

## 5.0 CUMULATIVE IMPACT ANALYSIS

This chapter discusses the cumulative impacts of the proposed Plan. CEQA Guidelines define a cumulative impact as one in which two or more individual effects which, when considered together, are considerable or that compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (CEQA Guidelines Section 15355).

### 5.1 CUMULATIVE IMPACT METHODOLOGY

CEQA Guidelines Section 15130 describes the requirements for the discussion of cumulative impacts in an EIR. It states that an EIR will discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. The discussion will reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as much detail as is provided for the impacts attributable to the project alone. In addition, the CEQA Guidelines allow for a project's contribution to be rendered less than cumulatively considerable with implementation of appropriate mitigation.

To analyze the cumulative effects of the proposed Plan per CEQA requirements, the following approach for each resource topic was applied:

Pursuant to CEQA Guidelines Section 15130, determine:

- 1) Is there a cumulative impact?
  - If the proposed Plan has no impact on a given resource, then there is no cumulative impact.
  - If the proposed Plan does have an incremental impact, could it combine with the impacts of other projects (determined using the "list" or "projection" approach) to produce a cumulative impact?
- 2) Is the cumulative impact significant?
  - Would the effect of the proposed Plan in combination with the related cumulative projects exceed the EIR significance criteria for that resource area? If so, there is a significant cumulative impact. If not, the cumulative impact is less than significant.
- 3) Is the proposed Plan's incremental contribution cumulatively considerable?
  - If the impact of the proposed Plan is significant, then it generally also will be considered a cumulatively considerable contribution to a significant cumulative impact. Even if the impact of the proposed Plan is *less than significant*, the incremental effect may still be a cumulatively considerable contribution to a significant cumulative impact.
- 4) Can the proposed Plan's contribution to a significant cumulative impact be rendered less than cumulatively considerable?
  - Are there feasible mitigation measures that would reduce the proposed Plan's incremental effect to less than cumulatively considerable when combined with the effects of the related cumulative projects? If not, the contribution of the proposed Plan to the cumulative impact is significant and unavoidable.

CEQA Guidelines Section 15130(b) presents two approaches for analyzing cumulative impacts:

- A list of past, present, and probable future projects producing related or cumulative impacts, including those projects outside the control of the agency; or
- A summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include a general plan, regional transportation plan, or plans for the reduction of GHG emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program.

Dependent on the resource topic area, either the summary of projections approach, list of projects approach, or a hybrid combination of both is used for the cumulative impact analysis. Each individual topic area defines the approach used for the cumulative analysis and why that approach is most appropriate. Some of the larger probable future projects are further described below in Section 5.1.1. Regional planning documents with application across multiple resource topics that have been considered as part of the cumulative analysis are outlined in Section 5.1.2, while plans that are highly specific to one resource topic area are described within the analysis section for the applicable resource. In addition, the growth projections described in Section 5.1.3 are used to supplement the projections provided in relevant plans.

### **5.1.1 CUMULATIVE PROJECTS**

Several existing and probable future large-scale projects in the San Diego region are forecast to occur within the 2050 timeframe of the proposed Plan and add to the proposed Plan's impacts. This compilation of projects is included as a basis for those cumulative analysis topic areas that use the list approach. A past project may include a project that has been recently completed, but was not considered in the baseline for the proposed Plan and has ongoing impacts with the potential to combine with other project impacts. Present and probable future projects may include those that are under construction, in a pre-construction phase, or show a level of assurance that the project will move forward, such as allocated funding or movement through the necessary planning process for project approval. These projects have independent utility from the proposed Plan, and do not rely on it for their justification. Some of these projects span beyond the boundaries of the San Diego region, have uncertain funding, and/or have no preliminary designs. These projects are described below.

#### **California High-Speed Rail**

The California High-Speed Rail Authority (HSRA) has developed plans for an 800-mile system that includes nine corridors connecting California's major metropolitan areas. Trains would reach speeds in excess of 200 mph in more rural areas on a dedicated, fully grade-separated system, making it possible to travel from San Diego to Los Angeles in less than 80 minutes and San Diego to San Francisco in less than 4 hours. Figure 5.0-1 depicts a statewide map of the California High Speed Rail Train (HST) project, as well as tour options for the San Diego region.

The High Speed Rail project has independent utility and is not included in the proposed Plan. Responsibility for the HST belongs to HSRA; SANDAG does not have authority over the alignment, design, or funding of the HST.

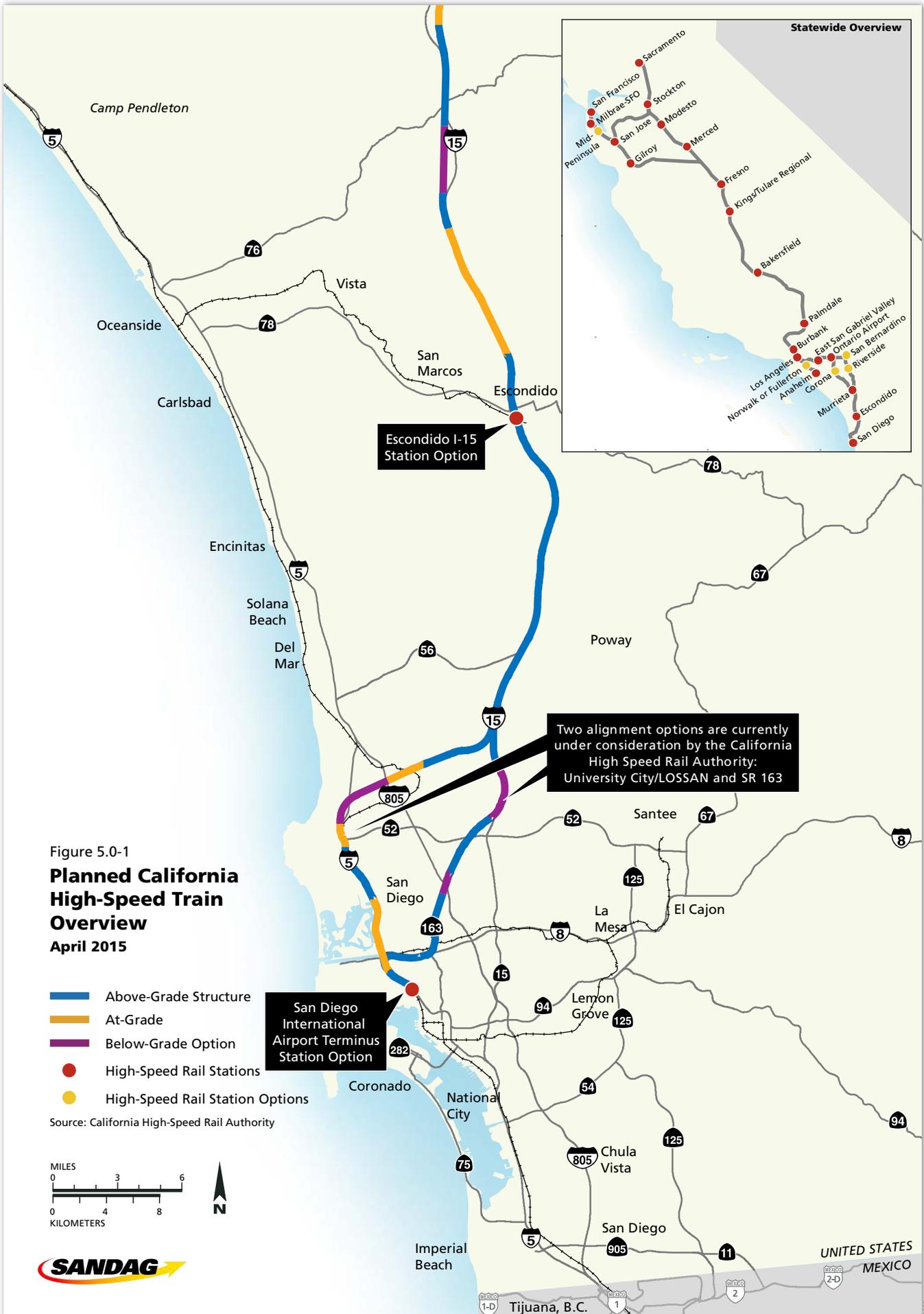


Figure 5.0-1  
**Planned California High-Speed Train Overview**  
April 2015

Source: California High-Speed Rail Authority

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The high-speed corridor serving the San Diego region runs from southwest Riverside County along the I-15 corridor, with a key intermodal transit station planned in the City of Escondido. The Los Angeles-San Diego route is currently in Stage 2 of Planning, that is, the Alternatives Analysis. A proposed schedule for implementation is not available and timing could depend on funding (HSRA 2014).

### **San Diego – Tijuana Airport Cross-Border Facility**

This privately funded project would provide a cross-border pedestrian bridge linking San Diego with Tijuana's A.L. Rodriguez International Airport. Construction on the U.S. portion began in 2014 and is anticipated to open in summer 2015. Construction at the Tijuana airport to accommodate the project was completed in 2014. The project would create a POE limited to toll-paying airline passengers. It consists of an enclosed 390-foot-long bridge with divided north-south corridors allowing passengers to walk across between the United States and Mexico, avoiding delays at the San Ysidro and Otay Mesa POEs. The bridge is planned to serve about 2.4 million passengers who already cross the border as part of their travels (SDUT 2014; SDBJ 2014).

### **San Ysidro Port of Entry Expansion Project**

The San Ysidro POE is a federal multi-modal inspection facility that provides service for pedestrians, passenger vehicles, buses, and freight rail and is currently undergoing an expansion. When completed, the POE capacity would be increased from 24 northbound lanes to 34 northbound lanes with double-stacked inspection booths where feasible. The number of northbound pedestrian lanes would increase from 13 to more than 20 lanes. Phase 1 and Phase 2 of this project are included as part of the proposed Plan and are planned to be completed by summer of 2015. Phase 3, which involves the realignment of I-5 southbound lanes and facilities, is not yet scheduled and funding is not yet available (SANDAG 2013).

### **SR 241 Tesoro Extension Project**

The SR 241 Tesoro Extension project would extend the current 241 Toll Road from where it now ends at Oso Parkway to Cow Camp Road in the vicinity of Ortega Highway within Orange County. The approximate 5-mile extension will provide additional northern access for communities located inland of I-5 and commuters traveling to Orange County business centers from the Inland Empire via Ortega Highway. The project would carry an estimated 31,000 ADT (total for both directions) by year 2035. Environmental analysis of the project area was analyzed within the Subsequent Environmental Impact Report in 2006 (The Toll Roads 2015).

### **Air Transportation**

Each year, more than ~~1817~~ million air passengers use SDIA. The San Diego County Airport System includes 12 public use airports in the San Diego region as well as four military airports/airfields, ~~along with~~ Tijuana International Airport is located directly south of the U.S./Mexico border (see Figure 2.0-23). SDIA, McClellan-Palomar, and Tijuana International Airport accommodate commercial, general aviation, and corporate services. Airports accommodating only general aviation and corporate services are Brown Field Municipal, Gillespie Field, Montgomery Field, and Ramona. The remaining airports accommodate military or general aviation only. Although the region has many airport facilities, most air cargo in the San Diego region is handled through SDIA.

The air cargo capacity at SDIA is currently constrained by limited infrastructure. To maximize the airport's efficiency and make the most of the airport's 661-acre footprint, SDIA is moving forward with the Northside Improvements project, a series of improvements on the north side of the airport. The Northside Improvements project (components that have yet to be implemented) is considered a probable future project for the cumulative impact analysis.

The new receiving and distribution center (RDC) is a 23,000-square-foot building center delivery location for commercial goods that began operation in November 2012. The RDC helps reduce traffic on Harbor Drive by efficiently centralizing all truck deliveries to one location with access via the north side of the airport. Also completed is a Fixed-Base Operation (FBO) complex that began operation in August 2014. The FBO complex has a 19,000-square-foot terminal, 250,000-square-foot ramp and five hangars on 12.4 acres. The FBO complex provides hangars, fueling, and other services for general aviation aircraft. A rental car center is proposed to house many of the rental car companies serving SDIA in a single building to reduce the rental car traffic and shuttle buses circulating around the airport. The rental car center is planned to be complete in 2016 (SDCRAA 2014). The environmental impacts of the Northside Improvements project were analyzed in a Supplemental EIR (SDCRAA 2011a) to the 2008 Airport Master Plan EIR.

### **Port/Maritime**

The Unified Port of San Diego (Port) has two marine terminals on San Diego Bay. One is at Tenth Avenue in the City of San Diego, and the other is in the City of National City. The maritime capacity of the Port is restricted by limited terminal space, landside access constraints, and dock space. While the potential for maritime growth is possible, the expansion of existing and new businesses must be complemented by enhanced terminal capacity and improved highway access. Also, the Port's proximity to the community of Barrio Logan creates the need for context-sensitive community improvements to support port access projects.

Currently, the Port is in the process of preparing a long-range integrated master plan, known as Port for All: The Next 50 Years. The Port has completed the initial phase of a comprehensive master planning process that would create a long-term guide to carry the Port through the next 50 years. The Board of Port Commissioners accepted the Integrated Planning Vision, which includes the Phase I Vision Statement, Guiding Principles and Assessment Report in August 2014. Next steps in the process would include updating the master plan itself, completing an EIR for the new plan, then seeking approval from the CCC (Port 2014a).

The Port is in Phase III of the San Diego Convention Center Expansion project. The San Diego Convention Center Expansion project was anticipated for a late 2015 groundbreaking and would include expansion of the San Diego Convention Center, along with the nearby Hilton San Diego Bayfront Hotel (Port 2014b). However, recent legal rulings have invalidated funding sources for the project and the future of the project is uncertain.

### **Other Probable Future Projects**

For some resource topic areas, additional large-scale probable future projects are also considered in the cumulative impact analysis. For example, for cumulative aesthetics and visual resources impacts, impacts of future long linear projects such as rail pipeline or energy transmission infrastructure are considered.

## 5.1.2 REGIONAL PLANNING DOCUMENTS

There are multiple documents, studies, and/or plans that have been produced by various agencies and organizations that describe or evaluate conditions contributing to cumulative impacts and have been considered in this analysis. This listing of regional planning documents is a general starting point for those resource topic areas that use the projection approach to cumulative analysis. For some of these documents, EIRs or EISs have been prepared that describe environmental impacts of plan implementation. Available information in adopted plans or certified environmental documents is used to describe existing and future conditions that may contribute to cumulative impacts. Those adopted plans and certified environmental documents are supplemented by other regional documents and plans that provide information, such as topic-specific projections from other agencies where information gaps exist.

In some cases there are planning documents prepared by local jurisdictions, including cities and other agencies that have applicability to planning efforts or other topic areas throughout the region, such as local general plans and their various elements, resource protection ordinances, and climate action plans. In some cases, the impacts of local plans are already addressed and accounted for in SANDAG and SCAG EIRs.

Some of the documents have application across multiple resource topics and are listed below; additional planning documents are referenced when used within a specific resource topic analysis.

- Southern California Association of Governments: 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (SCAG 2012a)
- California Air Resources Board: AB 32 Scoping Plan Update (ARB 2014)
- California Department of Finance: Populations Projections 2010-2060 (DOF 2013)
- Caltrans: California-Baja California Border Master Plan (Caltrans 2008)
- Unified Port of San Diego: San Diego Unified Port District Master Plan (Port 2012)
- San Diego County Regional Airport Authority: Regional Aviation Strategic Plan (RASP) (SDCRAA 2011b)
- San Diego International Airport: Airport Master Plan (SDCRAA 2008); Aviation Activity Forecasts (SDCRAA 2004)
- SANDAG: San Diego Airport Multimodal Accessibility Plan (SANDAG 2012); 2050 RTP/SCS (SANDAG 2011a) and associated EIR (SANDAG 2011b); 2050 Goods Movement Strategy (incorporated in SANDAG 2011a)
- Environmental Protection Agency: Border 2020 (USEPA 2013)
- United States Marine Corps: MCB Camp Pendleton Integrated Natural Resources Management Plan (MCB Camp Pendleton 2012); MCAS Miramar Integrated Natural Resources Management Plan (MCAS Miramar 2011)
- Bureau of Land Management: Eastern San Diego County Resource Management Plan (BLM 2007)
- United States Department of Agriculture: Cleveland National Forest Plan (USDA 2006)
- 2034 Tijuana, Tecate, and Playas de Rosarito Metropolitan Strategic Plan (IMPLAN 2013)
- Tribal Transportation Plans
- San Diego County Water Authority 2013 Regional Water Facilities Optimization and Master Plan Update (SDCWA 2014)
- San Diego Gas & Electric 2012 Long Term Procurement Plan (SDG&E 2012)

### 5.1.3 GROWTH PROJECTIONS

Given the broad geographic scope considered for cumulative impacts associated with implementation of the proposed Plan, this analysis considers the population projections gathered from a variety of sources, in addition to the projections contained in adopted plans, to understand and characterize the cumulative setting. These population projections include:

- SANDAG Series 13 Regional Growth Forecast used as the basis for proposed Plan
- SCAG's 2012-2035 RTP/SCS Growth Forecast
- California Department of Finance Population Projections
- Consejo Nacional de Poblacion (CONAPO) Population Projections

Population projections from these sources are provided in Table 5.0-1 for the 2020, 2035, and 2050 horizon years.

**Table 5.0-1  
Growth Projections for the Cumulative Impact Analysis**

Region	Population			
	2012 <sup>1</sup>	2020	2035	2050
SANDAG	3,143,429	3,435,713	3,853,698	4,068,759
SCAG region	17,895,000	19,633,000	22,091,000	23,159,077
Northern Baja <sup>3</sup>	3,252,690	4,152,585	5,357,122 <sup>2</sup>	5,617,774 <sup>2</sup>
State of California	37,309,382	40,643,643	46,083,482	50,365,074

Sources:

SANDAG = SANDAG Series 13 Regional Growth Forecast (SANDAG 2014)

SCAG = SCAG 2012-2035 RTP/SCS Growth Forecast (for 2008, 2020 and 2035), (SCAG 2012b); CA DOF 2013 for 2050

Northern Baja = CONAPO, SANDAG 2011b

State of California = CA Department of Finance (DOF 2013)

Notes:

<sup>1</sup>The baseline year for SANDAG is 2012; the SCAG, Northern Baja, and State of California baseline years are 2010.

<sup>2</sup>These values are extrapolated values based on the midpoint between two projection techniques - growth trend extrapolation (i.e. using % change from prior period) and ratio-correlation (using % of national total from prior period).

<sup>3</sup>Northern Baja California generally includes the municipalities of Tijuana, Tecate, Playas de Rosarito, parts of Mexicali, and Ensenada.

### 5.1.4 GEOGRAPHIC SCOPE

The geographic scope defines the area in which the impacts of the proposed Plan are analyzed in combination with the similar impacts of cumulative projects or impacts associated with approved planning documents to determine if cumulative impacts would occur. The geographic scope of each resource topic area is shown in Table 5.0-2. The cumulative impact analysis section for each resource topic area explains why the specific geographic scope was selected.

**Table 5.0-2  
Topic Specific Geographic Scope of Cumulative Impacts**

<b>Cumulative Impact Topic</b>	<b>Geographic Scope<sup>1</sup></b>
Aesthetics and Visual Resources	Southern California/Northern Baja California
Agricultural and Forestry Resources	California
Air Quality	Southern California/Northern Baja California
Biological Resources	Southern California/Northern Baja California
Cultural and Paleontological Resources	Southern California/Northern Baja California
Energy	Southern California/Northern Baja California
Geology, Soils, and Mineral Resources	Southern California/Northern Baja California
Greenhouse Gas Emissions	Global
Hazards	Southern California/Northern Baja California
Hydrology and Water Quality	Southern California/Northern Baja California
Land Use	Southern California
Noise and Vibration	Southern California/Northern Baja California
Population and Housing	Southern California/Northern Baja California
Public Services and Utilities	Southern California/Northern Baja California
Transportation	Southern California/Northern Baja California
Water Supply	State of California/Lower Colorado River Basin/ Northern Baja California

<sup>1</sup>Southern California generally includes the areas encompassed by SANDAG and SCAG jurisdictions. SCAG represents six southern California counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) over an area covering more than 38,000 square miles. Northern Baja California generally includes the municipalities of Tijuana, Tecate, Playas de Rosarito, parts of Mexicali, and Ensenada.

## 5.2 CUMULATIVE IMPACT ANALYSIS

### 5.2.1 AESTHETICS AND VISUAL RESOURCES

The area of geographic consideration for cumulative impacts to aesthetics and visual resources is the southern California and northern Baja region. While diverse, this region contains a similar variety of viewsheds, landscapes, and visual character. Aesthetic effects extend across jurisdictional boundaries and can potentially have wide-ranging impacts. Northern Baja is appropriate to include as there are expansive views of the southern San Diego region from higher elevations throughout Tijuana.

A hybrid approach for the cumulative analysis of aesthetics and visual resources allows for the discussion of visual change associated with general patterns of regional urbanization, growth, and land use change while also incorporating more precise visual effects caused by specific major development and infrastructure projects. The cumulative impact is the combination of the impacts of the proposed Plan, aesthetic impact projections in adopted plans, and impacts to aesthetics and visual resources resulting from large-scale existing and probable future projects. Significant cumulative impacts related to aesthetics and visual resources would occur if there were a substantial cumulative impact to scenic vistas, scenic resources, or degradation of the character of an area, including the addition of visual elements of urban character to an existing rural or open space area or by creating substantial new sources of light or glare that would adversely affect day or nighttime views.

