments that would be permanently closed are typically short (less than 1 mile), and access to properties adjacent to these closed roads would be accessible from other roads. Under existing conditions, the only fire station (Kern County Fire Station 32) in the City of Shafter is located south of the BNSF, at 325 Sunset Avenue; therefore, responses to emergencies by fire personnel north of the BNSF have the potential for delayed response if trains are crossing under existing conditions. However, the F-B LGA design in Shafter would eliminate conflicts between BNSF train crossings and emergency responses north of the BNSF. In the City of Bakersfield, implementation of the F-B LGA could contribute to an increase in response times due to redesign of routes. However, the Authority would coordinate with emergency responders to incorporate roadway modifications for the F-B LGA that maintain existing traffic patterns and fulfill response route needs (see Mitigation Measure S&S #1 in Chapter 3.11, Safety and Security, of this Draft Supplemental EIR/EIS). Therefore, there would be no cumulative significant impact under CEQA on emergency services during project operation.

Increased travel safety would be a cumulative benefit with the F-B LGA and other transportation improvement projects identified in Appendix 3.19-B. These projects would improve overall safety in regional travel. The F-B LGA would provide a transportation option that is safe during inclement weather and not subject to vehicular traffic accidents.

Overall, travel safety would increase, as both the operation of the F-B LGA and implementation of other transportation projects would result in the construction of grade separations, and could improve safety during inclement weather. Therefore, the cumulative condition would result in a beneficial impact to safety and security.

Cumulative impacts are discussed in further detail in Section 3.19 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-34).

Summary of Impacts

Based on the discussion above for construction, cumulative construction demand on emergency services and emergency response times would not be cumulatively significant under CEQA. Based on the discussion above for operations, cumulative operations demand on emergency services resulting from the F-B LGA along with other planned and potential development and transportation projects would not be cumulatively significant under CEQA.

Mitigation

No mitigation is required beyond that presented in Section 3.11.7 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.11-45).

Socioeconomics and Communities

As described in Section 3.12.3, Socioeconomics and Communities, of this Draft Supplemental EIR/EIS, the study area for direct and indirect socioeconomic and community impacts related to the F-B LGA is the area within a 0.5-mile radius from the centerline of the project alignment and from the proposed Bakersfield F Street Station. This study area encompasses all direct and indirect impacts associated with socioeconomics and communities (e.g., noise, air quality, and visual) and includes the Property Acquisition study area, and the Agricultural study area.

Economic and social changes resulting from the F-B LGA are not treated as significant effects on the environment under CEQA per Section 15064(e) of the CEQA Guidelines; therefore, CEQA determinations are not provided for social and economic impacts. Other projects in the study area with potential socioeconomic and community impacts include the Hageman Flyover, the Rosedale Highway off ramp and widening, 24th Street improvements, the Centennial Corridor, the Gossamer Grove and Mission Lakes Specific Plans, the Bakersfield Crossroads Plaza, the HSR SAP, the Stockdale Integrated Banking Project, and the Garlic Company and Grimmway Enterprises, Inc. wastewater treatment system.

Construction

Construction of the F-B LGA along with the other projects in the study area as listed above would require property acquisition and displacement of homes and businesses resulting in permanent changes to communities. Consequently, these impacts are addressed below under Operations (rather than under Construction).

Community Disruption/Division

Construction of projects in the vicinity of the F-B LGA would contribute to cumulative impacts associated with the division and/or disruption of communities in the cities of Shafter and Bakersfield, as well as unincorporated communities in Kern County. Some projects contribute to the disruption of existing communities, while others like the Centennial Corridor have impacts to both division and disruption of existing communities. This disruption could include interference with established patterns of interactions among community residents, isolation of one part of a community from another, or disruption of residents' access to community facilities and services.

Construction of the projects in the vicinity of the F-B LGA themselves would not displace any residents or impact the community's character. However, temporary increases in traffic, changes in traffic patterns and access to community facilities, and construction noise and dust could occur if the projects were constructed simultaneously with the F-B LGA. Within the City of Bakersfield's urban core, a cluster of projects are in various stages within 1 mile of the F-B LGA. These projects include development under the HSR SAP, as well as other office, retail, and residential units. In the City of Shafter, there are ongoing industrial, commercial, and residential developments within 0.5 mile of the F-B LGA.