This cumulative impact assessment considers and relies on the impact analysis within this EIR for the proposed Plan and SCAG 2012-2035 RTP/SCS EIR (SCAG 2012a) for the southern California region. The 2012-2035 SCAG RTP/SCS planning horizon is 2035; thus, the analysis does not account for year 2050 impacts. There are no regional plans pertaining to aesthetics and visual resources for the northern Baja California region.

### **Impacts of the Proposed Plan**

The analysis within this EIR concludes that development associated with regional growth and transportation network improvements would result in new infrastructure and development that would interrupt or detract from a scenic vista, block panoramic views, or views of significant landscape features or landforms. Additionally, new development and infrastructure would occur near scenic resources including historic buildings and scenic rock outcroppings and damage these scenic resources. Implementation of the proposed Plan would also result in land use changes and the construction of transportation network improvements that would substantially degrade the character of an area, including adding a visual element of urban character to an existing rural or open space area and the addition of new light and glare sources. These visual impacts would occur within each horizon year analyzed (2020, 2035, and 2050). Therefore, these impacts related to aesthetics and visual resources as a result of the proposed Plan are significant.

### **Impacts of Related Projects**

The southern California and northern Baja region is an area of abundant and varied scenic resources. The topography, panoramic views, scenic roadways, open spaces, and significant landscape features found throughout this region contribute greatly to the overall character and quality of the existing visual setting. Projects planned in the southern California and northern Baja region, such as the HST, border/POE facility improvements, airport expansions in the San Diego region and Tijuana International Airport, port/maritime improvements associated with Port for All, or long linear projects such as rail pipeline or energy transmission infrastructure, would result in impacts related to blocking panoramic views or views of significant landscape features or landforms, and/or result in degradation of visual character and the addition of new light and glare sources. For example, the HST project in the San Diego region would result in bridges or elevated guideways or other features that may introduce visual contrasts that could block existing views or result in shadow impacts (HSRA 2005). The EIR/EIS prepared for the HST project determined that the project would result in significant cumulative impacts to aesthetic and visual resources. The SEIR for the Northside Improvements identified aesthetic impacts, but found them to be less than significant (SDCRAA 2011a).

The SR 241 Tesoro Extension Project analyzed project environmental effects in an Addendum to the South Orange County Transportation Infrastructure Improvement Project Final Subsequent EIR. The Addendum found potential aesthetic impacts to be similar in nature, but not more severe than the aesthetic impacts identified in the EIR, which found significant and unavoidable effects due to impacts to sensitive viewers, construction activities, and alteration to the visual character of the project area (Foothill/Eastern Transportation Corridor Agency 2013). Thus, some of these related projects would have adverse effects on aesthetic and visual resources in the San Diego region in 2020, 2035, and 2050.

### **Impact Projections in Adopted Plans**

The SCAG 2012-2035 RTP/SCS EIR identified significant impacts to visual resources. By increasing mobility and including land-use-transportation measures that influence the pattern of future development, the 2012-2035 RTP/SCS would obstruct views of scenic resources or scenic vistas; alter the appearance of scenic resources along or near designated scenic highways and vista points; create significant contrasts with the overall visual character of the existing landscape setting or add urban visual elements to an existing natural, rural, and open space area; and result in shade/shadow or light and glare impacts. At the regional scale, the 2012-2035 RTP/SCS EIR identified cumulatively significant impacts on the overall visual character of the existing landscape setting (SCAG 2012a).

Adopted land use plans and ordinances for local jurisdictions in southern California would support the construction of new development and redevelopment through policy changes, general plan updates, and zoning amendments that encourage and facilitate growth and land use changes. As outlined for local jurisdictions in the San Diego region in Table 4.1-3, visual resource protection ordinances often exist at the local level and local land use plans often contain policies related to design guidelines and review. All discretionary projects would be subject to these local visual resource protection ordinances, design guidelines, and building requirements/restrictions.

## **Cumulative Impacts and Impact Conclusions**

### **2020**

A significant cumulative impact in the year 2020 would result if the combined impacts of the proposed Plan, the related projects, and impact projections from adopted plans within the southern California and northern Baja region were significant when considered together, even if not independently significant. The forecasted regional growth and land use changes, coupled with the transportation network improvements included in the proposed Plan for 2020 would result in significant impacts related to aesthetic and visual resources through substantial adverse effect on scenic vistas, damage to scenic resources within a state scenic highway, and result in degradation of visual character of an area.

In addition, significant aesthetic and visual impacts were also identified in the HST project environmental analysis and in the SCAG 2012-2035 RTP/SCS EIR projects would also have adverse aesthetic and visual impacts, such as future POE projects, airport, and maritime improvements associated with Port for All. Less than significant visual impacts were found to be associated with the Northside Improvements project. Therefore, the combination of the direct and cumulative aesthetic and visual resource-related impacts from these projects and SCAG's adopted 2012-2035 RTP/SCS that would affect the southern California and northern Baja region would result in significant cumulative aesthetic and visual impacts, based on Impact AES-1 regarding scenic vistas, Impact AES-2 regarding scenic resources within a state scenic highway, and Impact AES-3 regarding substantial degradation of the visual character of an area by 2020.

Because cumulative aesthetic and visual resource impacts throughout the southern California and northern Baja region by 2020 would be significant, and because the proposed Plan's incremental aesthetic and visual resource impacts are significant, the proposed Plan's incremental aesthetic and visual resource impacts are also cumulatively considerable.

### **2035**

The cumulative analysis presented above for the horizon year of 2020 would be applicable to year 2035, and significant impacts to aesthetic and visual resources are anticipated. By 2035, increases in regional growth, land use changes, and the number of transportation network improvements implemented over those that occurred by 2020 would result in additional adverse impacts on panoramic views, views of significant landscape features, scenic highways, visual character, and light and glare to occur. The combination of the direct and cumulative aesthetic and visual resource-related impacts from the projects and adopted plans described above that would affect the southern California and northern Baja region would result in significant cumulative aesthetic and visual impacts, based on Impact AES-1 regarding scenic vistas, Impact AES-2 regarding scenic resources within a state scenic highway, and Impact AES-3 regarding substantial degradation of the visual character of an area by 2035.

Because cumulative aesthetic and visual resource impacts throughout the southern California and northern Baja region by 2035 would be significant, and because the proposed Plan's incremental aesthetic and visual resource impacts are significant, the proposed Plan's incremental aesthetic and visual resource impacts are also cumulatively considerable.

## **2050**

The cumulative analysis presented above for horizon years of 2020 and 2035 would be applicable to year 2050, and significant impacts to aesthetic and visual resources would occur. By 2050, increases in regional growth, land use changes, and the number of transportation network improvements implemented over those that occurred by 2020 and 2035 would result in additional opportunities for adverse impacts on panoramic views, views of significant landscape features, scenic highways, visual character, and light and glare to occur. The 2050 time period is beyond the planning horizon of the adopted SCAG 2012-2035 RTP/SCS. However, with long-term growth and development throughout the region, similar land use impacts would likely continue throughout the region. The combination of the direct and cumulative aesthetic and visual resource-related impacts from the projects and adopted plans described above that would affect the southern California and northern Baja region would result in significant cumulative aesthetic and visual impacts, based on Impact AES-1 regarding scenic vistas, Impact AES-2 regarding scenic resources within a state scenic highway, and Impact AES-3 regarding substantial degradation of the visual character of an area by 2050.

Because cumulative aesthetic and visual resource impacts throughout the southern California and northern Baja region by 2050 would be significant, and because the proposed Plan's incremental aesthetic and visual resource impacts are significant, the proposed Plan's incremental aesthetic and visual resource impacts are also cumulatively considerable.

## **Mitigation Measures**

Mitigation measures to reduce aesthetic and visual resource impacts due to implementation of the proposed Plan as identified in Section 4.1 would be applicable to cumulative aesthetic and visual resource impacts as well.

Implementation of Mitigation Measures AES-1A, AES-2A, and AES-3A would reduce significant impacts to scenic vistas, scenic resources within a state scenic highway, and degradation of the visual character of an area. For each future project requiring mitigation (i.e., measures that go beyond what is required by existing regulations), mitigation measures such as those listed in Section 4.1 would help to reduce significant project-level visual resources impacts to less than significant, or the project's incremental impacts would remain significant and unavoidable where no feasible mitigation exists. However, the degree of future impacts and applicability, feasibility, and success of future mitigation measures cannot be ensured for each specific future project.

Additionally, the SCAG 2012-2035 RTP/SCS EIR includes a variety of mitigation measures aimed at providing requirements for visual improvement of transportation facilities and other development, minimizing construction within important viewsheds, and the development of visual development standards and guidelines. The EIR concluded that even with the implementation of mitigation, visual impacts would remain significant and unavoidable. Similarly, the HST environmental document includes a mitigation strategy to minimize build and shading of bridges and elevated guideways with the use of neutral colors and materials to blend with surrounding landscape features.

The HST EIR/EIS concluded that even with the implementation of mitigation, visual impacts would remain significant (HSRA 2005). While proposed mitigation would lessen aesthetic impacts, impacts to aesthetics from related projects would remain significant even with the application of mitigation.

Based on the above analysis, following mitigation of the effects of the proposed Plan, related projects, and adopted plans, cumulative impacts on aesthetic and visual resources would remain significant. Also, Mitigation Measures AES-1A, AES-2A, and AES-3A would not reduce the proposed Plan's incremental impacts to less than significant. Therefore, the proposed Plan's incremental contributions to cumulative aesthetic and visual resource impacts would remain cumulatively considerable post-mitigation.

## 5.2.2 AGRICULTURE AND FOREST RESOURCES

The area of geographic consideration for cumulative impacts to agriculture and forest resources is the state of California. Agriculture as a whole in California is important as the successful production of many crops is due to the distinctive climates found in the state. While variable by region, the state of California supports an extensive range of agricultural operations and opportunities.

A hybrid approach for cumulative analysis of agricultural and forest resources allows for an overview discussion of regional loss of agricultural lands and forest resources associated with general patterns of regional urbanization, growth, and land use changes while also allowing for specific consideration of any projects with known impacts to agriculture. The cumulative impact is the combination of the impacts of the proposed Plan, agricultural and forest resources impact projections in adopted plans, and impacts to agricultural and forest resources resulting from probable future projects. Significant cumulative impacts related to agriculture resources would occur if there were a cumulative loss of existing agriculture resources, including conversion of agricultural lands to nonagricultural use and conflicts with Williamson Act contracts and lands zoned for agricultural use. Significant cumulative impacts related to forest lands would occur if there were a cumulative loss or conversion of forest land as defined in the California Forest Legacy Act of 2007 (PRC Section 12220(g)).

There is an ongoing trend of decreased acres of land in agricultural production in California. The most recent California Farmland Conversion Report (2008-2010) issued by the California Department of Conservation found that irrigated farmland in California decreased by 168,039 acres between 2008 and 2010. Statewide, irrigated farmland was the source of 25 percent of all new urban land and dryland farming and grazing areas were the source of 30 percent of new urban land (DOC 2014). In the San Diego region, land in commercial agricultural crop production decreased from over 312,000 acres in 2008 to less than 304,000 acres in 2012 (County of San Diego 2013). In the nearby Imperial Valley, areas of crop production served by the Imperial Irrigation District decreased from 502,039 acres in 2004 to 457,695 acres in 2013 (IID 2004, 2013).

### Impacts of the Proposed Plan

The forecasted regional growth and land use change and planned transportation network improvements associated with the proposed Plan would convert agricultural lands to nonagricultural use in 2020 (10,954 acres), 2035 (21,731 acres), and 2050 (27,355 acres) as detailed in Section 4.2. Implementation of the proposed Plan would also decrease the viability of agriculture on agriculturally designated land. This would be a significant impact to agricultural resources in 2020, 2035, and 2050.

Additionally, regional growth and land use change and transportation network improvements would conflict with lands zoned for agriculture (40,647 acres in 2020, 92,509 acres in 2035, 106,153 acres in 2050) and lands under Williamson Act contract (6,310 acres in 2020, 19,436 acres in 2035, 19,757 acres in 2050) . This would be a significant impact on agricultural resources in 2020, 2035, and 2050.

Regional growth and land use change would result in new development that would result in the loss of existing forest lands. Proposed transportation network improvements also would require ground-disturbing activities such as brush clearing, grading, trenching, excavation, and/or soil removal that would result in the loss of forest lands. Development associated with regional growth and land use change and transportation network improvements together would result in a direct loss of forest land by 2020 (10,675 acres), 2035 (25,509 acres), and 2050 (27,976 acres). This would be a significant impact.

### **Impacts of Related Projects**

Other related regional infrastructure projects, such as the HST, would have similar types of impacts as identified for the proposed Plan transportation improvements. The programmatic environmental document for the HST identified a potentially significant impact related to agriculture and forest resources for the segments planned for the southern California region. Implementation of the HST is ongoing and being conducted in phases (HSRA 2005). The Northside Improvements project SEIR did not evaluate agricultural impacts as this resource area was determined to not be significant (SDRAA 2011a).

Other land development and infrastructure projects throughout the region and state, such as petroleum pipeline transportation infrastructure, and freight rail infrastructure, and energy generation and transmission corridors, would also impact agriculture and/or forest resources if these projects expand the ROW of highway or rail lines and convert agricultural uses or forest lands to other uses.

The SR 241 Tesoro Extension Project analyzed project environmental effects in an Addendum to the South Orange County Transportation Infrastructure Improvement Project Final Subsequent EIR. The Addendum found the project would not result in more severe agricultural impacts than identified in the EIR, which found significant and unavoidable agricultural impacts. The addendum stated that farmlands within and immediately adjacent to the Tesoro Extension Project alignment are limited to cattle grazing areas and no existing forestry resources or zoning for forest land exists within the extension project area (Foothill/Eastern Transportation Corridor Agency 2013).

### **Impact Projections in Adopted Plans**

In the southern California region, the EIR prepared for the 2012-2035 SCAG RTP/SCS identified impacts related to the loss of agricultural and forest lands due to new transportation infrastructure and associated land development, particularly those constructed outside of urbanized areas where new urban uses could be located on agricultural or forest lands. Additionally, the EIR found that the contribution of the 2012-2035 SCAG RTP/SCS to agricultural and forest impacts would be cumulatively considerable, as the conversion of agricultural land resulting from changes in regional land use patterns has the potential to set a precedent that would affect areas outside the region resulting in the conversion of agricultural lands (SCAG 2012a). The 2012-2035 SCAG RTP/SCS planning horizon is 2035. This document and analysis do not account for year 2050 impacts.

Adopted land use plans for local jurisdictions throughout the state of California may enact land pattern changes and zoning amendments that encourage and facilitate new urban development. Some of the land use changes would convert agriculture or forest resources to other uses. Additionally, adopted plans for improvements to arterial networks that widen streets or add or expand transportation facilities, especially those in new or nonurbanized areas, would also convert agriculture or forest resources to other uses.

## **Cumulative Impacts and Impact Conclusions**

### **2020**

A significant cumulative impact in the year 2020 would result if the combined impacts of the proposed Plan, the related projects, and impact projections from adopted plans within the southern California and northern Baja region were significant when considered together, even if not independently significant. As described above, implementation of the regional growth and land changes and transportation network improvements associated with the proposed Plan in 2020 would significantly impact agriculture resources through the conversion of agricultural lands to nonagricultural use and conflicts with existing zoning agricultural uses and Williamson Act contracts. Also, significant impacts were identified for the loss of forest land due to proposed Plan implementation.

In addition, significant impacts to agriculture and forest resources have been identified in project specific environmental documents such as the HST project EIR and also in the environmental analysis for adopted planning documents, such as the 2012-2035 SCAG RTP EIR. Other related infrastructure projects and land use plans across the state may also contribute to substantial impacts to agriculture and forest resources in a manner similar to the proposed Plan through the expansion of urban uses into areas of agriculture or forest use. The combination of the direct impacts from individual projects and adopted plans would result in significant cumulative impacts to agriculture and forest resources throughout the state of California by 2020.

Because cumulative impacts to agriculture and forest resources throughout the state by 2020 would be significant, and because the proposed Plan incremental impacts to agriculture and forest resources are significant, the proposed Plan incremental impacts to agriculture and forest resources are also cumulatively considerable in 2020.

### **2035**

Similar to the analysis for 2020, implementation of the regional growth and land changes and transportation network improvements associated with the proposed Plan in 2035 would significantly impact agriculture resources through the conversion of agricultural lands to nonagricultural use and conflicts with existing zoning agricultural uses and Williamson Act contracts. Also, significant impacts were identified for the loss of forest land due to proposed Plan implementation.

Significant impacts to agriculture and forest resources have been identified in project specific environmental documents such as the HST project EIR and also in the environmental analysis for adopted planning documents, such as the 2012-2035 SCAG RPT EIR. Other associated infrastructure projects and land use plans across the state may also contribute to substantial impacts to agriculture and forest resources in a manner similar to the proposed Plan through the expansion of urban uses into areas of agriculture or forest use. The combination of these impacts would result in significant cumulative impacts to agriculture and forest resources throughout the state of California by 2035.

Because cumulative impacts to agriculture and forest resources throughout the state by 2035 would be significant, and because the proposed Plan incremental impacts to agriculture and forest resources are significant, the proposed Plan incremental impacts to agriculture and forest resources are also cumulatively considerable in 2035.

## **2050**

Similar to the analysis for 2020, implementation of the regional growth and land changes and transportation network improvements associated with the proposed Plan in 2050 would significantly impact agriculture resources through the conversion of agricultural lands to nonagricultural use and conflicts with existing zoning agricultural uses and Williamson Act contracts. Also, significant impacts were identified for the loss of forest land due to proposed Plan implementation.

Significant impacts to agriculture and forest resources have been identified in project specific environmental documents such as the HST project EIR and also in the environmental analysis for adopted planning documents, such as the 2012-2035 SCAG RPT EIR. Other associated infrastructure projects and land use plans across the state may also contribute to substantial impacts to agriculture and forest resources in a manner similar to the proposed Plan through the expansion of urban uses into areas of agriculture or forest use. The combination of these impacts would result in significant cumulative impacts to agriculture and forest resources throughout the state of California by 2050.

Because cumulative impacts to agriculture and forest resources throughout the state by 2050 would be significant, and because the proposed Plan incremental impacts to agriculture and forest resources are significant, the proposed Plan incremental impacts to agriculture and forest resources are also cumulatively considerable in 2050.

## **Mitigation Measures**

Mitigation Measure AG-1A calls for the preservation of existing agricultural lands through avoidance when feasible, and if not feasible, through acquisition or dedication of agricultural conservation easements (AG-1A also applies to projects that would require cancellation of a Williamson Act contract). Mitigation Measure AG-1B reduces conflicts with agricultural operations through the implementation of project design features and mitigation measures to protect surrounding agriculture. However, there is no assurance that the agricultural impacts of all land use changes and transportation network improvement projects implementing the proposed Plan would be reduced to less than significant levels by these measures.

Mitigation Measure FR-1A calls for the preservation of forest lands through avoiding conversion of forest lands when feasible, and if not feasible, through the implementation of measures to reduce impacts to forest lands. However, there is no assurance that the impacts of all development and transportation network improvement projects implementing the proposed Plan would be reduced to less than significant levels by these measures.

The SCAG 2012-2035 RTP/SCS EIR includes multiple mitigation measures to reduce impacts to agricultural resources and farmland, including avoidance of farmlands in project design, development of regional guidelines for farmland buffering, establishment of programs to direct growth to less agriculturally valuable lands, promote infill development to minimize development of agricultural lands, and conservation easement programs to mitigate prime farmland impacts. The EIR concludes that while these mitigation measures would reduce impacts to agricultural resources, they would not reduce impacts to a less-than-significant level and impacts would remain significant (SCAG 2012a).

The 2005 EIR/EIS for the HST includes a number of mitigation strategies to reduce impacts to both agriculture resources and sensitive vegetation communities such as forest lands. The EIR concludes that impacts to agricultural lands and biological resources would remain significant, even with the application of mitigation strategies (HSRA 2005).

Based on the above analysis, following mitigation of the effects of the proposed Plan, related projects, and adopted plans, cumulative impacts on agricultural and forestry resources would remain significant. Also, the proposed Mitigation Measures would not reduce the proposed Plan's incremental impacts to less than significant. Therefore, the proposed Plan's incremental contributions to cumulative agricultural and forestry resource impacts would remain cumulatively considerable post-mitigation.

### 5.2.3 AIR QUALITY

The geographic scope considered for cumulative impacts to air quality is the southern California and northern Baja region. Emissions of many air pollutants can travel substantial distances and are not confined by jurisdictional boundaries; rather they are influenced by large-scale climatic and topographical features.

A projection approach to air quality is appropriate given the air pollutant emissions resulting from overall transportation network improvements, increases in population, and planned regional development is necessary.

The plans considered and relied on for this cumulative analysis include the SCAG 2012-2035 RTP/SCS and its EIR (SCAG 2012a); SDAPCD 2009 Regional Air Quality Strategy Revision (SDAPCD 2009); South Coast Air Quality Management District (SCAQMD) 2012 Air Quality Management Plan (AQMP) (SCAQMD 2013); Imperial County Air Pollution Control District (ICAPCD) Ambient Air Monitoring Annual Network Plan (ICAPCD 2014); ICAPCD Final 2009 8 Hour Ozone Modified Air Quality Management Plan (ICAPCD 2010); EPA Border 2020 Program, Master Action Plan for California-Baja California (USEPA 2013); 2034 Tijuana, Tecate, and Playas de Rosarito Metropolitan Strategic Plan (IMPLAN 2013); and California-Baja California Border Master Plan (Caltrans 2008).

Significant cumulative impacts related to air quality would occur if emissions would conflict with or obstruct implementation of the applicable air quality attainment plans; violate any air quality standard or contribute substantially to an existing or projected air quality violation; cause a considerable net increase of emissions of any criteria pollutant for which the project region is in nonattainment under applicable NAAQS or CAAQS; substantially increase pollutant levels for sensitive receptors; or expose sensitive receptors to substantial pollutant concentrations or odors.