Adverse construction impacts related to local roadway modifications and construction of industrial, commercial and residential development may temporarily disrupt community circulation patterns.

Circulation within rural areas and non-station areas would be impacted from road closures as a result of the F-B LGA in combination with the North and West Beltway constructions, and Santa Fe Way intersection improvements in Shafter. Access to some neighborhoods would be disrupted and detoured for short periods during construction. Construction of the cumulative projects would also require an increase in truck trips that could intensify congestion and adversely affect pedestrians, bicyclists, and transit due to detours, delays, or increased safety risks. See the *Fresno to Bakersfield Section: Supplemental EIR/EIS – Transportation Analysis Technical Report* for additional details (Authority and FRA 2017).

Access to some community facilities could be modified temporarily during construction of various projects in proximity to the F-B LGA with the potential to inconvenience patrons and affect community cohesion by temporarily disrupting use of these community facilities. However, access would not be eliminated (except in cases where facilities would be relocated).

Construction noise and vibration associated with construction activities for local roadway and development projects could impact residential and commercial properties, if the projects were constructed simultaneously with the F-B LGA. However, overall construction noise impacts and construction vibration impacts on community cohesion would be nominal; noise impacts would not alter community interactions, access to community services and facilities, nor isolate any part of the community.

Construction of the F-B LGA may incrementally contribute to community disruption/division impacts that are cumulatively considerable. Air quality, traffic, and noise avoidance and minimization measures and mitigation measures AQ-MM#1, AQ-MM#2, AQ-MM#4, N&V-MM#1, N&V-MM#2, and TRA-AM#8 (see Section 3.3 Air Quality, Section 3.4 Noise and Vibration, and Section 3.2 Transportation, of this Draft Supplemental EIR/EIS) would ensure that cumulative impacts to community disruption/division are not significant under CEQA. With the incorporation of these mitigation measures, the F-B LGA's incremental cumulative construction impacts to community disruption/division would not be significant under CEQA.

Children's Health and Safety

Much of the area in proximity to the cumulative projects is associated with agriculture, industrial, and commercial areas, which are typically not areas where children congregate; therefore, the potential for construction activities to affect children's health and safety is minimal. Potential construction-related impacts that could affect children's health and safety include air emissions, traffic hazards, and use of hazardous materials in proximity to schools. Implementation of standard construction procedures identified in this Draft Supplemental EIR/EIS would reduce potential impacts to children's health and safety due to construction of the F-B LGA to less than significant under CEQA. Other projects in the area would be required to implement similar measures. Therefore, the impacts to children's health and safety from construction would not be cumulatively significant under CEQA.

Economics

Under the cumulative condition, numerous planned and potential projects would be developed to accommodate the population increases in Kern County projected for 2035. These projects would generate many construction jobs, as well as indirect and induced jobs. Construction and associated construction spending, particularly for the F-B LGA, would result in beneficial impacts on employment and sales tax revenues in the region (see Section 3.12.8.2 of the Fresno to Bakersfield Section Final EIR/EIS, Impacts SO #4 and SO #5, Authority and FRA 2014: pages 3.12-57 through 3.12-59).

The increased demand for workers and spending in the region due to these large construction projects would cumulatively stimulate local economies. Because of the high unemployment rates in the region and the loss of construction jobs during the recession, the existing regional labor force is anticipated to be sufficient to fill the demand for these jobs.

Economic and social changes resulting from the F-B LGA are not treated as significant effects on the environment under CEQA per Section 15064(e) of the CEQA Guidelines; therefore, no CEQA significance finding is provided for economics.

Operations

Community Disruption/Division

Linear infrastructure, such as transportation projects, can bisect neighborhoods and reduce community cohesion. Under the cumulative scenario several communities could experience division and/or disruption. In Bakersfield, the Centennial Corridor Project, the widening of Rosedale Highway and 24th Street, the HSR SAP, and the double tracking of the BNSF Railway could result in division and disruption of communities by creating temporary or permanent barriers for the community. Such barriers can isolate portions of the community, separate residents from important community facilities or services, or alter access to such resources. However, the F-B LGA would be developed adjacent to existing rail and highway corridors and would not bisect or isolate existing communities. Therefore, the impacts to community disruption/division from operations would not be cumulatively significant under CEQA.

Displacement of Residences, Businesses and Community Facilities

Construction and operation of the F-B LGA along with the other projects in the study area would require property acquisition and displacement of homes and businesses resulting in permanent changes to communities. The F-B LGA would contribute to the division of communities in Shafter and in Bakersfield's urban communities as a result of the high numbers of residential, business and community facility displacements that would occur. Although the F-B LGA is located along existing rail and highway corridors, and thus avoids community division, and vacant residential

and commercial space is readily available to accommodate any relocations required by the construction and operation of the F-B LGA, the F-B LGA may incrementally contribute to property acquisition impacts that are cumulatively considerable. Mitigation measures SO-MM #1, 3, and 5 address disruption of community cohesion and relocations. With the incorporation of these mitigation measures, the F-B LGA's incremental cumulative community impacts associated with the displacement of residents, businesses and community facilities would not be significant under CEQA.

Relocations of Sensitive Populations

Residential displacements required for the F-B LGA along with other projects in the study area, particularly in Shafter and Oildale, could result in the relocation of sensitive populations, including linguistically isolated households, disabled residents, and households with a female head of household. As described in Section 3.12, Socioeconomics and Communities, relocation plans and resources would take into account and address special needs of such households accordingly.

Economic and social changes resulting from the F-B LGA are not treated as significant effects on the environment under CEQA per Section 15064(e) of the CEQA Guidelines; therefore, no CEQA significance finding is provided for relocations of sensitive populations.

Economics

Operation and maintenance of the F-B LGA in conjunction with other planned projects would result in increases in employment and spending within the study area. The F-B LGA would result in the creation of long-term jobs associated with operation and maintenance of the project. These direct jobs would lead to more indirect and induced jobs as a result of the improved connectivity to the rest of the state. As discussed earlier, the regional workforce is anticipated to fill most of these new jobs and there would be no need to expand existing public services or add government facilities.

As described in Section 3.12.4.2 of this Draft Supplemental EIR/EIS, some reductions in property and sales tax revenues would occur in the short-term as a result of land acquisition and the need to relocate residences and businesses; however, the long-term impact would be beneficial because sales tax revenues would increase over the long term from operation of the F-B LGA.

Businesses located along the F-B LGA, including those that would be relocated under the HSR project, may receive benefits associated with economic stimulation from construction and operation of the project.

Cumulative impacts are discussed in further detail in Section 3.19 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-35).

Economic and social changes resulting from the F-B LGA are not treated as significant effects on the environment under CEQA per Section 15064(e) of the CEQA Guidelines; therefore, no CEQA significance finding is provided for economics.

Summary of Impacts

As discussed above, construction and operation of the F-B LGA and other past, present, and reasonably foreseeable projects would not result in a cumulatively significant impact to children's health and safety under CEQA. Operation of the F-B LGA and other past, present, and reasonably foreseeable projects would have cumulatively significant impacts from community disruption/division (construction only) and displacement of residences, businesses, and community facilities under CEQA. However, with implementation of mitigation measures, the F-B LGA's incremental impacts would not be cumulatively considerable under CEQA.

Mitigation

No further mitigation measures are required beyond those approved under the Fresno to Bakersfield Section Final EIR/EIS. For a discussion of the mitigation measures applicable to both the F-B LGA and the May 2014 Project see Section 3.12.6.1 of this Draft Supplemental EIR/EIS.

Station Planning, Land Use, and Development

The study area for the station planning and land use cumulative impacts analysis includes the cities of Shafter and Bakersfield and unincorporated parts of Kern County. The HSR project is an undertaking of the Authority and FRA, in their capacities as state and federal agencies. As such, it is not required to be consistent with local plans. However, the F-B LGA's consistency with local plans is described here, in order to provide a context for the project. Land uses adjoining the F-B LGA in rural areas are predominantly agricultural, with small areas of single-family residential and commercial uses also present. Non-rural land uses occur in the cities in the study area and these land uses include commercial, industrial, and residential.