#### Impacts of the Proposed Plan

The proposed Plan's significant air quality impacts are as follows. The proposed Plan would substantially contribute to violations of the 24-hour and annual CAAQS for PM<sub>10</sub> because of the increases in mass PM<sub>10</sub> emissions, and local concentrations of 24-hour PM<sub>10</sub> and annual PM<sub>10</sub> in 2020. In 2035 and 2050, the proposed Plan would substantially contribute to existing violations of the 24-hour and annual CAAQS for PM<sub>10</sub> and PM<sub>2.5</sub> due to the increases in mass PM<sub>10</sub> and PM<sub>2.5</sub> emissions and local concentrations of 24-hour PM<sub>10</sub>, and annual PM<sub>10</sub> and PM<sub>2.5</sub>.

Similarly, the Proposed Plan would create cumulatively considerable increases in PM<sub>10</sub> emissions in 2020, and in PM<sub>10</sub> and PM<sub>2.5</sub> emissions in 2035 and 2050. Lastly, the Plan would expose sensitive receptors to substantial concentrations of TACs in 2020, 2035, and 2050. The proposed Plan had less than significant impacts related to conflicts with or obstruction of applicable air quality plans and less than significant odor impacts.

### **Impact Projections in Adopted Plans**

The SCAG 2012-2035 RTP/SCS EIR found that, with implementation of the RTP/SCS, mobile source emissions of ROG, NO<sub>x</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>x</sub> would stay approximately the same or decrease (often substantially) when compared to existing conditions. Reentrained roadway dust would increase proportionate to VMT and was considered a significant impact. However, the EIR concluded that all emissions would be consistent with applicable AQMPs and SIPs and within regional conformity emission budgets, and would result in a less than significant impact related to cumulatively considerable emissions (SCAG 2012a).

The SDAPCD Regional Air Quality Strategy Revision states that air quality progress is occurring within San Diego County and that, even without additional new emission controls, total VOC and NO<sub>x</sub> emissions are would continue to decrease through 2020 due to ongoing implementation of existing local, state, and federal regulations primarily associated with declining mobile source emissions. The report states that a significant fraction of NO<sub>x</sub> emissions in San Diego County comes from ships, aircraft, and locomotives, and NO<sub>x</sub> emissions from these federal-jurisdiction sources are projected to increase by 60 percent from 2005 levels by 2020, while other on-road and off-road mobile source emissions are projected to decline significantly due to existing federal or state regulations. Without an adequate, fair-share level of reductions from sources under federal jurisdiction, timely attainment of air quality standards would be hampered (SDAPCD 2009).

The SCAQMD 2012 AQMP (SCAQMD 2013) states that the air in southern California is far from meeting all federal and state air quality standards. However, the long-term trend of the quality shows continuous improvement and is the direct result of southern California's comprehensive, multiyear strategy of reducing air pollution from all sources as outlined in its AQMPs. To reach federal CAA deadlines over the next two decades, southern California must significantly accelerate its pollution reduction efforts. Many of the control measures proposed in the AQMP are not regulatory in form, but instead focus on incentives, outreach, and education to bring about emissions reductions through voluntary participation and behavioral changes needed to complement regulations.

The ICAPCD 8-Hour Ozone Modified AQMP includes emission inventories and also outlines control measures to address who in Imperial County controls emissions. These include the ICAPCD's stationary source control measures, regional transportation control measures, and state strategy, all of which provide the framework for ICAPCD rules that reduce ROG and NO<sub>x</sub> emissions (ICAPCD 2010).

The Border 2020 Program, Master Action Plan for California-Baja California, Region 9 includes Goal #1 to reduce air pollution. The plan provides actions to be implemented to improve air quality along the California/Baja California border. Some examples include a state vehicle inspection program in Baja California, sustainable urban transport systems in Tijuana, a media outreach campaign in Mexicali, maintaining air quality monitoring networks, municipal paving projects, completing Climate Action Plans, and alternative/renewable resource power generation projects (USEPA 2013).

The 2034 Tijuana, Tecate, and Playas de Rosarito Metropolitan Strategic Plan states that a critical issue for the Baja region is the progressive deterioration of the quality of air that is associated with the number of vehicles and no provision of sustainable transportation (IMPLAN 2013).

The California-Baja California Border Master Plan is a binational comprehensive approach to coordinate planning and delivery of projects at land POEs and transportation infrastructure serving those POEs in the California-Baja California region. The Master Plan does not have an associated environmental analysis document; however, projects included in the Master Plan could have adverse air quality impacts due to temporary construction. However, beneficial air quality impacts would result from improved traffic conditions and reduced vehicle idle times at POEs. The plan does identify the need for a comprehensive strategy for border crossings that allows for effective integration of POEs into the municipal environment and that, in addition to the POE facility itself, complementary actions related to transportation, such as air quality, should be considered (Caltrans 2008).

## **Cumulative Impacts and Impact Conclusions**

### **2020**

A cumulative impact in the year 2020 would result if the combined impacts of the proposed Plan, and impact projections from adopted plans within southern California and northern Baja California region were significant when considered together, even if not independently significant.

Many of the air quality plans note that air quality across the region has been improving due to implementation of various measures and stricter emission requirements. Nevertheless, given some uncertainty that air quality plans throughout southern California and northern Baja would all be implemented successfully, and given that the Plan's direct impacts are significant, cumulative air quality impacts would also be significant for the following significance criteria: violations of applicable air quality standards, a net increase in emissions of pollutants for which a region is in nonattainment, and exposure of sensitive receptors to substantial pollutant concentrations.

Because cumulative air quality impacts throughout southern California and northern Baja by 2020 would be significant, and because the proposed Plan's incremental air quality impacts are significant, the proposed Plan's incremental air quality impacts are also cumulatively considerable in 2020.

### **2035**

As described above, cumulative air quality impacts would also be significant in 2035 for the following significance criteria: violations of applicable air quality standards, a net increase in emissions of pollutants for which a region is in nonattainment, and exposure of sensitive receptors to substantial pollutant concentrations.

Because cumulative air quality impacts throughout southern California and northern Baja by 2035 would be significant, and because the proposed Plan's incremental air quality impacts are significant, the proposed Plan's incremental air quality impacts are also cumulatively considerable in 2035.

### **2050**

As described above, cumulative air quality impacts would also be significant in 2050 for the following significance criteria: violations of applicable air quality standards, a net increase in emissions of pollutants for which a region is in nonattainment, and exposure of sensitive receptors to substantial pollutant concentrations.

Because cumulative air quality impacts throughout southern California and northern Baja by 2050 would be significant, and because the proposed Plan's incremental air quality impacts are significant, the proposed Plan's incremental air quality impacts are also cumulatively considerable in 2050.

### **Mitigation Measures**

As described in Section 4.3 Air Quality, the proposed Plan's significant air quality impacts would be reduced by Mitigation Measures AQ-2A, AQ-4A, AQ-4B, and AQ-4C, and would be further reduced by Mitigation Measures GHG-4A, GHG-4B, GHG-4C, GHG-4D, GHG-4E, GHG-4F, GHG-4G, GHG-4H, and EN-3B.

Similar mitigation measures are specified in other regional plans, such as the SCAG 2012-2035 RTP/SCS EIR. However, the SCAG 2012-2035 RTP/SCS EIR concluded that even with implementation of mitigation measures, some direct air quality impacts would remain significant. Regional air quality planning documents provide short- and long-term strategies for reducing air pollution and control measures to be implemented by applicable jurisdictions and agencies to further reduce air pollutant emissions.

As described in Chapter 4.3, Mitigation Measures AQ-2A through AQ-4C, and relevant GHG and energy mitigation measures, would not reduce the proposed Plan's incremental impacts to less than significant. Therefore, the proposed Plan's incremental contributions to cumulative air quality impacts in years 2020, 2035, and 2050 would remain cumulatively considerable post-mitigation.

## **5.2.4 BIOLOGICAL RESOURCES**

The area of geographic consideration for cumulative impacts to biological resources is the southern California and northern Baja region. Biological resources have commonalities across the expanse of this region while also having very unique and specific characteristics in certain locations. Biological resources extend beyond jurisdictional boundaries and can be impacted by development and projects across an expansive area; thus, it is necessary to consider the entire region to adequately include broad-reaching impacts and overall loss of sensitive resources.

A hybrid approach to consideration of cumulative biological impacts allows for an overview discussion of regional loss of biological resources associated with general patterns of regional urbanization, growth, and land use changes while also allowing for explicit consideration of individual large-scale probable future projects with impacts to specific biological resources per their environmental analysis documents.

Information on planned residential development and land use changes in southern California is available in adopted land use plans for individual cities and counties. The plans considered and relied on for this cumulative biological analysis include the SCAG 2012-2035 RTP/SCS and its EIR (SCAG 2012a); SANDAG MHCP and associated EIS/EIR (SANDAG 2003); County of San Diego MSCP and associated EIR (County of San Diego 1997); SDCWA Subregional Natural Community Conversation Plan/Habitat Conservation Plan (NCCP/HCP) and associated EIR/EIS (SDCWA 2010); Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) and associated EIR/EIS (County of Riverside 2003); Coachella Valley MSHCP and associated EIR/EIS (Coachella Valley Association of Governments 2007); Strategic Plan of the Commission for Environmental Cooperation 2010-2015 (Commission for Environmental Cooperation 2010); and California-Baja California Border Master Plan (Caltrans 2008).

The cumulative impact is the combination of the impacts of the proposed Plan, probable future projects, and impact projections in adopted plans. Significant cumulative impacts related to biological resources would occur if the land use changes and transportation network improvements associated with the proposed Plan, together with adopted plans and associated infrastructure, would have a substantial adverse effect on any sensitive natural vegetation community; have a substantial adverse effect on any candidate, sensitive, or special status species; interfere substantially with the movement of any native resident or migratory fish or wildlife species; or conflict with the provisions of an adopted HCP, NCCP, or other conservation plan.

### **Impacts of the Proposed Plan**

Implementation of the proposed Plan's regional growth and land use change, and transportation network improvements would result in the loss of biological resources as a result of conversion of undeveloped lands to developed lands. Impacts to biological resources include direct impacts to riparian habitat, including regulated waters, upland sensitive natural communities, and special status plant and wildlife species due to direct loss or removal of habitat. Indirect impacts to biological resources would result from fragmentation, edge effects, and changes in hydrology associated with regional growth and land use change and transportation network improvements.

Although the proposed land use pattern identifies an additional 20,000 acres of land would be preserved by 2050, implementation of the proposed Plan would in some locations cause adverse impacts to riparian habitat, including regulated waters, and upland sensitive natural communities. Implementation of the proposed Plan would result in land use change and transportation network improvements that would cause significant direct and indirect biological resource impacts because they would result in the loss of riparian habitat, including regulated waters, and upland sensitive natural communities in 2020, 2035, and 2050.

Forecasted regional growth and land use change would also result in the loss of special status wildlife and plant species. Ground-disturbing activities such as brush clearing, grading, trenching, excavation, and/or soil removal of any kind, associated with transportation network improvements would also result in loss of special status wildlife and plant species. Indirect impacts would occur to special status wildlife and/or plant species inhabiting habitat adjacent to projects. The loss of special status wildlife and plant species would be a significant impact in 2020, 2035, and 2050.

Regional growth and land use change and transportation network improvements would interfere with the movement of native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors; or impede the use of native wildlife nursery sites. The resulting decrease in permeability of existing wildlife movement corridors would be a significant impact in 2020, 2035, and 2050.

The proposed Plan is designed to comply with all approved HCPs, NCCPs, other conservation plans, and local biological protection policies and ordinances. Therefore, no conflicts would occur. Any encroachment into hardline preserve areas would not conflict with habitat conservation plans because biologically equivalent or superior compensation of habitat or project redesign would be required when there is encroachment into hardline preserve areas. Thus, the proposed Plan would result in a less than significant impact related to conflicts with HCPs, NCCPs, and other conservation plans in 2020, 2035, and 2050.

## Impacts of Related Projects

One of the major infrastructure projects planned for development in southern California is the California HST. The possible HST routes would affect the region of southern California from Los Angeles to San Diego. According to the EIR/EIS, sufficient information is not available at the program level to conclude with certainty that mitigation will reduce impacts to affected resources to a less than significant level in all circumstances (HSRA 2005). Therefore, the EIR concludes that the “impacts to biological resources and wetlands are considered significant at the program level even with the application of mitigation strategies.” Additional environmental assessment for individual phases of the HST project will allow more precise evaluation in the second-tier, project-level environmental analyses. The Northside Improvements project SEIR did not evaluate biological impacts as this resource area was determined to not be significant (SDRAA 2011a).

The SR 241 Tesoro Extension Project analyzed project environmental effects in an Addendum to the South Orange County Transportation Infrastructure Improvement Project Final Subsequent EIR and found the project would not result in significant individual or cumulative effects not discussed in the Final SEIR and project impacts would not be more severe, new, or different than those identified in the Final SEIR. The extension project would impact 5 federally listed or state-listed threatened or endangered species (Foothill/Eastern Transportation Corridor Agency 2013).

## Impact Projections in Adopted Plans

According to the EIR for the SCAG 2012-2035 RTP/SCS, which analyzes impacts to 2035, growth and projects would result in a wide variety of significant and unavoidable biological impacts. While site-specific analyses would be required to identify and minimize the impacts of each particular transportation and/or development project, the SCAG 2012-2035 RTP/SCS would substantially affect vegetation communities and habitat, some of which are utilized by special status species. The EIR identified the potential to contribute to a cumulatively considerable loss of habitat and biological resources (SCAG 2012a).

The MHCP is the Subregional Plan for the northwestern portion of San Diego County that encompasses 111,908 acres (29,962 acres of natural habitat) and provides conservation for 77 species in a 20,593-acre reserve. The EIS/EIR for the MHCP concluded that, because the project has the potential to cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; reduce the number or restrict the range of an endangered, rare, or threatened species, a significant impact to some biological resources would occur (SANDAG 2003).

The San Diego County MSCP Subregional Plan is a cooperative effort by the County of San Diego and other city jurisdictions in southwestern San Diego County to implement a regional NCCP and HCP and contribute collectively to the conservation of vegetation communities and species in the MSCP study area. The associated EIR/EIS identified significant but mitigable direct and indirect impacts to biological resources (County of San Diego 1997).

The SDCWA NCCP/HCP is a comprehensive program designed to facilitate conservation and management of covered species and habitats associated with SDCWA activities and contribute to ongoing regional conservation efforts. The EIR/EIS found that implementation of the NCCP/HCP would result in less than significant impacts to biological resources after mitigation (SDCWA 2010).

The Western Riverside MSHCP encompasses approximately 1,966 square miles and provides for the creation of a Conservation Area that protects and manages 500,000 acres of habitat for 146 covered species. The associated EIR/EIS found significant and unavoidable impacts to sensitive upland communities as well as noncovered species; however, no cumulative biological impacts were identified as the plan would preserve sufficient acreage of the sensitive vegetation communities present in western Riverside County (County of Riverside 2003).

The Coachella Valley MSHCP protects 240,000 acres of open space and 27 species. The associated EIR/EIS found that effective implementation of the Plan will help ensure that impacts to biological resources in the Plan area will be less than significant (Coachella Valley Association of Governments 2007).

The Strategic Plan of the Commission for Environmental Cooperation 2010-2015 includes Strategic Objective #2, which is to increase resilience of shared ecosystems at risk. While there is no associated environmental analysis document, the intent of the plan is to develop capacity to implement an ecosystem approach to conservation and sustainable use and monitor relevant outcomes in internationally shared ecosystems, with attention to both terrestrial and marine ecosystems (Commission for Environmental Cooperation 2010).

The California-Baja California Border Master Plan is a binational comprehensive approach to coordinate planning and delivery of projects at land POEs and transportation infrastructure serving those POEs in the California-Baja California region (Caltrans 2008). The projects included in the Master Plan would have construction and operational impacts that could have an adverse effect on biological resources. No detailed analysis of biological impacts was conducted for this Master Plan.

## **Cumulative Impacts and Impact Conclusions**

### **2020**

A significant cumulative impact in the year 2020 would result if the combined impacts of the proposed Plan, the related projects, and impact projections from adopted plans within the southern California and northern Baja region were significant when considered together, even if not independently significant. Implementation of the proposed Plan regional growth patterns and transportation network improvement projects and programs would have significant impacts related to biological resources in the San Diego region by the year 2020. By 2020, the regional growth and land use change as well as transportation network improvements in the proposed Plan would result in the loss of riparian habitat (including regulated waters), upland sensitive natural communities, and special status wildlife and plant species. It would decrease the permeability of existing wildlife movement corridors.

Some related projects such as the HST, developed in the southern California region by 2020, or implementation of other regional plans such as the SCAG 2012-2035 RTP/SCS would also have a substantial adverse effect on sensitive natural communities and special status species, interfere substantially with the movement of wildlife, and/or conflict with the provisions of an adopted HCP, NCCP, or other biological resource protection plan. Thus, the combination of the proposed Plan and continued growth and development through the rest of the southern California and northern Baja region would result in significant cumulative biological resource impacts.

Because cumulative biological resource impacts throughout the southern California and northern Baja region by 2020 would be significant, and because the proposed Plan's incremental biological resource impacts are significant, the proposed Plan's incremental biological resource impacts are cumulatively considerable.

### **2035**

As described in the 2020 analysis, the planned growth and projects throughout southern California and northern Baja region and implementation of the proposed Plan resulting in regional growth and land use change and transportation network improvements would contribute to the cumulative loss of biological resources as result of conversion of undeveloped lands to developed lands, including loss of riparian habitat (including regulated waters), upland sensitive natural communities, and special status wildlife and plant species.

Implementation of the proposed Plan growth patterns and projects would have significant impacts related to biological resources in the San Diego Region by the year 2035. Land use changes and transportation network improvements associated with both the proposed Plan as well as regional projects and plans developed in southern California and northern Baja by 2035 would allow for more development and redevelopment to occur, and would therefore result in loss of riparian habitat (including regulated waters), upland sensitive natural communities, and special status wildlife and plant species, and would decrease the permeability of existing wildlife movement corridors. Thus, the combination of the proposed Plan and continued growth and development through the rest of the southern California and northern Baja region would result significant cumulative biological resource impacts.

Because cumulative biological resource impacts throughout the southern California and northern Baja region by 2035 would be significant, and because the proposed Plan's incremental biological resource impacts are significant, the proposed Plan's incremental biological resource impacts are cumulatively considerable.

### **2050**

As described in the 2020 analysis, the planned growth and projects throughout southern California and northern Baja region and implementation of the proposed Plan resulting in regional growth and land use change and transportation network improvements would contribute to the cumulative loss of biological resources as result of conversion of undeveloped lands to developed lands, including the loss of riparian habitat (including regulated waters), upland sensitive natural communities, and special status wildlife and plant species.

Implementation of the proposed Plan growth patterns and projects would have significant impacts related to biological resources in the San Diego Region by the year 2050. Land use changes and transportation network improvements associated with both the proposed Plan as well as regional projects and plans developed in southern California and northern Baja by 2050 would allow for more development and redevelopment to occur, and would therefore result in loss of riparian habitat (including regulated waters), upland sensitive natural communities, and special status wildlife and plant species, and would decrease the permeability of existing wildlife movement corridors. Thus, the combination of the proposed Plan and continued growth and development through the rest of the southern California and northern Baja region would result significant cumulative biological resource impacts.

Because cumulative biological resource impacts throughout the southern California and northern Baja region by 2050 would be significant, and because the proposed Plan's incremental biological resource impacts are significant, the proposed Plan's incremental biological resource impacts are cumulatively considerable.

### **Mitigation Measures**

Implementation of Mitigation Measures BIO-1A through BIO-3A would reduce direct and indirect impacts of the proposed Plan. BIO-1A, 1B, 1C, and 1D include design and avoidance measures to be incorporated into projects to avoid impacts to riparian habitat including wetlands and upland sensitive natural communities; provide compensatory mitigation when impacts are unavoidable; implement mitigation and monitoring plans per agency requirements; and implement BMPs to avoid indirect impacts. BIO-2A, 2B, and 2C include design and avoidance measures to be incorporated into projects to avoid and reduce impacts to special status wildlife and plant species and provide compensatory mitigation. BIO-3A includes measures to provide for movement of wildlife. Some impacts to riparian habitat, including wetlands, upland sensitive natural communities, special status species, and wildlife corridor permeability remain significant and unavoidable after implementation of all applicable mitigation measures.

Similar types of mitigation measures are provided in other regional plans, such as the SCAG 2012-2035, RTP/SCS EIR, and individual projects have project-specific biological mitigation. The SCAG 2012-2035 RTP/SCS EIR concluded that even with implementation of mitigation, biological resource impacts would remain significant. The HSR EIR/EIS provided biological mitigation strategies, but concluded that it could not be determined that all biological impacts would be fully mitigation to below a level of significance. Thus, there is no assurance that the proposed mitigation would reduce impacts of related projects in southern California and northern Baja to a less than significant level.

Mitigation Measures BIO-1A through BIO-3A would not reduce the proposed Plan's incremental impacts to less than significant. Therefore, the proposed Plan's incremental contributions to cumulative biological impacts in years 2020, 2035, and 2050 would remain cumulatively considerable post-mitigation.

## **5.2.5 CULTURAL AND PALEONTOLOGICAL RESOURCES**

The area of geographic consideration for cumulative impacts to cultural and paleontological resources is the southern California and northern Baja California region. Because local and regional settlement patterns are closely linked, it is important to evaluate the loss of cultural resources across this entire geographic area to adequately consider how the loss of resources would impact the understanding of the closely interrelated prehistoric and historic context. Historic resources should be considered based on their importance both within their local setting as well as the regional framework.

A projection approach for cumulative analysis of cultural and paleontological resources allows for an overview discussion of regional loss of interrelated cultural resources associated with general patterns of regional urbanization, growth, and land use changes. The cumulative impact is the combination of the impacts of the proposed Plan and impact projections in adopted planning documents. Significant cumulative impacts related to cultural resources and paleontological resources would occur if cumulatively there would be a substantial increase in impacts with regard to the significance of historic or unique archaeological resource, disturbance of human remains, or destruction of unique paleontological resources or unique geologic features.

This cumulative impact assessment considers and relies on the impact analysis within this EIR for the proposed Plan, SCAG 2012-2035 RTP/SCS EIR (SCAG 2012a) for the southern California region, the County of San Diego General Plan Update EIR (County of San Diego 2011), and the California-Baja California Border Master Plan (Caltrans 2008). Many local jurisdictions provide guidance and protective measures for cultural and paleontological resources in their general plans and other local planning documents. There are generally no regional plans pertaining to such resources for the northern Baja California region. The California-Baja California Border Master Plan is a binational comprehensive approach to coordinate planning and delivery of projects at land POEs and transportation infrastructure serving those POEs in the California-Baja California region. The Master Plan does not have an associated environmental analysis documents and no detailed analysis of cultural resource impacts was conducted for this Master Plan (Caltrans 2008).

### **Impacts of the Proposed Plan**

Areas in the San Diego region are known to have a high potential for prehistoric, historic, and cultural resources. Implementation of the proposed Plan would result in the construction of development projects and transportation network improvements that would result in a wide range of construction and ground-disturbing activities, such as excavation, grading, and clearing, which remove and/or disturb the upper layer of soils. Since cultural resources have been found within inches of the ground surface in some areas of the San Diego region, in some locations these ground-disturbing activities would cause a substantial adverse change in the significance of a historical or unique archeological resource. Implementation of the proposed Plan would necessitate construction activities that in some locations would cause a substantial adverse change in the significance of a historical or unique archeological resource through the physical demolition, destruction, relocation, or alteration of a resource or its immediate surroundings such that the significance of a historical or unique archeological resource would be materially impaired. This would occur within each horizon year analyzed (2020, 2035, and 2050). Therefore, impacts related to a substantial adverse change in the significance of a historical or unique archeological resource would be significant.

As described in Section 4.5, the proposed Plan would result in ground-disturbing activities associated with regional growth and land use change and planned transportation network improvements that in some locations would unearth and impact buried human remains in 2020, 2035, and 2050. Impacts would be less than significant because adherence to existing laws and regulations associated with the disturbance of human remains as detailed in Section 4.5 ensures the appropriate handling of any human remains that are encountered.

Areas throughout the region have distinct geologic rock formations with known paleontological sensitivity and areas with unique geologic features. Ground-disturbing activities, such as construction associated with development, redevelopment, and transportation network improvements, in some locations would directly or indirectly destroy a unique paleontological resource or site or unique geological feature. Existing federal, state, and local laws, regulations, and programs included in Section 4.5 would help reduce impacts to paleontological resources and unique geological resources, but there is no assurance that they would reduce these impacts to a less than significant level. Therefore, impacts to paleontological resources and unique geologic features would be significant in 2020, 2035, and 2050.

## Impact Projections in Adopted Plans

The SCAG 2012-2035 RTP/SCS EIR found that implementation of the 2012-2035 RTP/SCS would result in significant and unavoidable impacts related to adverse changes in the significance of archaeological and historic resources, directly or indirectly destroy unique paleontological resources, and potentially disturb human remains. The 2012-2035 RTP/SCS's influence on growth would contribute to regionally significant impacts to cultural resources and be cumulatively considerable (SCAG 2012a).

The EIR prepared for the County of San Diego General Plan Update found that, with mitigation, implementation of the updated General Plan would result in less than significant direct or cumulative impacts on historical, archaeological, or paleontological resources or disturbance of human remains. The California-Baja California Border Master Plan does not provide analysis of impacts to cultural resources; however, projects included in the Master Plan could have adverse impacts to cultural or paleontological resources due to ground disturbance necessary for construction of infrastructure

## Cumulative Impacts and Impact Conclusions

### 2020

A significant cumulative impact in the year 2020 would result if the combined impacts of the proposed Plan and impact projections from adopted plans within the southern California and northern Baja region are significant when considered together, even if not independently significant. As described above, implementation of the proposed Plan and SCAG's 2012-2035 RTP/SCS would result in ground-disturbing activities that would cause a substantial adverse change in the significance of a historical or unique archeological resource. California projects are required to adhere to federal, state and local regulations, as described in Section 4.5; however, cumulative growth development located in Mexico would not be subject to compliance with such regulations. Additionally, even with regulations in place, individual historical or unique archeological resources could still be impacted or degraded from demolition, destruction, alteration, or structural relocation as a result of new private or public development or redevelopment allowable under the proposed plan or other adopted regional plans. Therefore, cumulative impacts on historical and unique archeological resources would be significant. Because the proposed Plan's impacts on historical and unique archeological resources are significant, they are also cumulatively considerable in 2020.

In addition, implementation of the proposed Plan combined with development associated with SCAG's 2012-2035 RTP/SCS would result in adverse impacts to human remains from development activities. Development associated with the proposed Plan as well as in the SCAG region would be required to comply with federal, state and local regulations, as described in Section 4.5, if human remains are encountered. Cumulative projects located in Mexico would not be subject to compliance with such regulations. However, the proposed Plan's contribution to these impacts would be less than cumulatively considerable, because required compliance with federal, state, and local regulations would ensure the appropriate handling of any human remains that are encountered.

As with cultural resources, implementation of the proposed Plan combined with SCAG's 2012-2035 RTP/SCS and development in northern Baja California would result in a significant cumulative impact associated with paleontological resources and unique geological features from extensive grading, excavation, or other ground-disturbing activities.

Development would be regulated by state and local laws and regulations, including CEQA and local jurisdictions' grading ordinances. However, cumulative growth and development located in Mexico would not be subject to compliance with such regulations. Additionally, the loss of paleontological resources or unique geological features on a regional level would not be adequately avoided or reduced through methods specified in these regulations. Based on the above analysis, cumulative impacts on paleontological resources and unique geological features would be significant. Because cumulative paleontological resource impacts throughout the southern California and northern Baja region by 2020 would be significant, and because the proposed Plan's incremental impacts are significant, the proposed Plan's incremental paleontological resource and unique geological feature impacts are also cumulatively considerable.

### **2035**

The cumulative analysis presented above for the horizon year of 2020 would be applicable to year 2035, and significant cumulative impacts to cultural resources would occur. By 2035, increases in regional growth and land use change, and the number of transportation network improvements implemented over those that occurred by 2020 would result in additional adverse impacts related to changes in the significance of a historical or unique archeological resource and the direct or indirect destruction of a unique paleontological resource or site or unique geological feature to occur.

As described in the 2020 analysis, cumulative impacts on historical and unique archeological resources and paleontological resources and unique geological features would be significant because there would be cumulative adverse changes in the significance of those resources due to the proposed Plan, SCAG's 2012-2035 RTP/SCS, and development located in northern Baja California.

Because cumulative cultural and paleontological resource impacts throughout the southern California and northern Baja region by 2035 would be significant, and because the proposed Plan's incremental impacts are significant, the proposed Plan's incremental cultural and paleontological resource impacts are also cumulatively considerable.

### **2050**

The cumulative analysis presented above for the horizon years of 2020 and 2035 would be applicable to year 2050, and significant cumulative impacts to cultural resources would occur. By 2050, increases in regional growth and land use change, and the number of transportation network improvements implemented over those that occurred by 2020 and 2035 would result in adverse impacts related to changes in the significance of a historical or unique archeological resource and the direct or indirect destruction of a unique paleontological resource or site or unique geological feature to occur.

As described in the 2020 analysis, cumulative impacts on historical or unique archeological resources and paleontological resources and unique geological features would be significant because there would be cumulative adverse changes in the significance of those resources due to the proposed Plan, SCAG's 2012-2035 RTP/SCS, and development located in northern Baja California. Because the proposed Plan's impacts on cultural resources and paleontological resources and unique geological features are significant, they are also cumulatively considerable in 2050.

## Mitigation Measures

Mitigation measures to reduce impacts to cultural resources and to paleontological resources/unique geological features due to implementation of the proposed Plan as identified in Section 4.5 would be applicable to cumulative impacts as well.

Mitigation Measures CULT-1A and CULT-1B call for measures to avoid or substantially reduce adverse changes in the significance of a cultural resource, and protect cultural resources during construction. These mitigation measures would be included in project-level planning, design, and CEQA reviews. Implementation of these mitigation measures would not reduce impacts that would cause a substantial adverse change in the significance of a historical or unique archeological resource to less than significant because it cannot be guaranteed that all future project-level impacts can be mitigated to a less than significant level.

Mitigation Measure PALEO-1A calls for project implementation agencies to assess impacts to unique paleontological resources or unique geological features prior to construction of individual projects associated with the proposed Plan. If a project is determined to be located within an area likely to contain unique paleontological resource sensitivity or unique geologic features, implementation of Mitigation Measure PALEO-1B calls for avoidance where feasible or provide a qualified paleontologist to be stationed on-site of any future development to monitor construction; identify valuable paleontological specimens, if any; and recover and report on any significant resources found at the site. Implementation of this mitigation measure would not reduce impacts to less than significant because it cannot be guaranteed that all future project-level impacts can be mitigated to a less than significant level.

Mitigation Measures CULT-1A, CULT-1B, PALEO-1A, and PALEO 1B would not reduce the proposed Plan's incremental impacts to less than significant. Therefore, the proposed Plan's incremental contributions to cumulative cultural resources, paleontological, and unique geologic feature impacts in years 2020, 2035, and 2050 would remain cumulatively considerable post-mitigation.

### 5.2.6 ENERGY

The area of geographic consideration for cumulative energy impacts is the southern California and northern Baja region. The demand for energy is a common theme throughout the region. Land use change and the transportation system would influence the demand for future energy development or the location and need for new or additional energy infrastructure across the southern California and northern Baja region. The provision of energy can be linked to jurisdictions, but often service providers and their infrastructure cover large areas. Thus, it is necessary to consider the southern California and northern Baja region as a whole and the overall amount of development that would generate additional pressure and demand on energy use and generation facilities.

A hybrid approach to the cumulative energy analysis allows for an overview discussion of regional impacts associated with general patterns of regional urbanization, growth, and land use changes that would create new or additional energy use, modify demand for the provision of energy, or dictate where new or expanded energy infrastructure is located. Discussion of specific projects also allows for consideration of individual large-scale existing and probable future projects with known impacts to energy resources.

Growth, land use change, and transportation system improvements occurring throughout the southern California and northern Baja region would impact energy demand, development, and supply. Cumulative energy impacts would result if there were an increase in overall per capita energy consumption or inefficient, wasteful, or unnecessary energy use; an increased reliance on fossil fuels and decreased reliance on renewable energy sources; or construction of new or expanded energy facilities which could cause a significant environmental effect.

Documents considered in the cumulative energy analysis include the California Energy Commission California Energy Demand 2014-2024 Final Forecast (CEC 2014); County of San Diego Strategic Energy Plan 2013-2014 (County of San Diego 2013); San Diego Gas & Electric 2012 Long Term Procurement Plan (SDG&E 2012); and California Energy Commission Energy Facility Status (CEC 2015).

### **Impacts of the Proposed Plan**

As detailed in Section 4.6, total energy use and per capita energy use in 2020, 2035, and 2050 would be less than total energy use and per capita energy use in 2012. Therefore, the proposed Plan would not result in an increase in overall per capita energy consumption or otherwise use energy in an inefficient, wasteful, or unnecessary manner in 2020, 2035, or 2050 and the impact would be less than significant.

Regional growth and land use change and planned transportation network improvements would not result in increased reliance on fossil fuels and decreased reliance on renewable energy sources because total energy use would decrease, fossil fuel energy consumption would decrease, and renewable energy consumption would increase. Thus, this impact would be less than significant in 2020, 2035, and 2050.

New facilities for generation, transmission, storage, and distribution of electricity and natural gas will be needed to meet the increase in demand for energy as a result of regional growth and land use change that is forecasted to occur. Similarly, construction of new or expanded facilities, the construction of which could cause significant environmental impacts, would be needed because total electricity, natural gas, and diesel consumption would increase under the proposed Plan. This impact would be significant in 2020, 2035, and 2050.

### **Impacts of Related Projects**

Multiple energy projects in various stages of planning, permitting, and construction are ongoing in the southern California and northern Baja region. Some of these include the Blythe Solar, Palen-Nalep Solar, and Rice Solar energy projects in Riverside County; Carlsbad NRG and Pio Pico Energy Center in San Diego County; Clean Hydrogen Energy project in Kern County; and Black Rock 5 & 6 Geothermal Power Project in Imperial County (CEC 2015). All energy projects requiring CEC approval or licensing must go through the CEC permitting process, which is a certified regulatory program under CEQA. The CEC license/certification subsumes all requirements of state, local, or regional agencies otherwise required before new infrastructure is constructed.

The HST environmental document states that, while the project would have a potentially significant effect related to long-term electric power consumption when viewed on a system-wide basis, it represents a more energy-efficient mode of transportation than travel by aircraft or car, such that the HST system would result in an overall reduction in total energy consumption. The EIR/EIS states that the HST system would reduce energy consumption overall and any localized energy impacts would be avoided through proper planning and design of power distribution systems and their relationship with the overall power grid (HSRA 2005).

Energy impacts were not addressed in the Addendum to the South Orange County Transportation Infrastructure Improvement Project Final Subsequent EIR (Foothill/Eastern Transportation Corridor Agency 2013).

### **Impact Projections in Adopted Plans**

The SCAG 2012-2035 RTP/SCS EIR identified that implementation of the plan would contribute to a cumulatively considerable increase in non-renewable energy use that would be significant and unavoidable. The EIR also found that the plan would result in a significant and unavoidable impact related to the use of electricity, natural gas, gasoline, diesel, and other non-renewable energy types in the construction and expansion of the regional transportation system and forecasted development (SCAG 2012a).

The CEC California Energy Demand 2014-2024 Final Forecast report describes 10-year forecasts for electricity and end-user natural gas in California and for major utility planning areas within the state. The forecast includes estimates of additional achievable energy efficiency, electricity consumption, peak demand, and natural gas consumption savings. These savings have a significant impact on projected sales and peak as the adjusted mid-case totals are around 10 percent lower than the baseline mid-demand case by 2024. While there is no associated environmental analysis, the forecast does show the continued increase in demand for energy supplies in the state over the next 10 years (CEC 2014).

The County of San Diego Strategic Energy Plan provides high-level energy and sustainability objectives and goals in the areas of energy and water conservation and efficiency, sustainable design, energy supply, distributed generation, vehicular transportation, energy and sustainability education and outreach, energy consumer choice, recycling and landfill diversion, and GHG emissions reductions. The main priorities for the plan period are to control utility costs, accelerate distributed generation employment, facilitate alternative fuel vehicle deployment, reduce the region's carbon footprint, expand choice for consumer energy supply, and increase the use of information technology to help reach objectives and inform the public (County of San Diego 2013).

SDG&E is a major provider of energy for the San Diego region. The objective of SDGE's 2012 Long Term Procurement Plan is to provide reliable electric supply to customers at the lowest cost, while also meeting the state's preferred loading order for resources and reducing the GHG emissions. The long-term plan (10 years) addresses both demand- and supply-side resources and makes recommendations to achieve the appropriate balance between each of these resource types. The plan adds resources in the order of the state's priorities as follows: energy efficiency; demand response; renewable power; distributed generation; and clean and efficient fossil-fired generation (SDGE 2012).

### **Cumulative Impacts and Impact Conclusions**

#### **2020**

The proposed Plan would not result in an increase in overall per capita energy consumption or otherwise use energy in an inefficient, wasteful, or unnecessary manner in 2020. Additionally, the proposed Plan would result in a decrease of total energy use, fossil fuel energy consumption would decrease, and renewable energy consumption would increase. Because the proposed Plan does not make an incremental contribution to cumulative energy impacts, the proposed Plan would not result in cumulatively considerable impacts related to per capita energy consumption and reliance on fossil fuels and renewable energy in 2020.

New or expanded facilities for generation, transmission, storage, and distribution of electricity, natural gas, diesel and alternative transportation fuels would be needed to meet the increased demand associated with the proposed Plan, and this would be significant in 2020. Combined with impacts from projected growth and development located throughout the region causing increased demand for electricity, natural gas, and diesel, the proposed Plan's incremental contribution to impacts resulting from the construction of new or expanded energy facilities would be cumulatively considerable in 2020.

### **2035**

Similar to 2020, the proposed Plan would not result in an increase in overall per capita energy consumption or otherwise use energy in an inefficient, wasteful, or unnecessary manner in 2035 and total energy use would decrease, fossil fuel energy consumption would decrease, and renewable energy consumption would increase. Because the proposed Plan does not make an incremental contribution to cumulative energy impacts, the proposed Plan would not result in cumulatively considerable impacts related to per capita energy consumption and reliance on fossil fuels and renewable energy in 2035.

New or expanded facilities for generation, transmission, storage, and distribution of electricity, natural gas, diesel and alternative transportation fuels would be needed to meet the increased demand associated with the proposed Plan, and this would be significant in 2035. Combined with impacts from projected growth and development located throughout the region causing increased demand for electricity, natural gas, and diesel, the proposed Plan's incremental contribution to impacts resulting from the construction of new or expanded energy facilities would be cumulatively considerable in 2035.

### **2050**

Similar to 2020 and 2035, the proposed Plan would not result in an increase in overall per capita energy consumption or otherwise use energy in an inefficient, wasteful, or unnecessary manner in 2050 and total energy use would decrease, fossil fuel energy consumption would decrease, and renewable energy consumption would increase. For this reason, rather than add to cumulative increases energy consumption or increased reliance on fossil fuels that would be ongoing throughout the region, the proposed Plan would improve energy efficiencies and savings. Because the proposed Plan does not make an incremental contribution to cumulative energy impacts, the proposed Plan would not result in cumulatively considerable impacts related to per capita energy consumption and reliance on fossil fuels and renewable energy in 2050.

New or expanded facilities for generation, transmission, storage, and distribution of electricity, natural gas, diesel and alternative transportation fuels would be needed to meet the increased demand associated with the proposed Plan, and this would be significant in 2050. Combined with impacts from projected growth and development located throughout the region causing increased demand for electricity, natural gas, and diesel, the proposed Plan's incremental contribution to impacts resulting from the construction of new or expanded energy facilities would be cumulatively considerable in 2050.

### **Mitigation Measures**

Mitigation Measure EN-3A calls for the implementation of mitigation necessary to avoid or reduce environmental impacts associated with the construction of new or expansion of existing natural gas, electricity, and transportation fuel facilities.

Mitigation Measure EN-3B calls for the development of electricity and natural gas demand calculations for projects that require substantial energy consumption and implementation of design and mitigation measures that reduce energy consumption and promote the use of on-site renewable energy. While these mitigation measures would reduce impacts associated with the construction of natural gas and electricity facilities, SANDAG cannot guarantee implementation of these mitigation measures; therefore, it cannot be ensured that these measures would be implemented in all cases.

The SCAG 2012-2035 RTP/SCS EIR also provides mitigation measures to reduce energy consumption and promote energy efficiency and renewable energy generation. However, these measures would not reduce the significant energy impacts identified in the EIR. Thus, the proposed Plan incremental contribution to impacts resulting from the need for construction or expansion of energy facilities in 2020, 2035, and 2050 would remain cumulatively considerable post-mitigation.

### **5.2.7 GEOLOGY, SOILS, AND MINERAL RESOURCES**

The area of geographic consideration for cumulative impacts is the southern California and northern Baja region. While some geology and soil features can be very distinct to certain locations, geologic features can also have broad reaching elements, such as faults and underlying bedrock formations. Geology, soils, and mineral resources are not confined by jurisdictional boundaries. Thus, it is necessary to consider geologic resources, soils, and availability of mineral resources in southern California and northern Baja as a whole region.

A projection approach for cumulative analysis of geologic, soils, and mineral resources allows for an overview discussion of regional and cross-border risks of seismic and geologic hazards, soil erosion or loss, and loss of availability of mineral resources associated with general patterns of regional urbanization, growth, and land use changes. The cumulative impact is the combination of the impacts of the proposed Plan and impacts to geology, soils, and mineral resources resulting from implementation of approved regional planning documents. Significant cumulative impacts would occur if there were cumulative risks of exposure of people or structures to substantial seismic or geologic hazards, development on unstable geologic units, soil loss or erosion, or loss of availability of valuable mineral resources or recovery sites in southern California and northern Baja. (Impacts related to development in areas with unsuitable soils for septic tanks or alternative wastewater disposal systems are localized in nature, and thus are not considered further in this cumulative impact analysis.)

This cumulative impact assessment considers and relies on the impact analysis within this EIR for the proposed Plan, SCAG 2012-2035 RTP/SCS EIR (SCAG 2012a) for the southern California region, the County of San Diego General Plan Update EIR (County of San Diego 2011), and the California-Baja California Border Master Plan (Caltrans 2008). There are generally no regional plans pertaining to such resources for the northern Baja California region.

#### **Impacts of the Proposed Plan**

Regional growth and land use change and the transportation network improvements included as part of the proposed Project would expose additional people and structures to seismic hazards such as strong seismic ground shaking, fault rupture, liquefaction, earthquake-induced landslides as some development would occur in hazard areas within the in San Diego region.