Construction

Construction of the F-B LGA along with other cumulative projects such as the F Street Station area projects listed in Table 3.13-1 of this Draft Supplemental EIR/EIS, development under the HSR SAP, the Hageman Flyover and Rosedale Highway improvements in Bakersfield, the North and West Beltway constructions in Shafter, and various industrial, commercial, and residential projects in both cities, could result in temporary use of land for construction staging, laydown, and fabrication. Because lands used for temporary construction would be acquired from willing landowners and restored to their previous condition at the end of the construction period, long-term land uses would not change, adjacent land uses would not change, and there would not be a substantial change in the long-term pattern or intensity of land use incompatible with adjacent land uses as a result of construction of the F-B LGA.

The F-B LGA construction in combination with the transportation projects listed above as well as the residential and commercial development projects like the Bakersfield Commons and the Bakersfield Crossroads would result in a cumulatively considerable impact to land use. However, project-specific mitigation measures, regulations, and best practices pertaining to construction equipment emissions, dust, traffic, noise and vibration, and lighting and glare would reduce potential project construction impacts to land uses. These measures would minimize the disruption of land use by minimizing adjacent traffic, dust, noise, and visual effects. In addition, these impacts would be temporary in duration. Therefore, the F-B LGA's incremental impacts would not be cumulatively considerable under CEQA.

Operations

Operation of the F-B LGA, along with other projects in the study area, would result in land use changes, particularly from agricultural uses to transportation uses. Additionally, planned changes in transportation systems, including projects described above, would affect land uses either directly through acquisition of properties, or indirectly by providing new or improved access. Changes in land use in agricultural areas would not change the surrounding land uses, however, and the F-B LGA would largely follow the existing BNSF Railway tracks, minimizing disruption of land use.

Under the cumulative condition, roadway improvements provided for in regional transportation plans would typically reduce congestion and shorten travel times through expanding road capacity. Although this has historically encouraged development on the fringes of urban areas, and subsequently resulted in longer commutes and additional congestion, the sustainable communities strategies or alternative development strategies requirements established pursuant to Senate Bill 375 (2008) may result in different trends. In order to meet the Senate Bill 375 targets for reduced GHG emissions from automobiles and light trucks, future regional transportation plans may encourage more compact development patterns. The HSR project would also beneficially support densification of land uses around HSR stations in urban areas. Although the F-B LGA will support land use densification, it does not directly, or indirectly allow for the approval of surrounding land use changes. These would be dictated by local plans. As such, additional cumulative effects beyond those described are not reasonably foreseeable. In rural areas, the F-B LGA would be located along the existing BNSF Railway rail tracks, minimizing the conversion of land and division of parcels.

In combination with the other projects discussed above, the F-B LGA's construction impacts to land uses could be cumulatively significant under CEQA; however, with project specific mitigation measures that minimize adjacent traffic, dust, noise, and visual effects, the project's incremental contribution to those impacts would not be cumulatively considerable under CEQA.

Cumulative impacts are discussed in further detail in Section 3.19 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-40).

Summary of Impacts

As discussed above, in combination with the other projects discussed above, the F-B LGA's impact to land uses would be cumulatively significant; however, the project's incremental contribution to those impacts would not be cumulatively considerable under CEQA.

Mitigation

No mitigation required.

Agricultural Lands

The cumulative impact study area for agricultural lands includes all of Kern County, as farmland data typically describes resources at the county level. Kern County ranks third among California's top agricultural counties, as measured by the gross value of agricultural production (CDFA 2012). The total county land area (unincorporated and incorporated) committed to agricultural production is 44.8 percent in Kern County (U.S. DOA 2014).

According to Farmland Mapping and Monitoring Program data, there are more than 900,000 acres of Important Farmland in Kern County. In addition, there are more than 1.8 million acres of Grazing Land in the county. The Farmland Mapping and Monitoring Program defines Grazing Land as land that has existing vegetation suitable for the grazing of livestock (DOC 2012). The San Joaquin Valley is one of the leading regions in the State that is losing Important Farmland to urban or other non-farming uses (DOC 2015). From fiscal year 2012 to 2013, over half of the cancellation petitions received by the California Department of Conservation (DOC) to convert 9,000 acres of agricultural land to a commercial solar use were from southern San Joaquin Valley, including Fresno, Kern, Kings, and Tulare Counties (DOC 2015). In addition, the Kern Council of Governments 2014 Regional Transportation Plan /Sustainable Communities Strategy forecasts the addition of 602,900 residents by the year 2040 (2014-2040 planning period).

The cumulative impact analysis for agriculture is based on the cumulative project list (Appendices 3.19-A and 3-19-B), the adjacent portion of the Fresno to Bakersfield Section of the HSR to the north and the Bakersfield to Palmdale Section to the south, and growth projections (see Section 3.18, Regional Growth, of this Draft Supplemental EIR/EIS). Additionally, projects such as solar projects (particularly Lost Hills, Smyrna, Goose Lake, Elk Hills, and Blackwell); retail development such as Bakersfield Crossroads Plaza; and irrigation and wastewater projects like the Kern County Irrigation Efficiency Project and the Garlic Company Processing Facility's proposed treatment system will all add to the cumulative impacts on agricultural lands (including conversion of agricultural lands) in the study area.

Construction

Construction impacts of the F-B LGA in combination with the past, present, and reasonably foreseeable projects above may result in the temporary conversion of farmland to construction-related uses if staging activities are located on farmland, and would result in significant cumulative impacts under CEQA on land protected under the Williamson Act as described in Section 3.14, Agricultural Land, of this Draft Supplemental EIR/EIS. For F-B LGA, the land temporarily used for construction would be restored and returned to agricultural use after construction is completed (impacts from permanent loss of agricultural lands are described under operations below). The Authority would mitigate project construction impacts with AG-MM#1 and #2. Therefore, cumulative impacts from construction activities to agricultural lands and Williamson Act lands would not be cumulatively considerable under CEQA.

Operations

The operation of the F-B LGA in combination with other past, present, and reasonably foreseeable future projects would result in the conversion of Important Farmland to non-agricultural uses. Because of the amount of Important Farmland that would be permanently converted to nonagricultural uses (372 acres), and because it is the Authority's policy to treat any conversion of Important Farmland as significant, the incremental contribution of the HSR project to farmland conversion would be significant under CEQA. Mitigation measures AG-MM#1 and #2, described in Section 3.14.6 of this Draft Supplemental EIR/EIS, would reduce project specific impacts; however, the conversion of Important Farmland to nonagricultural uses resulting from the HSR project and other past, present, and foreseeable projects would remain cumulatively considerable under CEQA.

Summary of Impacts

As discussed above, cumulative impacts from construction activities would not be cumulatively significant under CEQA.

The operational effects of the F-B LGA and other past, present, and reasonably foreseeable projects to agricultural lands would be a significant impact under CEQA due to the amount of Important Farmland that would be permanently converted to nonagricultural uses and the Authority's policy regarding conversion of Important Farmland. As such, the F-B LGA's incremental contribution to farmland conversion would be cumulatively considerable under CEQA.

Mitigation

Even with implementation of mitigation measures provided in Section 3.14.7, Agricultural Lands of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.14-62) and Section 3.14.6 of this Draft Supplemental EIR/EIS, the F-B LGA's contribution to cumulative agricultural impacts would be cumulatively considerable under CEQA because agricultural easements can reduce, but not avoid, permanent impacts on agricultural land. No additional mitigation is available.

Parks, Recreation, and Open Space

The study area for parks, recreational facilities, and open space (parkland) cumulative impacts is defined as the area within 1,000 feet on either side of the F-B LGA, and 0.5 mile around the station area, and support facilities (e.g., power substations). Because the F-B LGA will not increase the demand for new parks or open space by bringing additional population to the area, the study area is limited to the area directly affected by the physical impacts of construction and operation of the project, and related physical impacts of other development projects. These distances encompass potential impacts to parks, recreation areas, and open space from noise, air quality, and aesthetic effects from the F-B LGA.

Park resources within the study area are listed in Tables 3.15-1, 3.15-2, 3.15-3, and 3.15-4 in Section 3.15 of this Draft Supplemental EIR/EIS.