Future land development and transportation network improvements also would place structures at risk to impacts caused by unstable soils, including expansive, collapsible, or unstable soils; landslides; and erosion or loss of topsoil. Some regional growth and land use change would occur on expansive or unstable soils incapable of supporting the use of septic tanks or alternative waste water disposal systems. Existing regulations discussed in Section 4.7 would ensure that these impacts would not be significant in 2020, 2035, and 2050.

Compliance with regulatory requirements and implementation of required design measures would ensure that regional growth and land use change as well as transportation network improvements and programs associated with the proposed Plan would not cause substantial soil erosion or the loss of topsoil and the impact would be less than significant in 2020, 2035, and 2050.

Regional growth and land use changes and transportation network improvements associated with the proposed Plan would cause loss of availability of known mineral resources, as land development and transportation network improvements would encroach into MRZs and other locally important resource recovery sites; mineral resources impacts would be significant for 2020, 2035, and 2050.

### **Impact Projections in Adopted Plans**

The EIR prepared for the SCAG 2012-2035 EIR/SCS RTP analyzed impacts to the SCAG region up to 2035 and identified significant and unavoidable impacts related to implementation of that plan due to exposure of people and structures to geologic hazards, substantial topsoil loss and slope failure, unstable soil conditions, and the loss of availability of known mineral resources. The EIR also found that the 2012-2035 SCAG RTP/SCS would contribute to a cumulatively considerable increase in risk associated with geologic hazards and impacts to mineral resources (SCAG 2012a). The EIR prepared for the County of San Diego General Plan Update found that implementation of the updated General Plan would not result in potentially significant direct or cumulative impacts associated with the exposure to seismic-related hazards, soil erosion or topsoil loss, soil stability, expansive soils, waste water disposal systems, and unique geologic features (County of San Diego 2011).

Adopted land use plans for local jurisdictions in southern California and northern Baja would support the construction of new development and redevelopment through policy changes, general plan updates, and zoning amendments that encourage and facilitate population growth and land use changes. Due to the seismically active nature of the southern California and northern Baja region, these development projects would subject additional people and structures to ground shaking, fault rupture, liquefaction, and earthquake-induced landslides. Projects would also be susceptible to impacts caused by unstable soils, including expansive, collapsible, or unstable soils; and landsliding. The severity of these impacts would be determined by geographic location, soil type, and construction requirements such as grading and excavation. Development associated with the implementation of regional planning documents in California would be required to adhere to the design standards described in the CBC and the UBC, which regulate the design and construction of buildings and structures and effectively reduce the effects of seismic activity and geologic hazards at the project level, as described in Section 4.7. Development associated with the implementation of regional planning documents would in some cases also impact availability of known mineral resources, as development would likely occur in some locations within MRZs or resource recovery sites.

## Cumulative Impacts and Impact Conclusions

### 2020

A significant cumulative impact in the year 2020 would result if the combination of impacts of the proposed plan and impact projections from adopted plans within the southern California and northern Baja region were significant when considered together, even if not independently significant. As described above, implementation of the regional growth and land changes and transportation network improvements associated with the proposed Plan would expose additional people and structures to seismic hazards such as ground shaking, fault rupture, liquefaction, and earthquake-induced landslides as development occurs in hazard areas within the San Diego region. Future development would also place structures at risk to impacts caused by unstable soils, including expansive, collapsible, or unstable soils; landsliding; and erosion or loss of topsoil. Some development would occur in areas with soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems. Whether from the proposed Plan or from development associated with other approved plans, such as the SCAG 2012-2035 RTP, impacts would generally be confined to a specific project area, rather than result in an aggregated cumulative effect over the southern California and northern Baja California region. All California development and infrastructure projects would be required to adhere to the design standards described in the CBC and the UBC, which regulate the design and construction of buildings and structures and substantially reduce the effects of seismic activity and other geologic hazards at the project level, as described in Section 4.7. Therefore, the proposed Plan would not result in cumulatively considerable impacts related to geologic and seismic hazards or unstable soils.

The proposed Plan would significantly impact loss of availability of known mineral resources due to development in locations within MRZs or resource recovery sites. Combined with loss of availability of mineral resources from implementation of adopted regional planning documents, impacts from the proposed Plan would also result in significant cumulative impacts to availability of known mineral resources.

Because cumulative mineral resources impacts throughout the southern California and northern Baja region by 2020 would be significant, and because the proposed Plan's incremental impacts to these resources are significant, the proposed Plan's incremental impacts to mineral resources are cumulatively considerable.

### 2035

Transportation and development projects associated with the proposed Plan and other development in southern California and northern Baja would expose additional people and structures to geologic and seismic hazards such as ground shaking, fault rupture, liquefaction, and earthquake-induced landslides, and would also place structures at risk to impacts caused by unstable soils, including expansive, collapsible, or unstable soils, and landsliding. Some development would occur in areas with soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems. All California development and infrastructure projects would be required to adhere to the design standards described in the CBC and the UBC, which regulate the design and construction of buildings and structures and substantially reduce the effects of seismic activity and other geologic hazards at the project level, as described in Section 4.7. Therefore, the proposed Plan would not result in cumulatively considerable impacts related to geologic and seismic hazards or unstable soils.

The proposed Plan would also significantly impact loss of availability of known mineral resources due to development in locations within MRZs or resource recovery sites. Combined with loss of availability of mineral resources from implementation of adopted regional planning documents, impacts from the proposed Plan would also result in significant cumulative impacts to availability of known mineral resources in 2035.

Because cumulative mineral resources impacts throughout the southern California and northern Baja region by 2035 would be significant, and because the proposed Plan's incremental impacts to these resources are significant, the proposed Plan's incremental impacts to mineral resources are cumulatively considerable.

## **2050**

Transportation and development projects associated with the proposed Plan and other development in southern California and northern Baja would expose additional people and structures to geologic and seismic hazards such as ground shaking, fault rupture, liquefaction, and earthquake-induced landslides, and would also place structures at risk to impacts caused by unstable soils, including expansive, collapsible, or unstable soils, and landsliding. Some development would occur in areas with soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems. Although the 2050 time period is beyond implementation of the planning horizons of regional planning documents other than the proposed Plan, such as the adopted 2012-2035 SCAG RTP and most adopted land use plans, this analysis would apply to future projects in the southern California and northern Baja region. All California development and infrastructure projects would be required to adhere to the design standards described in the CBC and the UBC, which regulate the design and construction buildings and structures and substantially reduce the effects of seismic activity and other geologic hazards at the project level, as described in Section 4.7. Therefore, the proposed Plan would not result in cumulatively considerable impacts related to geologic and seismic hazards or unstable soils.

The proposed Plan would also significantly impact loss of availability of known mineral resources due to development in locations within MRZs or resource recovery sites. Combined with loss of availability of mineral resources from implementation of adopted regional planning documents, impacts from the proposed Plan would also result in significant cumulative impacts to availability of known mineral resources in 2050.

Because cumulative mineral resource impacts throughout the southern California and northern Baja region by 2050 would be significant, and because the proposed Plan's incremental impacts to these resources are significant, the proposed Plan's incremental impacts to mineral resources are cumulatively considerable.

## **Mitigation Measures**

Mitigation Measure MR-1A would conserve aggregate and mineral resources through avoidance of aggregate and mineral resources, or incorporation of appropriate design features to reduce impacts to resources when avoidance is not feasible. However, as outlined in Section 4.7, this mitigation measure would not guarantee that all proposed Plan impacts to availability of known mineral resources would be less than significant. Therefore, the proposed Plan incremental contributions to cumulative impacts to availability of known mineral resources in years 2020, 2035, and 2050 would remain cumulatively considerable post-mitigation.

## 5.2.8 GREENHOUSE GAS EMISSIONS

The area of geographic consideration for cumulative impacts of GHG emissions is global. Climate change is a global problem and GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Impacts of GHGs are also borne globally. Atmospheric concentrations of GHGs have been increasing since measurements began in the 1970s. As of 2014, the globally averaged annual mean concentration of atmospheric CO<sub>2</sub> is approximately 397 parts per million (ppm), CH<sub>4</sub> is approximately 1840 parts per billion (ppb), and N<sub>2</sub>O is approximately 327 ppb (NOAA 2015).

The projection approach to GHG considers both forecasted GHG emissions on a global scale as well as local-level analysis of GHGs as transportation is the largest contributor to these emissions in the SANDAG region and consideration of the effects resulting from overall transportation network improvements, increases in population, and planned regional development is necessary.

From the standpoint of CEQA, GHG impacts to climate change are inherently cumulative. Significant cumulative impacts would occur if the proposed Plan were to directly or indirectly result in an increase in GHG emissions compared to existing conditions; conflict with AB 32, SANDAG Climate Action Strategy, Local Climate Action Plans, or SB 375 GHG emission reduction targets; or be inconsistent with the State's ability to achieve the Executive Order B-30-15 and S-3-05 targets of reducing California's GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

This cumulative impact assessment considers and relies on the impact analysis within this EIR for the proposed Plan, Climate Change 2014 Synthesis Report published by the United Nation's Intergovernmental Panel on Climate Change (IPCC 2014), World Resources Institute Total GHG Emissions by Country (WRI 2014), and the California Air Resources Board 2014 Scoping Plan Update (ARB 2014).

### Impacts of the Proposed Plan

The proposed Plan's regional growth and land use change and transportation network improvements would create additional sources of GHG emissions. The proposed Plan supports sustainable growth through creating a compact development pattern with growth focused in existing urban areas where transit and infrastructure are already in place. Locating people and jobs near each other and near transit encourages use of transit, carpooling, and active transportation options, thereby reducing transportation-related GHG emissions. Also, the proposed Plan encourages GHG emissions reductions through alternative transit improvements including pedestrian network improvements, safe routes to schools strategies, bicycle network facilities, vanpools, carpools, and buspools. GHG emissions in 2020, 2035, and 2050 would be lower than in 2012. Because the proposed Plan would not directly or indirectly result in an increase in GHG emissions compared to existing conditions, this is a less than significant impact in all forecasted years.

The proposed Plan would not conflict with AB 32, the SANDAG Climate Action Strategy, local Climate Action Plans, or SB 375 targets in 2020, 2035, or 2050 and the impact would be less than significant in all years. However, because the total emissions in the San Diego region in 2035 and 2050 would exceed the 2035 and 2050 regional GHG reduction reference points based on EO-B-30-15 and EO-S-3-05, the proposed Plan's GHG emissions would be inconsistent with state's ability to achieve the Executive Orders' GHG reduction goals. Therefore, this impact would be significant in 2035 and 2050.

## Impact Projections in Adopted Plans

As stated in the Climate Change 2014 Synthesis Report published by the United Nation's Intergovernmental Panel on Climate Change (IPCC), human influence on the climate system is clear, and recent anthropogenic emissions of GHGs are the highest in history. Recent climate changes have had widespread impacts on human and natural systems and that cumulative emissions of CO<sub>2</sub> will largely determine global mean surface warming by the late 21st century and beyond. The World Resources Institute estimated that worldwide emissions in 2011 were 43.8 billion metric tons (MT) CO<sub>2</sub>e, of which the United States contributed the greatest percentage after China (WRI 2014).

Projections of GHG emissions vary over a wide range, depending on both socioeconomic development and climate policy. The IPCC report states that substantial emissions reductions over the next few decades can reduce climate risks in the 21st century and beyond, increase prospects for effective adaptation, reduce the costs and challenges of mitigation in the longer term, and contribute to climate-resilient pathways for sustainable development; however, implementing such reductions poses substantial technological, economic, social, and institutional challenges, which increase with delays in additional mitigation and if key technologies are not available. Effective adaptation and mitigation responses will depend on policies and measures across multiple scales: international, regional, national, and sub-national and the IPCC report lists the following two forums as global opportunities for climate change actions:

- The United Nations Framework Convention on Climate Change (UNFCCC) is a major multilateral forum focused on addressing climate change, with nearly universal participation.
- The Kyoto Protocol offers lessons toward achieving the ultimate objective of the UNFCCC, particularly with respect to participation, implementation, flexibility mechanisms, and environmental effectiveness (IPCC 2014).

Scaling back from a global overview, Section 4.8 outlines a large number of federal, state, and local laws, regulations, and policies that are aimed at reducing GHG emissions through a variety of means. On the federal level, GHG reduction is mandated through energy policies, the CAFE program, CAA, and a series of executive orders.

In 2012, California accounted for approximately 7 percent of U.S. emissions with a total of 458.68 MMT CO<sub>2</sub>e. The State of California has a considerable policy and regulation regimen related to GHG reduction, including AB 32 and associated Climate Change Scoping Plan. The 2014 Scoping Plan Update indicates that California is on pace to meet the 2020 statewide limit. It also presents priorities and recommendations for achieving the state's longer-term GHG emission reduction objectives, but does not include a specific plan that demonstrates that the state would meet the 2030 and 2050 Executive Order-based targets (ARB 2014). The state has various other plans and policies addressing specific GHG sources including transportation, energy use and generation, land use, and industrial sources. Locally, GHG emissions projections and reduction are addressed in various plans and policies, including local jurisdictions' individual Climate Action Plans.

## Cumulative Impacts and Impact Conclusions

### 2020

A significant cumulative impact in the year 2020 would result if the combined impacts of the proposed Plan and impact projections from adopted plans were significant when considered together, even if not independently significant. ~~GHG emissions and impacts to global climate change are inherently cumulative as the quantity of GHGs that it takes to ultimately result in climate change is not precisely known; however, a single project would be unlikely to measurably contribute to a noticeable incremental change in the global average temperature.~~ As described above, a wide variety of plans and regulations at all levels of government, including global, federal, state, and local, provide for regulation and reduction of GHG emissions. For example, the 2014 Scoping Plan Update indicates that California is on pace to meet the 2020 statewide emission reduction goals as required by AB 32. However, there is uncertainty about the ability of the nation and world to meet GHG reduction goals. Many of the proposed strategies and mitigation proposed in GHG reduction plans and policies are based on new and developing technology and can be highly dependent upon the global economy and other influencing factors.

As discussed in Section 4.8, implementation of the proposed Plan would decrease GHG emissions in 2020 from 2012 levels. Moreover, total GHG emissions for the region in 2020 would be less than the region's 1990 emissions level; therefore, the proposed Plan would not conflict with an AB 32-based regional reference point. The proposed Plan would not conflict with the SANDAG Climate Action Strategy or local climate action plans. SB 375 GHG emissions reductions of ~~15~~<sup>18</sup> percent by 2020 under the proposed Plan would exceed the ARB target of a 7 percent reduction by 2020. However, uncertainty about the ability for GHG emissions to be reduced by national and international efforts means that global GHG emissions may not be reduced to 2012 levels or below 1990 levels by 2020. But because the proposed Plan's GHG emissions decrease between 2012 and 2020, and would not conflict with AB 32, there is no significant GHG cumulative impact in 2020.

### 2035

As discussed in Section 4.8, implementation of the proposed Plan in 2035 would decrease GHG emissions from 2012 levels. Moreover, SB 375 GHG emissions reductions of ~~21~~<sup>24</sup> percent by 2035 would exceed the ARB target of a 13 percent reduction by 2035. The proposed Plan would not conflict with the SANDAG Climate Action Strategy or local climate action plans. However, because total emissions in the San Diego region in 2035 exceed the regional 2035 GHG reduction reference point based on EO-B-30-15 and EO-S-3-05, the proposed Plan's 2035 GHG emissions would be inconsistent with state's ability to achieve the Executive Orders' GHG reduction goals. This would be a significant impact. Also, uncertainty about the ability for GHG emissions to be reduced by national and international efforts means that global GHG emissions may not be reduced on a trajectory consistent with the EO-B-30-15 and EO-S-3-05 goals.

Because cumulative GHG impacts on a global basis would be significant, and because the proposed Plan's incremental GHG impacts are significant, the proposed Plan's incremental GHG impacts in 2035 would also be cumulatively considerable.

## 2050

As discussed in Section 4.8, implementation of the proposed Plan in 2050 would decrease GHG emissions from 2012 levels. Also, the proposed Plan would not conflict with the SANDAG Climate Action Strategy or local climate action plans. However, because total emissions in the San Diego region in 2050 exceed the regional 2050 GHG reduction reference point based on EO-S-3-05 (80% below 1990 levels), the proposed Plan's 2050 GHG emissions would be inconsistent with state's ability to achieve the Executive Order GHG reduction goal. This would be a significant impact. Also, uncertainty about the ability for GHG emissions to be reduced by national and international efforts means that global GHG emissions may not be reduced on a trajectory consistent with the EO-S-3-05 goal.

Because cumulative GHG impacts on a global basis would be significant, and because the proposed Plan's incremental GHG impacts are significant, the proposed Plan's incremental GHG impacts in 2050 would also be cumulatively considerable.

### Mitigation Measures

Implementation of Mitigation Measures GHG-4A through GHG-4H would reduce direct and indirect GHG emission associated with the proposed Plan. These mitigation measures include actions such as competitive grant funding for GHG-reducing projects, a regional mobility hub strategy, funding electric vehicle-charging infrastructure, adoption of a transportation fuels plan to reduce GHG emissions, assisting local governments in preparing Climate Action Plans, and measures to reduce GHG emissions from transportation and development projects. Additional mitigation measures that would reduce GHG emissions are presented in the air quality, energy, and water supply sections.

While SANDAG has the authority to implement the mitigation measures it has committed to, it has no legal authority to require other transportation project sponsors or local jurisdictions to implement mitigation measures for specific projects for which they have responsibility and jurisdiction. Based on the studies described in Section 4.8 in the introduction to the mitigation section, even full implementation of all identified mitigation measures would not be sufficient to reduce the proposed Plan's GHG emissions below the regional 2035 and 2050 GHG reduction reference points based on EO-B-30-15 and EO-S-3-05. Full implementation of many of the measures that could result in a 40% reduction of GHG emissions by 2030 and an 80% reduction of GHG emissions by 2050 in the San Diego region would require major changes in clean technologies utilization, markets, and state and federal policies and regulations. Mitigation measures GHG-4A through GHG-4H would help reduce regional GHG emissions through reducing VMT, increasing use of alternative fuels, and other measures; they would reduce inconsistency of the proposed Plan's GHG emissions with the state's ability to achieve the EO B - 30-15 and EO-S-3-05 GHG reduction goals. However, full implementation of changes required to achieve the Executive Orders' goals is beyond SANDAG's or local agencies' current ability to implement. Because the proposed Plan's 2035 and 2050 GHG emissions would remain inconsistent with state's current ability to achieve the Executive Orders' GHG reduction goals, this impact (Impact GHG-4) remains cumulatively considerable post-mitigation.

### 5.2.9 HAZARDS AND HAZARDOUS MATERIALS

Generally, the geographic scope of cumulative impact analysis for hazardous materials includes the area immediately surrounding the affected hazardous materials location as the potential risk is limited to the area immediately surrounding the affected hazardous material site or risk generator. However, other topics associated with hazards such as transportation of hazardous materials, wildfire, and flooding can occur at large regional-scales and as a result of growth, population increase, or land use change. Thus, consideration of the southern California and northern Baja California region is appropriate.

The projection approach is used for the cumulative analysis of hazards and hazardous materials to allow for an overview discussion of regional and cross-border hazards, associated with general patterns of regional urbanization, growth, and land use changes. The consideration of regional development patterns and changes provides for the ability to assess potential increases to regional hazards such as wildland fires, flooding, and regional transportation of hazardous materials. The cumulative impact is the combination of the impacts of the proposed Plan and impacts to or from hazards and hazardous materials resulting from implementation of approved regional planning documents. Significant cumulative impacts would occur if there were cumulative significant risks of hazardous material emissions, exposure of the public to hazardous materials, air traffic hazards, impediment of emergency response or evacuation, or exposure to a significant loss, injury or death involving wildland fires.

This cumulative impact assessment considers and relies on the impact analysis within this EIR for the proposed Plan and the SCAG 2012-2035 RTP/SCS EIR (SCAG 2012a). Other plans with applicable information, but no associated environmental analysis include: San Diego County Multi-Jurisdictional Hazard Mitigation Plan (County of San Diego 2010); State of California Emergency Plan (California Emergency Management Agency 2009); and California-Baja California Border Master Plan (Caltrans 2008).

#### Impacts of the Proposed Plan

Regional growth and land use change and the transportation network improvements included in the proposed Plan would increase the risk of significant hazards to the public and/or the environment through the routine transport, use, or disposal of hazardous materials, and the hazardous emissions generated and hazardous emissions handled during pre-construction, demolition, and construction activities. Future development and transportation network improvements would also occur near public airports and private airstrips, exposing people to aircraft and airport-related safety hazards. Additionally, increased development and transportation network improvements would in some locations cause obstruction for emergency response vehicles or result in activities that would cause physical interference in the implementation of an emergency response and evacuation plans or interfere with adequate emergency access. However, adherence to the existing regulations discussed in Section 4.9 would ensure that these impacts would be less than significant in 2020, 2035, and 2050.

Existing regulations, however, would not fully assure impacts related to wildland fires would be less than significant. Given the relatively large amount of area within the San Diego region at high risk for wildland fires, growth and development would expose additional people and structures to a significant risk of loss, injury, or death involving wildland fires as development would occur in closer proximity to WUI and Fire Hazard Severity zones. Furthermore, the frequency and intensity of wildland fires is predicted to increase over time due to climate change. Therefore, impacts related to wildland fire hazards would be significant in years 2020, 2035, and 2050.

### Impact Projections in Adopted Plans

The SCAG 2012-2035 RTP/SCS EIR found that the increased mobility accommodated by the transportation investments of the SCAG 2012-2035 RTP/SCS would result in not only increased hazardous materials transport through the SCAG region but also outside the area to result in cumulative impacts throughout southern California. As the population increases through 2035, the number of trips in the SCAG region that originate, end, or pass through Santa Barbara, San Diego, and Kern counties as well as other counties and states would increase, including trips involving the transportation of hazardous materials. Thus, the 2012-2035 RTP/SCS would contribute to significant hazardous material transportation impacts in these other areas. The EIR also identified the potential for the plan to result in exposure to wildfires hazards as new or expanded infrastructure is constructed within areas susceptible to these threats (SCAG 2012a).

The County of San Diego and various jurisdictions throughout the county have prepared the San Diego County Multi-Jurisdictional Hazard Mitigation Plan, which provides a risk assessment and identification of hazards prevalent within the region. The plan also outlined mitigation strategies and provided an explanation of how jurisdictions intend to incorporate the mitigation strategies into existing planning mechanisms such as the County Comprehensive Land Use Plan, Capital Improvement Plans, and Building Codes. While there is no accompanying environmental analysis for the San Diego County Multi-Jurisdictional Hazard Mitigation Plan, the plan identified that wildfire is one of the most prevalent hazards related to development trends due to expansion of the urban/wildland interface by new development throughout the county, especially in east and south county (County of San Diego 2010).

The state-wide State of California Emergency Plan addresses the state's response to extraordinary emergency situations associated with natural disasters or human-caused emergencies and describes the methods for carrying out emergency operations, the process for rendering mutual aid, the emergency services of governmental agencies, how resources are mobilized, how the public will be informed and the process to ensure continuity of government during an emergency or disaster. While no environmental analysis accompanies the plan, the State Emergency Plan emphasizes mitigation programs to reduce the vulnerabilities to disaster and preparedness activities to ensure the capabilities and resources are available for an effective response (California Emergency Management Agency 2009).

The California-Baja California Border Master Plan is a binational comprehensive approach to coordinate planning and delivery of projects at land POEs and transportation infrastructure serving those POEs in the California-Baja California region (Caltrans 2008). The Master Plan does not have an associated environmental analysis document; however, it is reasonable to assume that projects included in the Master Plan could have adverse impacts related to hazards, including hazardous materials, airport safety hazards, interference with emergency and evacuation plans, and wildland fires. Construction of new facilities could add to impacts from the projects associated with both the SANDAG and SCAG RTP/SCSs as they add to the increased mobility and transportation access throughout the California-Baja California region.

## Cumulative Impacts and Impact Conclusions

### 2020

A significant cumulative impact in the year 2020 would result if the combined impacts of the proposed Plan and impact projections from adopted plans within the southern California and northern Baja region were significant when considered together, even if not independently significant. Future development associated with increased population growth forecasted in the proposed Plan would increase the number of people exposed to impacts related to hazardous materials, airport safety hazards, and interference with emergency response or emergency evacuation. Impacts associated with these hazards would generally be confined to a specific project area, rather than result in an incremental cumulative effect spread over the southern California and northern Baja region. Adherence to federal, state, and local regulations as described in Section 4.9 would reduce incremental impacts associated with exposure to hazards and hazardous materials in each of the affected project areas. Though projects located in Mexico would not be subject to such regulations, all development throughout the region within the U.S. would be fully regulated and therefore cumulative impacts associated with exposure to hazards and hazardous materials would be less than significant.

Future development and transportation network improvements forecasted in the proposed Plan would also occur near public airports and private airstrips, exposing people to aircraft and airport-related safety hazards. Related development infrastructure projects in the southern California and northern Baja region would result in changed land uses within the vicinity of a public airport or a private airstrip, and safety hazards for people residing or working in these project areas. However, cumulative projects in the U.S. would be subject to safety regulations as discussed in Section 4.9, such as ALUCPs, FAA standards, and the State Aeronautics Act, which minimize airport hazards. Therefore, cumulative impacts associated with exposing people to aircraft and airport-related safety hazards near both public airports and private airstrips/helipads would be less than significant.

Additionally, increased development and transportation network improvements in the proposed Plan would in some locations cause obstruction for emergency response vehicles or result in activities that would cause physical interference in the implementation of an emergency response and evacuation plans. Related growth, development, and infrastructure projects in the southern California and northern Baja region would also impair existing emergency and evacuation plans. However, cumulative projects in the U.S. would be required to adhere to the applicable emergency response and evacuation policies outlined in regulations discussed in Section 4.9. Therefore, cumulative impacts associated with the interference in the implementation of an emergency response and evacuation plans would be less than significant.

Some regional growth and land use change forecasted in the proposed Plan would occur within high risk fire areas as discussed in Chapter 4.9. In addition, regional growth forecasted in southern California and northern Baja would place people and property within areas susceptible to wildland fires, due to the widespread risk of wildland fire across the southern California and northern Baja California region. Furthermore, the frequency and severity of wildland fires are generally expected to increase in the future. Due to the forecasted growth in the region and the general susceptibility of the region to wildland fires, this would be a significant cumulative impact. Although regulations exist to reduce cumulative hazards associated with wildland fires, they would not reduce the cumulative impact to below a level of significance. Because the proposed Plan's incremental impacts on wildfire hazards would be significant, they would also be cumulatively considerable in 2020.

**2035**

The cumulative analysis presented above for the horizon year of 2020 would be applicable to year 2035. Therefore, less than significant cumulative impacts would be associated with significant hazards to the public and/or the environment through the routine transport, use, or disposal of hazardous materials; hazardous emissions emitted during construction activities; exposing people to aircraft and airport-related safety hazards near public airports and private airstrips; and the physical interference in the implementation of an emergency response and evacuation plan. However, by 2035, regional growth and land use change would expose additional people and structures to a significant risk of loss, injury, and death involving wildland fires. Furthermore, the frequency and severity of wildland fires are generally expected to increase in the future. Due to the forecasted growth in the region and the general susceptibility of the region to wildland fires, this is a significant cumulative impact.

As described in the 2020 analysis, although regulations exist to reduce cumulative hazards associated with wildland fires, they would not reduce the cumulative impact to below a level of significance. Because the proposed Plan's incremental impacts on wildfire hazards would be significant, they would also be cumulatively considerable in 2035.

**2050**

The cumulative analyses presented above for the horizon years of 2020 and 2035 would be applicable to year 2050. Therefore, there would be less than significant cumulative impacts associated with significant hazards to the public and/or the environment through the routine transport, use, or disposal of hazardous materials; accidental release of hazardous materials into the environment; hazardous emissions emitted during construction activities; exposing people to aircraft and airport-related safety hazards near public airports and private airstrips; and the physical interference in the implementation of an emergency response and evacuation plan. However, by 2050, regional growth and land use change would expose additional people and structures to a significant risk of loss, injury, and death involving wildland fires. Furthermore, the frequency and severity of wildland fires are generally expected to increase in the future. Due to the forecasted growth in the region and the general susceptibility of the region to wildland fires, this is a significant cumulative impact.

As described in the 2020 and 2035 analyses, although regulations exist to reduce cumulative hazards associated with wildland fires, they would not reduce the cumulative impact to below a level of significance. Because the proposed Plan incremental impacts on wildfire hazards would be significant, they would also be cumulatively considerable in 2050.

**Mitigation Measures**

Mitigation measures HAZ-5A and HAZ-5B to reduce wildland fire impacts due to implementation of the proposed Plan as identified in Section 4.9 also would be applicable to cumulative wildland fire impacts. Implementation of the proposed Plan would result in significant cumulative impacts associated with wildland fires in 2020, 2035, and 2050 as regional growth and land use change would occur in areas known to be at high risk for wildland fires. Mitigation Measure HAZ-5A calls for development projects located in known High Fire Hazard Areas to implement measures to preclude or substantially reduce impacts from wildfires; and HAZ-5B calls for adequate emergency response services and fire access roads. The SCAG 2012-2035 RTP/SCS EIR also proposed similar types of mitigation measures for wildland fire hazards and concluded that the impact would remain significant and unavoidable (SCAG 2012a) even with implementation of mitigation.

Because these measures would not reduce impacts to less than significant levels, the proposed Plan's incremental impacts associated with wildland fires remain significant and unavoidable. Therefore, the proposed Plan's incremental contributions to significant cumulative impacts related to wildland fires remain cumulatively considerable post-mitigation.

### **5.2.10 HYDROLOGY AND WATER QUALITY**

The area of geographic consideration for cumulative impacts to hydrology and water quality is the southern California and northern Baja region. The analysis of cumulative hydrology and water quality impacts considers how land use change and the transportation system would influence hydrology and water quality across the southern California and northern Baja region as a whole because the majority of water bodies within the San Diego area are part of hydrologic systems located in multiple jurisdictions. As a result, water pollution or alterations to a portion of a watershed produced by urban development in one jurisdiction can result in hydrology and water quality impacts that affect other jurisdictions or the entire region.

A projection approach for hydrology and water quality cumulative analysis allows for an overview discussion of regional and cross-border impacts throughout multiple watersheds relative to hydrology and water quality associated with general patterns of regional urbanization, growth, and land use changes. The cumulative impact is the combination of the impacts of the proposed Plan and impact projections in adopted regional documents addressing water quality or hydrology. Significant cumulative impacts related to hydrology and water quality would occur if there were a: substantial degradation of water quality in violation of any water quality standards or waste discharge requirements; substantial reduction in groundwater quantity or quality; substantial alteration of the existing drainage pattern of an area such that flood risk, erosion, or siltation would increase; exposure of people, structures, or facilities to a significant risk involving flooding; or exposure of people or structures to a significant risk of inundation by seiche, tsunami, or mudflow.

Some of the plans considered in the cumulative analysis include the Water Quality Control Plans for the five basins within the greater region: San Diego Basin, Colorado River Basin, Santa Ana Basin, Los Angeles Basin, and the Lahontan Basin. As discussed in Section 4.10, these basin plans set forth water quality objectives for constituents that could have a significant impact related to the beneficial uses of water. Additionally, the San Diego Integrated Regional Water Management (IRWM) Plan was considered (Regional Water Management Group 2013). While these documents do not have accompanying environmental analysis, they provide important overarching strategies, future planning considerations, and planned large projects related to water quality and hydrology throughout the region.

#### **Impacts of the Proposed Plan**

Compliance with existing regulatory requirements described in Section 4.10 would ensure that the regional growth and land use change and the transportation network improvements as well as transportation network improvements and programs would not result in: substantial degradation of water quality in violation of any water quality standards or waste discharge requirements; substantial reduction in groundwater quantity or quality; substantial alteration of the existing drainage pattern of an area such that flood risk, erosion, or siltation would increase; exposure of people, structures, or facilities to a significant risk involving flooding; or exposure of people or structures to a significant risk of inundation by seiche, tsunami, or mudflow. These impacts would be less than significant in 2020, 2035, and 2050.

## Impact Projections in Adopted Plans

The SCAG 2012-2035 RTP/SCS EIR identified the potential for degradation of local surface water quality due to increased roadway and urban runoff created by 2012-2035 RTP/SCS projects, potentially violating water quality standards associated with wastewater and storm water permits. The EIR also concluded that the 2012-2035 RTP/SCS would alter the existing drainage patterns in ways that would result in substantial erosion or siltation. Implementation was found to also reduce groundwater infiltration due to increased impervious surfaces and increase flooding hazards by locating projects on alluvial fans and within 100-year flood hazard areas. These water quality and hydrology impacts would be significant and unavoidable, even with the implementation of proposed mitigation (SCAG 2012a).

This 2013 IRWM Plan was prepared by the San Diego Regional Water Management Group which consists of the SDCWA, the City of San Diego, and the County of San. IRWM planning is a relatively new California initiative with regional plans designed to improve collaboration in water resources management and comprehensively address all aspects of water management and planning throughout an IRWM Region. IRWM plans cross jurisdictional, watershed, and political boundaries; involve multiple agencies, stakeholders, individuals, and groups; and attempt to address the issues and differing perspectives of all the entities involved through mutually beneficial solutions. Specific to water quality, the IRWM includes Objective H to effectively reduce sources of pollutants and environmental stressors to protect and enhance human health, safety, and the environment (Regional Water Management Group 2013).

Water Quality Control Plans or Basin Plans have been written by each RWQCB. These plans determine the beneficial uses of each water body within the basin and set forth narrative and numerical water quality objectives for constituents that could have a substantial impact related to those beneficial uses. They also describe implementation programs to protect the beneficial uses of all water in the region, and surveillance and monitoring activities to evaluate the effectiveness of the Basin Plan. For example, the San Diego Basin Plan includes multiple policies specific to the protection of water quality including Policy Three: Point sources and nonpoint sources of pollution shall be controlled to protect designated beneficial uses of water and Policy Four: Instream beneficial uses shall be maintained, and when practical, restored, and enhanced (CRWQCB 2011).

Adopted land use plans for local jurisdictions in southern California would support the construction of new development and redevelopment through policy changes, general plan updates, and zoning amendments that encourage and facilitate population growth and land use changes. These development projects would impact hydrology and water quality. The severity of these impacts would be determined by location of the projects within the watersheds, and the sensitivity of the receiving bodies and the types of BMPs employed. All U.S. projects would be required to adhere to all of the regulatory requirements described in Section 4.10. Projects associated with policy changes and amendments would also impact hydrology and water quality, for the same reasons as discussed with infrastructure projects.

Waste discharges into some receiving waters from northern Baja California would ultimately enter the Tijuana River and the Pacific Ocean where the waste would impact beaches in the southern part of the San Diego region. The Tijuana River is a 303(d) listed water body for various impairments. The Tijuana River Estuary, a National Estuarine Sanctuary, supports a variety of threatened and endangered plants and animals and is 303(d) listed for eutrophic conditions, indicator bacteria, lead, low dissolved oxygen, nickel, pesticides, thallium, trash, and turbidity (USEPA 2010). Discharges from northern Baja, which are not controlled by regional regulations, would impact these water bodies within the region.

## Cumulative Impacts and Impact Conclusions

### 2020

A significant cumulative impact in the year 2020 would result if the combined impacts of proposed Plan and impact projections from adopted plans within the southern California and northern Baja region were significant when considered together, even if not independently significant. As described above, federal, state, and local water quality requirements would ensure that implementation of the proposed Plan would not result in: substantial degradation of water quality in violation of any water quality standards or waste discharge requirements; substantial reduction in groundwater quantity or quality; substantial alteration of the existing drainage pattern of an area such that flood risk, erosion, or siltation would increase; exposure of people, structures, or facilities to a significant risk involving flooding; or exposure of people or structures to a significant risk of inundation by seiche, tsunami, or mudflow. Cumulative impacts to these resources would be less than significant due to federal and state regulatory requirements also applicable to development throughout the region for the protection, of water quality objectives to protect beneficial uses throughout southern California, and the effectiveness of regulations pertaining to water quality and hydrologic modifications. However, cumulative water quality impacts occur as polluted water from northern Baja California, which is not subject to federal and state regulatory requirements discharges into the Tijuana River and affects the quality of receiving waters throughout the region. While cumulative impacts exist due to unregulated polluted water that enters the region, the proposed Plan would not add to this cumulative water quality impact for the reasons outlined above, including adherence to federal and state regulatory requirements. Thus, the proposed Plan's contribution to the cumulative water quality impact would not be cumulatively considerable.

### 2035

As described above, federal, state, and local water quality requirements would ensure that implementation of the proposed Plan would not result in a substantial degradation of water quality in violation of any water quality standards or waste discharge requirements; substantial reduction in groundwater quantity or quality; substantial alteration of the existing drainage pattern of an area such that flood risk, erosion, or siltation would increase; exposure of people, structures, or facilities to a significant risk involving flooding; or exposure of people or structures to a significant risk of inundation by seiche, tsunami, or mudflow. Cumulative impacts to these resources from water sources originating in the United States would be less than significant due to federal and state regulatory requirements also applicable to development throughout the region for the protection of water quality objectives to protect beneficial uses throughout southern California, and the effectiveness of regulations pertaining to water quality and hydrologic modifications.

However, cumulative water quality impacts occur as polluted water from northern Baja California, which is not subject to federal and state regulatory requirements, discharges into the Tijuana River and affects receiving waters throughout the region. While cumulative impacts exist due to unregulated polluted water that enters the region, the proposed Plan would not add to this cumulative water quality impact for the reasons outlined above, including adherence to federal and state regulatory requirements. Thus, the proposed Plan's contribution to the cumulative water quality impact would not be cumulatively considerable.

**2050**

As described above, federal, state, and local water quality requirements would ensure that implementation of the proposed Plan would not result in a substantial degradation of water quality in violation of any water quality standards or waste discharge requirements; substantial reduction in groundwater quantity or quality; substantial alteration of the existing drainage pattern of an area such that flood risk, erosion, or siltation would increase; exposure of people, structures, or facilities to a significant risk involving flooding; or exposure of people or structures to a significant risk of inundation by seiche, tsunami, or mudflow. Cumulative impacts to these resources would be less than significant due to federal and state regulatory requirements also applicable to development throughout the region for the protection of water quality objectives to protect beneficial uses throughout southern California, and the effectiveness of regulations pertaining to water quality and hydrologic modifications.

However, cumulative water quality impacts occur as polluted water from northern Baja California, which is not subject to federal and state regulatory requirements, discharges into the Tijuana River and affects receiving waters throughout the region. While cumulative impacts exist due to unregulated polluted water that enters the region, the proposed Plan would not add to this cumulative water quality impact for the reasons outlined above, including adherence to federal and state regulatory requirements. Thus, the proposed Plan's contribution to the cumulative water quality impact would not be cumulatively considerable.

**Mitigation Measures**

No significant hydrology or water quality cumulative impacts would result from implementation of the proposed Plan; thus, mitigation measures are not required.

**5.2.11 LAND USE**

The geographic scope for the land use cumulative analysis is the southern California region. While land uses and development patterns are typically established in local land use planning documents specific to jurisdictions, it is important to consider land use change and how the transportation system would influence the development pattern across the southern California region as a whole because land uses merge and flow together along jurisdictional boundaries. A wide variety of land use patterns and development types can be found throughout the southern California region including urban and rural development, commercial and industrial developments, military installations, tribal reservations, agricultural land, parks and open space, and habitat conservation areas.

Use of the hybrid approach for the analysis of cumulative land use impacts allows for an overview discussion of regional land use capability, conflicts, or other land use impacts associated with general patterns of regional urbanization, growth, and land use changes. As shown in Table 5.0-1, the population throughout the southern California region is forecasted to steadily increase throughout 2050.

The cumulative impact is the combination of the land use impacts of the proposed Plan, land use impact projections in adopted plans, and impacts to land use resulting from substantial regional projects. Significant cumulative impacts related to land use would occur if established communities are physically divided, or if conflicts are created with land use plans adopted for the purpose of avoiding or mitigating an environmental effect.

This cumulative land use impact assessment considers the impact analysis presented in the SCAG 2012-2035 RTP/SCS and its EIR (SCAG 2012a). The SCAG 2012-2035 RTP/SCS and associated EIR generally encompass Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura counties. The San Diego County General Plan and its EIR (County of San Diego 2011) was used to consider land use effects within San Diego County. Additionally, multiple agencies and jurisdictions have land use control throughout the region, including local cities and counties, numerous military branches, tribal governments, state and federal agencies, port authorities, and airport authorities that outline their policies in various planning documents.

### **Impacts of the Proposed Plan**

The land use patterns outlined in the proposed Plan focus greater development intensity in existing urban centers. The pattern of more intensive land uses, along with the transit improvements planned to service higher intensity residential, commercial, and employment centers, is generally in character with the lifestyle and character typical of compact urban communities. Impacts of growth and land use change on physically dividing an established community would be less than significant. However, transportation network improvements and programs, such as new Trolley line extensions into previously unserved areas, would in some locations result in a physical division of an established community in 2035 and 2050.

Development patterns and growth forecasted to occur under the proposed Plan would be consistent with applicable land use plans. However, some transportation network improvements, such as Trolley line extensions into previously unserved areas, would in some locations conflict with land use portions of adopted general plans or other applicable land use plans, and would be significant in 2035 and 2050.

### **Impact Projections in Adopted Plans**

The SCAG 2012-2035 RTP/SCS EIR found that implementation of the 2012-2035 RTP/SCS would influence the pattern of urbanization in the region such that significant land use incompatibilities would occur, cause inconsistencies with currently applicable adopted local land use plans and policies, and disrupt or divide established communities. The EIR also identified the potential to change patterns of growth beyond the SCAG region and contribute to regionally significant land use impacts (SCAG 2012a).

The County of San Diego General Plan Update EIR identified a potentially significant cumulative impact associated with the physical division of an established community due to future roadway development under the proposed General Plan Update, including new roads, road extensions, and widening of existing roads throughout the County. The EIR found that the General Plan Update would not contribute to a significant cumulative impact associated with conflicts with local plans, policies, and regulations (County of San Diego 2011).

### **Cumulative Impacts and Impact Conclusions**

#### **2020**

A significant cumulative impact in the year 2020 would result if the combined impacts of the proposed Plan and impact projections from adopted plans within the southern California region were significant when considered together, even if not independently significant. As described above, implementation of the regional growth or transportation network improvements as considered in the proposed Plan would not result in the division of established communities or conflict with land use plans in 2020.

Significant and unavoidable land use impacts were identified in the SCAG 2012-2035 RTP/SCS EIR, while the County of San Diego General Plan Update EIR identified a potentially significant cumulative impact associated with the physical division of an established community. The combination of the direct and cumulative land use impacts from these adopted plans that would affect the southern California region would result in significant cumulative land use impacts regarding division of an established community and conflicts with the land use portion of plans and zoning adopted for the purpose of avoiding or mitigating an environmental effect by 2020. However, because the proposed Plan includes a land use pattern that would not divide established communities and also does not include transportation improvements with the potential to divide communities, implementation of the proposed Plan would not cause physical divisions within established communities or conflict with land use plans and thus, would not substantially contribute to a significant cumulative impact in 2020.