Construction

Park resources within the study area are listed in Table 3.15-4 in Section 3.15, Parks, Recreation, and Open Space of this Draft Supplemental EIR/EIS. Of these facilities, the park resources described below could be affected by the F-B LGA and other reasonably foreseeable future projects. Cumulative impacts could occur during construction staging where indirect impacts from dust and emissions could degrade park amenities, thus affecting park users by diminishing the capacity to use the resource for specific and defined recreational activities. Additionally, construction staging would result in park closure preventing users from using the park (see Section 3.15.2.2, Park, Recreation and Open Space CEQA Significance Criteria, of this Draft Supplemental EIR/EIS).

The Kern River Parkway would be affected by the F-B LGA as well as by development under the HSR SAP, the Hageman Flyover, and the Rosedale Highway improvements in Bakersfield. The

F-B LGA would pass over the Kern River Parkway on an elevated guideway. Combined effects from both the F-B LGA and other projects would be cumulatively significant under CEQA. However, although construction activities within the Parkway (which includes the HSR and Centennial Corridor) would require temporary closures of some areas, the F-B LGA would provide a detour for the multi-use pathway, allowing continued use of the facility during construction. By providing alternative routes as well as dust mitigation measures from Section 3.3 of this Draft Supplemental EIR/EIS, incremental effects from temporary closures would not be cumulatively considerable under CEQA.

Operations

Under the cumulative condition, demand for and use of parks and recreation facilities is projected to continue to increase in proportion to the population growth in the study area. Cumulative impacts from degradation of existing facilities could occur if the supply of parkland does not keep pace with increases in demand. To maintain the current quality of life, communities in the study area would need to increase park and recreation facilities to serve the population forecast for 2035. Based on a review of projects within the study area (see Appendix 3.19-A), there are projects that would create additional demand for parks and recreation facilities.

Cumulative impacts to parks could occur through the permanent acquisition of parklands for projects. The F-B LGA would result in the permanent acquisition of parkland for the Kern River Parkway (0.66 acre) and Weill Park (0.099 acre). The F-B LGA's parkland impacts total 0.76 acres out of the 228 total parklands acres in the study area. This represents 0.33 percent of the total study area, which does incrementally contribute to cumulative impacts on parklands. However, because the incremental impacts are small relative to total parks in the study area, this would not be a cumulatively considerable impact.

Cumulative impacts to parks could occur if operations of past, present, and foreseeable future projects in combination with the F-B LGA would have noise, air quality, or visual impacts that degrade the user's experience. Parks and school district play areas within 300 feet would potentially experience the greatest effects because of the proximity of operations to park users. Based on this threshold, the F-B LGA would have an incremental effect on Weill Park, the Metropolitan Recreation Area, and Uplands of the Kern River. However, because there are no foreseeable projects that would overlap (within 300 feet) the F-B LGA and that would have noise, air quality, or visual impacts that degrade the user's experience, this would not be a cumulatively considerable impact.

Summary of Impacts

Based on the discussion above for both construction and operations, the cumulative impacts to park and recreation resources would not be cumulatively significant under CEQA.

Mitigation

No mitigation is required beyond that presented in Section 3.15.7, Mitigation Measures, of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.15-48).

Aesthetics and Visual Resources

The study area for aesthetics and visual resources is the project's viewshed (i.e., the area that could potentially have views of the project features and the area potentially viewed from the project). In agricultural areas, the HSR corridor is potentially visible from long-distance views, whereas in urbanized areas, views of the HSR corridor are generally only available closer to the corridor because intervening buildings and trees typically obstruct views. Therefore, accounting for the existing terrain, predominant land uses, and proposed elevated components of the HSR, the potential viewshed for the F-B LGA is within 0.25 mile of the alignment centerline in the urbanized areas of Shafter and Bakersfield. In open landscape areas, the potential viewshed is within 0.5 mile of the alignment centerline. The study area for direct and indirect impacts related to the F-B LGA is described in Section 3.16, Aesthetics and Visual Resources of this Draft Supplemental EIR/EIS.

The F-B LGA is located on mostly flat terrain, and includes agricultural and urbanized areas. The most significant visual resources in the project vicinity include parks and historically significant sites in the central area of the city of Bakersfield and the historic town center Shafter and orchards and open field crops in the rural San Joaquin Valley. Over the past century, the visual character of most of the study area has been transformed from open lands with prairie, marshes, and woodland areas to a primarily agricultural region with open fields and orchards, along with urbanized areas. Under the cumulative condition, the character of the agricultural parts of the study area is anticipated to continue to change with the development and expansion of urban cityscapes and suburban development.

Construction

Development of cumulative projects, including oil, water, and gas wells, roadway and highway improvement projects such as the Hageman Flyover and Rosedale Highway improvements in Bakersfield, the North and West Beltway in Shafter, and various industrial, commercial, residential, and development projects, such as the HSR SAP in the vicinity of the F-B LGA, would result in construction activities that would create temporary visual changes from vegetation removal, establishment of construction staging areas, and construction lighting. Even though these construction activities would be temporary, due to the scale and proximity of cumulative projects listed in Appendices 3.19-A and 3.19-B, including the adjacent HSR sections (the portion of the Fresno to Bakersfield Section to the north and the Bakersfield to Palmdale Section to the south), the combined impacts of the cumulative projects could be cumulatively significant under CEQA and could overlap with construction of the F-B LGA in certain views.

Operations

The Hageman Flyover and Rosedale Highway improvements, as well as development under the HSR SAP in central Bakersfield would combine with the F-B LGA to increase impacts to views from high-sensitivity parks and open space (including the Kern River Parkway), as well as nearby residential areas. On the other hand, the F-B LGA would result in low overall visual impacts bringing moderately low to low visual quality in some areas and no effect in other areas in North Bakersfield.

Operation of cumulative projects, including oil, water, and gas wells, roadway and highway improvement projects such as the Hageman Flyover and Rosedale Highway improvements in Bakersfield, the North and West Beltway constructions in Shafter, and various industrial, commercial, and residential projects in both cities in the vicinity of the F-B LGA would result in cumulatively significant visual impacts under CEQA.

Even with mitigation proposed in the Fresno to Bakersfield Section Final EIR/EIS and in this Draft Supplemental EIR/EIS, the contributions of the F-B LGA to impacts on Kern River Parkway would be cumulatively considerable under CEQA.

Cumulative impacts are discussed in further detail in Section 3.19 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-45).

Summary of Impacts

Based on the discussion above, the cumulative visual effect of HSR construction activities in combination with other past, present, and reasonably foreseeable future projects would be cumulatively significant under CEQA in areas where multiple construction activities are located in close proximity. While some construction activities would be temporary, in the Bakersfield area the F-B LGA would have a cumulatively considerable contribution under CEQA to visual impacts in combination with development under the HSR SAP, as well as the Hageman Flyover and Rosedale Highway improvements.

Mitigation

Even with implementation of the mitigation measures provided in Section 3.19 of the Fresno to Bakersfield Section Final EIR/EIS, the contribution of the F-B LGA to visual impacts would remain significant under CEQA in the Kern River Parkway until landscape screening matures in 10 years

or more. While mitigation measure CUM-VQ-MM#1 from the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-48) would minimize this cumulative impact, the contribution of the F-B LGA to cumulative visual impacts would be cumulatively considerable under CEQA.

No additional mitigation measures are required to address aesthetics and visual resources impacts resulting specifically from the F-B LGA.

Cultural Resources

The geographic study area for the cultural resources cumulative impact analysis was identified as the area of potential effects for both archaeological and architectural resources, as well as the entire Kern County area where other development, infrastructure and transportation projects are proposed. The study area for direct and indirect impacts related to the F-B LGA is described in Section 3.17 of this Draft Supplemental EIR/EIS.

Based on existing inventories, as well as the cultural history of the area, Kern County contains many known archaeological resources that may be affected by development of the cumulative projects, including the HSR project. In addition, it is assumed that currently unidentified resources are also present within the study area. As there is a potential for unidentified cultural resources to be discovered within the footprint of the project, it is impossible to determine their impacts until they are discovered, evaluated, and analyzed; therefore, their significance is tied to their discovery and cannot be quantified theoretically.

Construction

Linear projects that require extensive excavation, such as the Fresno to Bakersfield, Merced to Fresno, and Bakersfield to Palmdale sections of the HSR, the Hageman Flyover and Rosedale Highway improvements in Bakersfield, and the North and West Beltway constructions in Shafter have the potential to cause substantial adverse change to archaeological resources.