Though cumulative land use impacts throughout southern California by 2020 would be significant, the proposed Plan would not result in the division of established communities or conflict with land use plans in 2020, and the proposed Plan's incremental land use impacts are therefore not cumulatively considerable in 2020.

### **2035**

As described above, implementation of the transportation network improvements such as Trolley extensions into previously unserved areas in the proposed Plan would result in the division of established communities and conflict with land use portions of adopted general plans or other applicable land use plans in 2035. The combination of the direct land use impacts from the proposed Plan together with impacts of the adopted plans described above, including the SCAG 2012-2035 RTP/SCS and the County of San Diego General Plan Update would result in significant cumulative land use impacts regarding the division of an established community and conflict with the land use portion of plans adopted for the purpose of avoiding or mitigating an environmental effect by 2035.

Because cumulative land use impacts throughout the southern California region by 2035 would be significant, and because the proposed Plan's incremental land use impacts are significant, the proposed Plan's incremental land use impacts are also cumulatively considerable.

### **2050**

As described above, implementation of the transportation network improvements such as Trolley extensions into previously unserved areas in the proposed Plan would result in the division of established communities and conflict with land use portions of adopted general plans or other applicable land use plans in 2050. The 2050 time period is beyond the planning horizon of the adopted 2012-2035 SCAG RTP/SCS and the County General Plan Update does not specify a planning horizon date. However, with anticipated long-term growth and development throughout the region, it can be expected that similar land use impacts would continue throughout the planning area. The combination of the direct land use impacts from the proposed Plan together with impacts of the adopted plans described above, including the SCAG 2012-2035 RTP/SCS and the County of San Diego General Plan Update would result in significant cumulative land use impacts regarding the division of an established community and conflicts with the land use portion of plans adopted for the purpose of avoiding or mitigating an environmental effect by 2050.

Because cumulative land use impacts throughout the southern California region by 2050 would be significant, and because the proposed Plan's incremental land use impacts are significant, the proposed Plan's incremental land use impacts are also cumulatively considerable.

### **Mitigation Measures**

Mitigation measures LU-1A and LU-2A to reduce land use impacts due to transportation improvements as identified in Section 4.11 and POP-2A in Section 4.13 would be applicable to cumulative land use impacts.

Mitigation measure LU-1A calls for design of transportation network improvements to provide access and connections to and within established communities. Mitigation measure LU-2A calls for measures to reduce transportation network improvement conflicts with land use plans, including but not limited to, coordinating with the County of San Diego, cities, and other local jurisdictions early in the planning process to identify potential conflicts and address them through the facility planning and design process, and incorporating design features that would reduce such conflicts. POP-2A requires measures that reduce displacement, which would also reduce conflicts with land use portions of adopted general plans or other applicable land use plans.

The SCAG 2012-2035 RTP/SCS EIR provided a wide variety of mitigation measures to address land use conflicts and impacts; however, even with implementation of mitigation, the EIR concluded that land use impacts would remain significant and unavoidable (SCAG 2012a). The County of San Diego General Plan Update EIR required mitigation to reduce the potentially significant cumulative impact related to the division of a community to less than significant. Mitigation included coordination with adjacent cities and agencies regarding planning and transportation improvements, coordination with land owners, other departments and community groups, and maintenance plans and standards for infrastructure and roads so that community division does not occur. The cumulative impact was found to be less than significant after the application of mitigation (County of San Diego 2011).

As outlined in Section 4.11, mitigation measures would not guarantee reduction of all proposed Plan land use impacts to below a level of significance. Therefore, the proposed Plan incremental contributions to the cumulative land use impacts in years 2035 and 2050 would remain cumulatively considerable post-mitigation.

### **5.2.12 NOISE AND VIBRATION**

The geographic scope for the noise and vibration cumulative analysis is the southern California and northern Baja Mexico region. Transportation networks are a large contributor to environmental noise in the region. Development, growth, population increase, or land use change can cause an increase in ambient noise directly related to the type of development and the associated noise or vibration levels generated.

The projection approach is used for the cumulative analysis of noise and vibration to allow for an overview discussion of regional and cross-border noise or vibration generators associated with general patterns of regional urbanization, growth, and land use changes. There are a variety of typical major noise generators throughout the region, including many transportation facilities such as the regional roadway network, rail lines, and airports.

The changes and improvements to these types of noise-generating sources in association with projected growth and development patterns allow for consideration of cumulative noise impacts. It is important to consider land use change and how the transportation system would influence the ambient noise environment across the region as a whole because transportation networks are one of the largest contributors to environmental noise in the region.

Significant cumulative impacts related to noise would occur if there were exposure to or generation of: noise levels in excess of standards, substantial temporary or permanent increases in noise levels, excessive groundborne vibration or groundborne noise; or excessive aircraft noise.

This cumulative noise impact assessment considers the impact analysis presented in the SCAG 2012-2035 RTP/SCS and its EIR (SCAG 2012a); California-Baja California Border Master Plan (Caltrans 2008); and the 2008 San Diego International Airport, Airport Master Plan Environmental Impact Report (SDCRAA 2008).

### **Impacts of the Proposed Plan**

The analysis of the proposed Plan shows that regional growth and land use change associated with the proposed Plan would expose noise-sensitive receptors to noise levels in excess of applicable noise standards, and transportation network improvements associated with the proposed Plan would generate construction and operational noise levels that would expose noise-sensitive receptors (i.e., residences) to noise levels in excess of applicable noise standards. This exposure of persons to or generating noise levels exceeding applicable noise standards established by local jurisdictions and/or other agencies is considered a significant impact in 2020, 2035, and 2050.

Regional growth land use change and transportation network improvements under the proposed Plan in 2020, 2035, and 2050 would also result in conditions where construction of new development and transportation network improvements would temporarily substantially increase ambient noise levels during construction. While construction-related noise impacts would be short term and localized in nature, construction would result in a substantial increase in ambient noise level, which would be a significant impact in 2020, 2035, and 2050.

Under the proposed Plan, the intensity of land use development would be greater than existing development, which would expose noise-sensitive receptors in proximity to development to more or louder noise sources. This growth would also likely result in substantial permanent increases in ambient noise levels of 5 dBA over existing ambient conditions in proximity to receptors. Additionally, the increases in population, housing, and employment in the proposed Plan would result in substantial permanent increases in ambient noise levels through placing new residential, commercial, or industrial uses in proximity to noise sensitive receptors, and expansion of existing development or transportation corridors. The transportation network improvements in the proposed Plan would permanently increase ambient noise levels adjacent to transportation network improvements. Ambient noise level increases associated with transportation network improvements would primarily result from forecasted regional population growth and the increases in the number of trucks, buses, and trains operating forecasted under the proposed Plan, which generate greater noise per vehicle than automobiles (Caltrans 2013). These substantial permanent increases in ambient noise levels due to regional growth and land use change, and transportation network improvements are considered a significant noise impact in 2020, 2035, and 2050.

Implementation of regional growth and land use change, as well as transportation network improvements and programs, associated with the proposed Plan would also result in exposure of persons to or generation of excessive groundborne vibration and groundborne noise during certain construction activities, and vibration associated with increased train activity in 2020, 2035, and 2050.

The growth and land use changes of the proposed Plan would occur near public use or military airports, and private airstrips or helipads; however, existing aviation regulations, procedures, ALUCPs, and AICUZ studies would ensure compatibility with public use or military airports, and FAA and Caltrans regulations would ensure compatibility with private airstrips or helipads. The proposed transportation network improvements would not involve changes in operations at public use or military airports, and private airstrips or helipads; thus, proposed transportation network improvements would not expose future noise-sensitive land uses to excessive noise levels due to airport noise; therefore, the impact of exposing people to excessive aviation noise would be less than significant in 2020, 2035, and 2050.

### **Impact Projections in Adopted Plans**

The SCAG 2012-2035 RTP/SCS EIR found that construction activities associated with the proposed transportation projects and development projects in the 2012-2035 RTP/SCS would temporarily generate substantial noise and vibration levels above ambient background levels, sometimes for extended duration, and would result in a significant impact. Additionally, noise-sensitive land uses could be exposed to operational noise in excess of normally acceptable noise levels and/or could experience substantial increases in noise as a result of the operation of expanded or new transportation facilities or increased transportation activity. The EIR also found that the 2012-2035 RTP/SCS would contribute to cumulative ambient noise and vibration levels in areas outside the region as a result of the operation of expanded or new transportation facilities (i.e., increased traffic resulting from new infrastructure and use of new and existing transit and rail facilities) (SCAG 2012a).

The California-Baja California Border Master Plan is a binational comprehensive approach to coordinate planning and delivery of projects at land POEs and transportation infrastructure serving those POEs in the California-Baja California region. The Master Plan does not have an associated environmental analysis document; however, projects included in the Master Plan could have adverse noise impacts due to the expansion of existing, and development of new, transportation facilities that could generate noise and vibration in excess of the ambient condition.

The 2008 San Diego International Airport, Airport Master Plan EIR (SDCRAA 2008) was certified in May 2008 by the Airport Authority Board. The EIR considered potential aviation, surface transportation, construction, and cumulative noise impacts associated with the Airport Master Plan and its alternatives. The EIR found that no cumulative noise impact would occur in combination with aircraft and highway noise exposure levels. Construction and surface transportation noise changes due to the Airport Master Plan were found to be less than significant. The EIR also identified no substantial change in noise affecting sleep or affecting schools and found a less than significant impact in terms of cumulative aircraft-induced noise exposure due to the Airport Master Plan or its alternatives (SDCRAA 2008).

## Cumulative Impacts and Impact Conclusions

### 2020

A significant cumulative impact in the year 2020 would result if the combination of impacts of the proposed Plan, and impact projections from adopted plans were significant when considered together, even if not independently significant. As described above, implementation of the proposed Plan's transportation network improvements and future development would cause violations of noise standards or increases in ambient noise and result in substantial short-term and permanent increases in the existing noise environment at adjacent sensitive land uses in 2020. In addition, significant noise impacts have been identified in other regional environmental analysis documents, such as the SCAG 2012-2035 RTP/SCS EIR. The combination of the direct noise impacts from the proposed Plan and other adopted plans that would affect the San Diego and northern Baja region would therefore result in significant cumulative noise impacts, based on exposure to or generation of: noise levels in excess of standards, substantial temporary and permanent increases in noise levels, and excessive groundborne vibration and groundborne noise. Because cumulative noise impacts throughout the San Diego and northern Baja region by 2020 would be significant, and because the proposed Plan's incremental noise impacts are significant, the proposed Plan's incremental noise impacts are also cumulatively considerable.

As described above, implementation of the proposed Plan would not cause exposure to excessive aviation noise due to regional growth and land use change or transportation improvements and related noise impacts would be less than significant. Similarly, the 2008 San Diego International Airport, Airport Master Plan EIR identified no cumulative aircraft-induced noise exposure due to the Airport Master Plan (SDCRAA 2008). Because significant cumulative noise impacts associated with exposure of people to excessive noise levels from aircraft operations would not occur within the region, the proposed Plan's less than significant noise impacts associated with aircraft noise exposure are not cumulatively considerable.

### 2035

As described above, implementation of the proposed Plan's transportation network improvements and regional growth and land use change would cause violations of noise standards and result in substantial temporary and permanent increases in the existing noise environment at adjacent sensitive land uses in 2035. In addition, significant noise impacts were also identified in other regional environmental analysis documents, such as the SCAG 2012-2035 RTP/SCS EIR. The combination of the direct noise impacts from the proposed Plan and other adopted plans that would affect the San Diego and northern Baja region would result in significant cumulative noise impacts, based on exposure to or generation of: noise levels in excess of standards, substantial temporary and permanent increases in noise levels, and excessive groundborne vibration and groundborne noise. Because cumulative noise impacts throughout the San Diego and northern Baja region by 2035 would be significant, and because the proposed Plan's incremental noise impacts are significant, the proposed Plan's impacts are also cumulatively considerable.

As described for 2020, because significant cumulative noise impacts associated with exposure of people to excessive noise levels from aircraft operations would not occur within the region, the proposed Plan's less than significant noise impacts associated with aircraft noise exposure are not cumulatively considerable in 2035.

## **2050**

As described above, implementation of the proposed Plan's transportation network improvements and regional growth and land use change would cause violations of noise standards and result in substantial temporary and permanent increases in the existing noise environment at adjacent sensitive land uses in 2050. In addition, significant noise impacts were also identified in other regional environmental analysis documents, such as the SCAG 2012-2035 RTP/SCS EIR. The combination of the direct noise impacts from and the proposed Plan and other adopted plans that would affect the San Diego and northern Baja region would result in significant cumulative noise impacts, based on exposure to or generation of: noise levels in excess of standards, substantial temporary and permanent increases in noise levels, and excessive groundborne vibration or groundborne noise. Because cumulative noise impacts throughout the San Diego and northern Baja region by 2050 would be significant, and because the proposed Plan's incremental noise impacts are significant, the proposed Plan's incremental noise impacts are also cumulatively considerable.

As described for 2020, because significant cumulative noise impacts associated with exposure of people to excessive noise levels from aircraft operations would not occur within the region, the proposed Plan's less than significant noise impacts associated with aircraft noise exposure are not cumulatively considerable in 2050.

### **Mitigation Measures**

Mitigation Measure N-1A calls for construction noise reduction measures to meet local noise standards and reduce temporary noise levels during construction and Mitigation Measure N-1B calls for operational noise reduction measures to be implemented to meet local standards and reduce permanent noise levels during operations. As outlined in Section 4.12, mitigation measures would reduce noise impacts but would not guarantee reduction of all proposed Plan noise impacts to below a level of significance for all projects. Therefore, the proposed Plan's incremental contributions to cumulative noise impacts in years 2020, 2035, and 2050 would remain cumulatively considerable post-mitigation.

Mitigation Measure N-4A calls for groundborne vibration and groundborne noise reduction measures to be implemented during construction activities and Mitigation Measure N-4B requires groundborne vibration and groundborne noise-reducing measures for rail operations. As outlined in Section 4.12, mitigation measures would reduce significant increases in groundborne vibration and groundborne noise for some projects; however, it cannot be guaranteed that all future project-level impacts can be mitigated to a less than significant level. Therefore, the proposed Plan's incremental contributions to cumulative groundborne vibration and groundborne noise impacts in years 2020, 2035, and 2050 would remain cumulatively considerable post-mitigation.

### **5.2.13 POPULATION AND HOUSING**

The area of geographic consideration for cumulative impacts is the southern California and northern Baja region. Large-scale land use change and the effectiveness of the transportation system influence the regional development pattern that dictates the location, timing, and amount of resulting population and housing increases or decreases across the region as a whole. If growth is not accommodated in one specific area, it would likely be accommodated at another locale within the general area. Thus, the entire region needs to be considered when addressing population and housing.

A projection approach is used for the cumulative analysis of population and housing impacts as growth, land use change, and transportation network improvements across the region can substantially impact and modify population and housing by supporting and facilitating the addition or displacement of homes and population on a large scale. The cumulative impact is the combination of the impacts of the proposed Plan and impacts of population and housing impact projections identified in adopted plans. Significant cumulative impacts related to population and housing would occur if the proposed Plan and other planning documents would induce substantial increases in population or contribute to displacement of a substantial number of existing people or housing units which would necessitate the construction of replacement housing elsewhere.

This cumulative impact assessment considers and relies on the impact analysis within this EIR for the proposed Plan; SCAG 2012-2035 RTP/SCS EIR (SCAG 2012a); and the California-Baja California Border Master Plan (Caltrans 2008). Information on population forecasts and transportation network improvements was compiled from the documents listed in Section 5.1. Table 5.0-1 shows these population forecasts for 2020, 2035, and 2050. Information on planned residential development and land use changes in southern California is also available in adopted land use plans for individual cities and counties.

### **Impacts of the Proposed Plan**

Implementation of regional growth and land use change and planned transportation network improvements would induce substantial increases in population in 2020, 2035, and 2050. This is considered a significant impact. By 2020, 2035, and 2050, the proposed Plan's regional growth and land use change would displace a substantial number of residences and is considered a significant impact. A significant impact would also occur in 2035 and 2050 as a result of transportation network improvements such as Trolley extensions into previously unserved areas that would displace a substantial number of people and existing housing units.

### **Impact Projections in Adopted Plans**

According to the EIR prepared for the SCAG 2012-2035 RTP/SCS, the 2012-2035 RTP/SCS would facilitate population growth in some areas of the SCAG region. It also found that transportation network improvements would displace a substantial number of existing homes due to ROW acquisitions. The 2012-2035 RTP/SCS would influence the pattern of growth in the region through transportation investments and land use strategies that would contribute to a cumulatively considerable increase in population outside the region. These impacts were found significant and unavoidable (SCAG 2012a).

The California-Baja California Border Master Plan is a binational comprehensive approach to coordinate planning and delivery of projects at land POEs and transportation infrastructure serving those POEs in the California-Baja California region. The projects included in the Master Plan would support and facilitate current and projected cross-border travel demand and economic activity as populations on both sides of the border are forecasted to increase. Thus, the Master Plan would induce population growth and economic development.

Adopted land use plans for local jurisdictions in southern California and northern Baja would induce population growth through policy changes and zoning amendments that encourage and facilitate increased residential and employment growth. Some of this growth, particularly in currently built-out locations, would be driven by redevelopment in existing urban areas as communities increase their housing and commercial densities. For redevelopment to occur, existing housing and population would likely be displaced.

## **Cumulative Impacts and Impact Conclusions**

### **2020**

A cumulative impact in the year 2020 would result if the combined impacts of the proposed Plan and impact projections from adopted plans within the southern California and northern Baja region were significant when considered together, even if not independently significant. As described above, implementation of the regional growth and land use change as well as transportation network improvements associated with the proposed Plan would induce substantial population growth. Additionally, by 2020, regional growth and land use change would displace a substantial number of existing homes and population. In addition, population and housing impacts were also identified in the SCAG 2012-2035 RTP/SCS environmental analysis, and other land use plans would contribute to substantial population growth and/or displacement of homes or population. The combination of the direct population and housing impacts from the proposed Plan and these adopted plans would result in significant cumulative population and housing impacts in the southern California and northern Baja region by 2020.

Because cumulative population and housing impacts throughout the southern California and northern Baja region by 2020 would be significant, and because the proposed Plan's incremental impacts are significant, the proposed Plan's incremental population and housing impacts are also cumulatively considerable.

### **2035**

As discussed in the 2020 analysis, implementation of the regional growth and land change as well as transportation network improvements associated with the proposed Plan by 2035 would induce substantial population growth and displace a substantial number of existing homes and population. In addition, population and housing impacts were also identified in the SCAG 2012-2035 RTP/SCS environmental analysis, and other land use plans would contribute to substantial population growth and displacement of homes or population. The combination of the direct population and housing impacts from the proposed Plan and these adopted plans would result in significant cumulative population and housing impacts in the southern California and northern Baja region by 2035.

Because cumulative population and housing impacts throughout the southern California and northern Baja region by 2035 would be significant, and because the proposed Plan's incremental impacts are significant, the proposed Plan's incremental population and housing impacts are also cumulatively considerable.

### **2050**

As discussed in the 2020 and 2035 analyses, implementation of the regional growth and land change as well as transportation network improvements associated with the proposed Plan would induce substantial population growth and displace a substantial number of existing homes and population. While the analysis of the SCAG 2012-2035 RTP/SCS does not extend to 2050, regional population growth and associated impacts would continue through this timeframe.

Although currently adopted land use plans rarely extend to 2050, infrastructure improvement projects, policy changes, and zoning amendments that support residential and employment growth would induce population growth beyond their timeframes. Policy changes and zoning amendments that allow and encourage higher-density residential and employment uses would likely continue to displace existing homes and population. The combination of the direct population and housing impacts from the proposed Plan and these projects and adopted plans would result in significant cumulative population and housing impacts in the southern California and northern Baja region by 2050.

Because cumulative population and housing impacts throughout the southern California and northern Baja region by 2050 would be significant, and because the proposed Plan's incremental impacts are significant, the proposed Plan's incremental population and housing impacts are also cumulatively considerable.

### **Mitigation Measures**

Mitigation regarding inducement of substantial population growth by the proposed Plan was found to be infeasible. As described in Section 4.13, SANDAG has no control over the amount of growth the region would experience during the implementation of the proposed Plan. For the same reasons, mitigation to reduce population growth in southern California and northern Baja would also be considered infeasible.

Section 4.13 of the proposed Plan includes Mitigation Measure POP-2A, which calls for project designs that reduce displacement. Even with implementation of mitigation, displacement impacts would be significant and unavoidable.

The SCAG 2012-2035 RTP/SCS EIR includes a similar mitigation measure as the proposed Plan to implement growth strategies and urban form design enhancing mobility and reducing land consumption. The SCAG 2012-2035 RTP/SCS EIR also includes measures to minimize displacement of homes and provide affordable housing (SCAG 2012a). These mitigation measures and design strategies would reduce impacts to the displacement of residences, but would not reduce impacts to less than significant levels. Displacement of homes and population from regional growth and land use changes would remain cumulatively considerable.

Therefore, the proposed Plan's incremental contributions to cumulative population and housing impacts in years 2020, 2035, and 2050 would remain cumulatively considerable post-mitigation.