Prehistoric and historic archaeological sites could be affected during project construction activities. Prehistoric sites are common in riverbank and floodplain areas, and burial sites are sometimes encountered during ground-disturbing activities.

Historic architectural resources could also be damaged or require removal due to implementation of the projects under the cumulative condition. Local projects and the secondary effects of redevelopment around the F-B LGA would potentially result in removal of historical buildings in downtown Bakersfield.

Based on a review of projects in the cumulative study area and their effects on cultural resources it is likely that known and unknown archaeological resources and historic architectural resources could be disturbed and cultural resources damaged or destroyed during construction activities associated with the F-B LGA and other past, present, and reasonably foreseeable projects. However, after incorporation of CUL-MM #1-5, the F-B LGA's incremental contribution to construction impacts on archaeological resources or historic architectural resources would not be cumulatively considerable.

Operations

Yet to be identified cultural resources have the potential to be affected in Kern County urbanizing areas due to growth, changes in land use, and other types of ground disturbance.

Development in the urban areas would likely result in further unearthing of sensitive archaeological resources, disturbance of cultural properties, and removal of, or changes to, the historic character and settings of historic architectural resources. Together with other projects and projected growth, the F-B LGA's incremental contributions during operation would not be cumulatively considerable under CEQA, as operation would not cause any ground disturbance, and indirect impacts to historic architectural resources would be mitigated through CUL-MM #1-5.

Cumulative impacts are discussed in further detail in Section 3.19 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.19-48).

Summary of Impacts

Continued urbanization and development projected under construction-related activities of the cumulative condition could result in exposure and disruption of archaeological resources and cultural properties, and removal or damage to historic architectural resources. Therefore, the cumulative impact of the project and other past, present, and reasonably foreseeable projects on cultural resources could be significant under CEQA. Construction of the HSR project could contribute to similar impacts; however, efforts to recover archaeological resources, to mitigate, and to minimize harm would be recommended and attempted. Therefore, the F-B LGA's contribution to impacts during construction could be cumulatively considerable under CEQA.

Operations-related impacts from the HSR project and other past, present, and reasonably foreseeable projects could result in indirect significant cumulative impacts under CEQA to historic architectural resources from noise and vibration associated with the operation of infrastructure projects once constructed. Because the HSR project is not anticipated to result in such impacts and, if later identified, would reduce any such impacts through the Built Environmental Treatment Plan, the HSR's contribution would not be cumulatively considerable under CEQA.

Mitigation

Even with implementation of the mitigation measures for cultural resources provided in Section 3.17, Cultural and Paleontological Resources of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014: page 3.17-128), the F-B LGA's contribution to cumulative impacts during construction would be cumulatively considerable under CEQA. No additional mitigation is available.

Summary of Cumulative Impacts

Table 3.19-1 summarizes the F-B LGA's contribution to potential cumulative impacts during construction and operation.

Table 3.19-1 Summary of Cumulative Impacts

Environmental Resource		Cumulatively Significant Impacts?	Incremental Contributions Cumulatively Considerable?
Transportation		Yes	No
Air Quality and Global Climate Change	Air Quality	Yes	No
	GHG	No	No
Noise and Vibration	Noise	Yes	Yes
	Vibration	No	No
EMI/EMF		No	No
Public Utilities and Energy	Electricity Demand, Solid Waste Disposal/Recycling, Water Demand	No	No
	Wastewater Treatment	Yes	No
Biological Resources and Wetlands		Yes	No
Hydrology and Water Resources	Floodplains and Water Quality	Yes	No
	Natural Water Bodies and Groundwater	No	No
Geology, Soils, Seismicity, and Paleontological Resources	Paleontology	Yes	No
	Geology, Soils, Seismicity	No	No
Hazardous Materials and Wastes		Yes	No
Safety and Security		No	No

Environmental Resource	Cumulatively Significant Impacts?	Incremental Contributions Cumulatively Considerable?
Socioeconomics and Communities	Yes	No
Station Planning, Land Use, and Development	Yes	No
Agricultural Lands	Yes	Yes
Parks and Recreation	No	No
Aesthetics and Visual Resources	Yes	Yes
Cultural Resources	Yes	Yes

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