### **5.2.14 PUBLIC SERVICES AND UTILITIES**

The area of geographic consideration for cumulative impacts to public services and utilities is southern California and northern Baja. Public services and utilities are common infrastructure throughout the region, and land use change and the transportation system would influence the location and demand for future development new or additional services and utilities across the region. The provision of public services and utilities can be linked to jurisdictions, but often service providers cover large areas spanning multiple jurisdictional boundaries. Also, while some recreational facilities are local and serve only a small neighborhood, other recreational facilities provide opportunities for the population throughout the region. Thus, it is necessary to consider the region as a whole and the overall amount of development that would generate additional pressure and demand on services, utilities, and recreation facilities.

The projection approach for the analysis of cumulative public services and utility impacts allows for an overview discussion of regional impacts associated with general patterns of regional urbanization, growth, and land use change that would create new or additional demand for services, utilities, and recreation facility use, or dictate where new or expanded infrastructure is located.

Growth, land use change, and transportation system improvements occurring throughout the southern California and northern Baja region would impact public services and utilities. Significant cumulative impacts related to public services and utilities would occur if the combination of impacts from the proposed Plan and impact projections in adopted plans would cause a substantial physical deterioration of public facilities or cause substantial adverse physical impacts associated with the provision of, or need for, new or physically altered public facilities to maintain adequate fire and police protection, schools, libraries, and recreation facilities; or result in the expansion or construction of wastewater treatment, storm water drainage, or solid waste disposal facilities to adequately meet projected capacity needs or comply with regulations, the construction of which would cause significant environmental impacts

The plans considered and relied on for this cumulative analysis include the SCAG 2012-2035 RTP/SCS and its EIR (SCAG 2012a). Additionally, public service or utility providers, including cities, counties, special districts, school districts, and utilities that operate in southern California and northern Baja region, have adopted long-term plans that forecast the demand for services and identify specific facilities projects required to meet projected demand and needs.

### **Impacts of the Proposed Plan**

Analysis in Section 4.14 of the proposed Plan describes how regional growth and land use change would increase demand for public services including fire and police protection, emergency services, schools, libraries, and recreational facilities. Section 4.14 also describes how the proposed Plan would increase demands on governmental facilities such as wastewater collection and treatment facilities, storm water drainage facilities, and solid waste facilities. This regional growth would require or result in the construction of new facilities or expansion of existing facilities, due to the higher levels of public service demand. This would result in short-term construction-related impacts, as well as operational impacts, to resources such as air quality, noise, and traffic. These impacts are typically reduced through actions of the implementing agency, including adherence to existing regulations and BMPs, but are considered significant because impact mitigation to less than significant levels for all projects cannot be guaranteed. Therefore, as described in Section 4.14, public service and utilities impacts due to the regional growth and land use change in the proposed Plan are significant in 2020, 2035, and 2050 (impacts related to construction or new or expanded solid waste facilities are less than significant in 2020).

Implementation of transportation network improvements and programs would require minor use of public services and utilities and would generally not cause substantial deterioration or the need for new facilities. However, transportation network improvements associated with the proposed Plan would contribute to substantial adverse physical impacts associated with the construction of new or expanded storm water facilities in 2020, 2035, and 2050 and also in substantial adverse physical impacts associated with the construction of new or expanded solid waste facilities in 2035 and 2050.

## Impact Projections in Adopted Plans

The SCAG 2012-2035 RTP/SCS EIR analyzes impacts to the SCAG region up to 2035 and found that even with implementation of identified mitigation measures, significant impacts to public services would result due to the considerable effects to the cumulative staffing level and response times of police, fire, and emergency services in southern California; direct and cumulative demand for school facilities; loss of open space and recreational lands; demand on existing recreational facilities; and direct and cumulative demand for solid waste services in the SCAG region (SCAG 2012a). Thus, regionally cumulatively considerable impacts to public services and utilities would result from implementation of the SCAG 2012-2035 RTP/SCS.

Throughout southern California, individual cities and counties have also adopted general plans that guide growth and land use changes within their jurisdictions. Moreover, individual service providers, including cities, counties, special districts, school districts, and utilities, that operate in the southern California and northern Baja region have adopted long-term plans that forecast the demand for services and identify specific facilities projects that will be required to meet projected needs. Each individual service provider, including cities, counties, special districts, school districts, and utilities, that has an adopted general plan or other long-term plan that forecasts the demand for services and identifies projects that will be required to meet projected needs, is responsible for conducting the appropriate environmental assessment, identifying impacts, and implementing mitigation measures to reduce impacts when possible. Construction-related and operational impacts are typically reduced through actions of the implementing agency, including adherence to existing regulations and BMPs, but are considered significant because impact mitigation to less than significant levels for all projects cannot be guaranteed.

## Cumulative Impacts and Impact Conclusions

### 2020

A significant cumulative impact in the year 2020 would result if the combination of impacts of the proposed Plan and impact projections from adopted plans within the southern California and northern Baja region were significant when considered together, even if not independently significant. Impacts from construction and of expanded or new facilities for public services and utilities from the proposed Plan and adopted plans in the southern California and northern Baja region would be cumulatively significant in 2020. Because cumulative public services and utilities impacts throughout the southern California and northern Baja region by 2020 would be significant, and because the proposed Plan's incremental impacts are significant, the proposed Plan's incremental public services and utilities impacts are also cumulatively considerable, with the exception of impacts related to provision of new or expanded solid waste facilities. As described in Section 4.14, there is sufficient landfill capacity in the region to accommodate forecasted regional growth at least through 2020. As of 2014 the West Miramar Sanitary Landfill has 16.9 percent capacity remaining and is estimated to close in 2022, which would significantly reduce the available capacity at landfills in the region. The Borrego Landfill, Otay Landfill, and Sycamore Landfill have a limited remaining capacity and are estimated to close by the years 2030, 2028, and 2031, respectively (CalRecycle 2014c). As a result, the proposed Plan would not generate solid waste at a level that would require new or expanded solid waste disposal facilities. While cumulative demand in the southern California and northern Baja California region for solid waste disposal would increase by 2020, there is sufficient capacity for solid waste disposal in the San Diego region through 2020. Therefore, the proposed Plan's less than significant impacts related to solid waste disposal are not cumulatively considerable.

**2035**

As described above, impacts from construction and of expanded or new facilities for public services and utilities from the proposed Plan and adopted plans in the southern California and northern Baja region would be cumulatively significant in 2035. Because cumulative public services and utilities impacts throughout the southern California and northern Baja region by 2035 would be significant, and because the proposed Plan's incremental impacts are significant, the proposed Plan's incremental public services and utilities impacts are also cumulatively considerable.

**2050**

While many regional plans or projection impacts do not extend until the year 2050, public service and utility impacts, similar in nature to those identified for earlier years would likely persist and also occur in 2050. As described above, impacts from construction and of expanded or new facilities for public services and utilities from the proposed Plan and adopted plans in the southern California and northern Baja region would be cumulatively significant in 2050. Because cumulative public services and utilities impacts throughout the southern California and northern Baja region by 2050 would be significant, and because the proposed Plan's incremental impacts are significant, the proposed Plan's incremental public services and utilities impacts are also cumulatively considerable.

**Mitigation Measures**

Mitigation measures to reduce impacts associated with public services and utilities as identified in Section 4.14 would be applicable to cumulative impacts as well.

Section 4.14 includes Mitigation Measures PS-1A, U-1A, and U-2A, which call for jurisdictions with responsibility for construction of public facilities, wastewater treatment facilities, or storm water facilities to apply mitigation measures to avoid or reduce significant environmental impacts associated with the construction or expansion of such facilities. Section 4.14 also references Mitigation Measure WS-1A from Section 4.16 regarding the reduction of water use for construction and operation of projects to conserve water. However, it cannot be guaranteed that all future project-level impacts can be mitigated to a less than significant level.

Mitigation Measure U-3A calls for the reduction of impacts from construction or expansion of solid waste facilities, and Mitigation Measures U-3B and U-3C would reduce solid waste volumes that would require accommodation in regional landfills through the reduction of construction waste from transportation network improvement projects or other development projects and the implementation of green building waste management measures. However, it cannot be guaranteed that all future project-level impacts can be mitigated to a less than significant level.

Similarly, the SCAG 2012-2035 RTP/SCS EIR included mitigation measures to reduce impacts to public services, such as coordination with emergency service providers, avoidance and conservation of recreation and open space areas, patterns of urban development and land use that reduce costs on infrastructure and make better use of existing facilities green building measures, source reduction and recycling for construction projects, and waste management strategies. However, even with the implementation of mitigation measures, the EIR concluded that significant and unavoidable public service impacts would result.

Based on the above analysis, the proposed Plan's incremental contributions to cumulative public services and utilities impacts in years 2020, 2035, and 2050 would remain significant and cumulatively considerable post-mitigation.

### **5.2.15 TRANSPORTATION**

The geographic scope for the transportation cumulative analysis is the southern California and northern Baja region. Urban development and transportation systems are not bound by jurisdictional boundaries as movement within, through, and beyond the region is necessary for commuters, personal travel, and goods movement. Thus, it is important to consider both the southern California region as well as the connection with northern Baja California.

A hybrid approach for the cumulative analysis of transportation allows for an overview discussion of regional impacts associated with general patterns of regional urbanization, growth, and land use change and how the transportation network both influences, and is affected by, those regional development patterns. Discussion of specific large-scale existing and probable future projects will also allow for consideration of individual projects with known impacts to traffic and transportation.

Cumulative impacts related to transportation would occur if future operating conditions of the regional transportation system, including the SANDAG, SCAG, and northern Baja regions, result in increased average daily per capita or total VMT; induce substantial vehicle travel; decrease the performance of public transit, pedestrian, or bicycle facilities; cause substantially higher rates of transportation-related accidents, collisions, injuries or fatalities; or result in loss of parking that causes significant adverse environmental impacts.

This cumulative impact assessment relies on the impact analysis within this EIR for the proposed Plan; SCAG 2012-2035 RTP/SCS EIR (SCAG 2012a); SCAG 2015 Federal Transportation Improvement Program (SCAG 2014); San Diego County Regional Airport Authority 2008 Airport Master Plan, San Diego International Airport and associated EIR (SDCRAA 2008); SDCRAA Aviation Activity Forecast (SDCRAA 2004); SDCRAA Regional Aviation Strategic Plan (SDCRAA 2011b); Border 2020 Program, Master Action Plan for California-Baja California (USEPA 2013); California-Baja California Border Master Plan (Caltrans 2008); and 2034 Tijuana, Tecate, and Playas de Rosarito Metropolitan Strategic Plan (IMPLAN 2013).

#### **Impacts of the Proposed Plan**

Implementation of regional growth and land use change as well as transportation network improvements and programs associated with the proposed Plan would result in a significant impact because even though per capita VMT would decrease by 2020, 2035, and 2050, the total annual VMT would increase in all years.

To identify if the proposed Plan would substantially induce vehicle travel, increases in lane miles were compared to changes in drive alone mode share, and per capita VMT. As detailed in Section 4.15, analysis of these factors showed that increases in lane miles under the proposed Plan were associated with decreases in drive alone mode share and decreases in per capita VMT, and therefore the proposed Plan would not induce substantial vehicular travel in 2020, 2035, and 2050.

Implementation of regional growth and land use change as well as transportation network improvements and programs associated with the proposed Plan would result in a less than significant impact related to the performance of public transit, bicycle, and pedestrian facilities because the proposed Plan would not decrease the performance of public transit, bicycle, or pedestrian facilities in 2020, 2035, and 2050.

Implementation of regional growth and land use change as well as transportation network improvements and programs associated with the proposed Plan would result in a less than significant impact related to safety because the proposed Plan would not result in a substantially higher rate of system wide accidents, collisions, injuries, or fatalities as shown by projected annual injuries/fatalities for vehicle miles traveled and bicyclist/pedestrian miles traveled in 2020, 2035, or 2050.

Implementation of the transportation network improvements and programs would not result in a loss of parking supply that would cause significant adverse environmental impacts. Therefore, this impact is less than significant in 2020, 2035, and 2050.

### **Impacts of Related Projects**

Related infrastructure projects, such as the HST, would result in potentially significant transportation impacts. The environmental document for the HST project found that the project would have a positive effect when viewed on a system-wide basis, particularly by reducing traffic on highways and around airports to the extent that intercity trips are diverted to the train system and by eliminating delays at existing at-grade crossings where the train system would provide grade separation. However, localized traffic conditions around some HST system stations would experience a decrease in level of service and some added delays, and transit lines serving the stations areas would experience increases in passengers during peak hours. Therefore, implementation of the HST project would lead to a considerable contribution to the cumulative impact related to localized travel conditions (HSRA 2005).

Airport capacity for both passenger and cargo service in the southern California and northern Baja region is becoming constrained. SDIA is projected to reach its airfield capacity sometime between 2020 and 2030, at approximately 28 million annual passengers (SDCRAA 2011b). Additionally, although the region has many airport facilities, most air cargo in the San Diego region is handled through SDIA. The air cargo capacity at SDIA is currently constrained by limited infrastructure. There are ongoing studies considering options and alternatives to expand air service in the region. Though no definitive plans or projects have been identified or undergone full environmental review at this time, prospective future expansion or improvement of existing airport facilities or new airport development in the region would result in beneficial impacts to air travel service and goods movement throughout the region; however, other adverse transportation impacts such as increased local traffic and auto travel delay around airport areas would also result. The Northside Improvements project SEIR did not evaluate traffic impacts as this resource area was determined be consistent with the traffic analysis presented in the EIR prepared for the San Diego International Airport Master Plan that identified significant traffic impacts (SDCRAA 2008), see full discussion below under planning documents.

The Addendum to the South Orange County Transportation Infrastructure Improvement Project Final Subsequent EIR for the Tesoro Extension Project found the project would not result in significant individual or cumulative effects not discussed in the Final SEIR and project impacts would not be more severe, new, or different than previously disclosed. The addendum stated that a potential significant and unavoidable construction traffic impact could occur during the construction period, but long-term operational impacts related to the Tesoro Extension Project would be less than significant (Foothill/Eastern Transportation Corridor Agency 2013).

There are currently planned and ongoing cross-border and POE projects along the U.S./Mexico border including the San Diego-Tijuana Airport Cross Border Facility and the San Ysidro Port of Entry Expansion Project. The project would create a POE limited to pedestrian toll-paying airline passengers, avoiding and reducing delays at the San Ysidro and Otay Mesa POEs. The EIR for this project found that project's contribution to significant buildout transportation/circulation impacts would be cumulatively considerable and would remain significant after implementation of the identified mitigation (City of San Diego 2011). Another ongoing POE project is the San Ysidro Expansion Project that would provide additional pedestrian and vehicle lanes and capacity through the POE to reduce traffic delays.

### **Impact Projections in Adopted Plans**

The EIR prepared for the 2012-2035 SCAG RTP/SCS identified a significant and unavoidable impact regarding the potential to increase total daily VMT in 2035 compared to current daily VMT and also substantially greater average daily VHD for heavy-duty truck trips in 2035 compared to current conditions. The EIR also found a significant cumulative impact resulting from implementation of the 2012-2035 SCAG RTP/SCS to a cumulatively considerable amount of transportation impacts, such as VMT and all-vehicle VHD, in areas outside of the SCAG region (SCAG 2012a). While parking considerations and strategies are discussed through the document and often included in mitigation measures, the EIR did not have a specific threshold or conclusion regarding parking. The SCAG 2015 FTIP is prepared to implement projects and programs listed in the RTP and is developed in compliance with state and federal requirements (SCAG 2014).

The 2008 Airport Master Plan, San Diego International Airport EIR identified that all traffic-related impacts related to implementation of the Airport Master Plan would be reduced to less than significant with mitigation. However, the SDCRAA lacks the legal authority to implement the identified mitigation measures as the roadway segments, intersections, and freeway ramps are within the responsibility and jurisdiction of other agencies; thus, if the agencies do not implement the measures identified in the EIR, the traffic impacts would remain significant. The EIR analyzed parking supply and did not identify significant parking impacts related to implementation of the plan or alternatives (SDCRAA 2008).

The SDCRAA Aviation Activity Forecast looked at the current and future capacity of SDIA's existing single runway and projected passenger traffic, aircraft operations, cargo activity, general aviation, and military operations through the year 2030. The forecast found that, by 2021 through 2030, runway congestion will not allow further growth and that the single runway does not have enough capacity to handle the forecasted growth in aircraft operations; the airport will experience a cumulative loss of at least five million to as many as 31 million passengers over the forecast period (SDCRAA 2004). The RASP was prepared by SDCRAA to assess the long-range capabilities of all public-use airports in the county with the goal of improving the performance of the regional airport system (SDCAA 2011).

The Border 2020 Program, Master Action Plan for California-Baja California includes objectives to reduce air emissions with one action to reduce vehicle emissions at POEs through anti-idling and other feasible reduction measures such as improved POE operating conditions and to implement sustainable urban transport systems in Tijuana (USEPA 2013). In addition, the 2034 Tijuana, Tecate, and Playas de Rosarito Metropolitan Strategic Plan states that a critical issue for the Baja region is the progressive deterioration of the quality of air associated with the number of vehicles and no provision of sustainable transportation (IMPLAN 2013). While there is no associated environmental documentation for these plans, the actions to improve air quality through better traffic operations and opportunities would benefit regional border transportation issues.

According to the California-Baja California Border Master Plan, approximately 2,487,400 people resided in Baja California in 2000 and population would reach more than 5,209,000 residents by 2030. The Master Plan does not have associated environmental analysis documents. The Master Plan concludes that the expansion of residents in the border region will increase cross-border travel demand and continue to add pressure to the POE facilities and connecting roads. Given the current and projected travel demand at the existing POEs, improving the capacity and operations of the current infrastructure is critical to decrease traffic congestion and delays, facilitate international trade, and improve the quality of life for residents in the border region (Caltrans 2008).

## **Cumulative Impacts and Impact Conclusions**

### **2020**

As described in Section 4.15, implementation of the proposed Plan in 2020 would result in a significant impact because of increased total annual vehicle miles traveled. Other transportation-related impacts would be less than significant. However, as detailed in the sections above, there are forecasted adverse direct and cumulative traffic and transportation impacts that would result with the implementation of regional plans and related projects. For example, 2012-2035 SCAG RTP/SCS EIR identified a significant cumulative impact resulting from a considerable contribution to impacts, such as VMT and all-vehicle VHD, in areas outside of the SCAG region (SCAG 2012a). The 2008 Airport Master Plan, San Diego International Airport EIR identified that if agencies do not implement the measures identified in the EIR, associated traffic impacts would remain significant (SDCRAA 2008). Specific projects also identified direct and cumulative impacts to traffic conditions. Implementation of the HST project would lead to a considerable contribution to the cumulative impact related to localized travel conditions (HSRA 2005) and the Northside Improvements project would have traffic impacts as identified in the 2008 Airport Master Plan.

Though cumulative transportation impacts throughout the southern California and northern Baja region by 2020 would be significant due to implementation of regional plans and related projects, the proposed Plan provides transportation-related improvements that by 2020 would decrease per capita VMT, would not induce substantial vehicle travel, would not decrease the performance of public transit, bicycle, or pedestrian facilities, would not result in substantially higher accident rates for vehicles, bicycles, or pedestrians, and would not result in significant environmental impacts from loss of parking. Thus, the proposed Plan's contributions to cumulative impacts are not individually significant and are also not cumulatively considerable.

However, because implementation of regional growth and land use change as well as transportation network improvements and programs associated with the proposed Plan would increase total annual VMT and result in a significant impact, in combination with other cumulative traffic impacts occurring throughout the region, the traffic impact of increased total annual miles traveled is cumulatively considerable in 2020.

### **2035**

As described in Section 4.15, implementation of the proposed Plan in 2035 would result in a significant impact because of increased total annual vehicle miles traveled. However, as detailed in the sections above, there are forecasted adverse direct and cumulative traffic and transportation impacts that would result with the anticipated implementation of regional plans and related projects including the 2012-2035 SCAG RTP/SCS and 2008 Airport Master Plan, San Diego International Airport. Specific projects also identified direct and cumulative impacts to traffic conditions including the HST project and Northside Improvements project.

Though cumulative transportation impacts throughout the southern California and northern Baja region by 2035 would be significant due to implementation of regional plans and related project, the proposed plan provides transportation-related improvements in 2035 would decrease per capita VMT, would not induce substantial vehicle travel, would not decrease the performance of public transit, bicycle, or pedestrian facilities, would not result in substantially higher accident rates for vehicles, bicycles, or pedestrians, and would not result in significant environmental impacts from loss of parking.. Thus, the proposed Plan's contributions to cumulative impacts are not individually significant and are also not cumulatively considerable.

However, because implementation of regional growth and land use change as well as transportation network improvements and programs associated with the proposed Plan would increase total annual VMT and result in a significant impact, in combination with other cumulative traffic impacts occurring throughout the region, the traffic impact of increased total annual miles traveled is cumulatively considerable in 2035.

## **2050**

As described in Section 4.15, implementation of the proposed Plan in 2050 would result in a variety of transportation-related conditions and operations of regional transportation facilities, public transit, and other alternative transportation modes that are either improved over existing conditions or would not worsen existing conditions with the exception of increased total annual miles traveled. However, as detailed in the sections above, there are forecasted adverse direct and cumulative traffic and transportation impacts that would result with the implementation of regional plans and related projects including the 2012-2035 SCAG RTP/SCS and 2008 Airport Master Plan, San Diego International Airport. Specific projects also identified direct and cumulative impacts to traffic conditions including the HST project and Northside Improvements project.

Though cumulative transportation impacts throughout the southern California and northern Baja region by 2050 would be significant due to implementation of regional plans and related project, the proposed plan provides transportation-related improvements in 2050 would decrease per capita VMT, would not induce substantial vehicle travel, would not decrease the performance of public transit, bicycle, or pedestrian facilities, would not result in substantially higher accident rates for vehicles, bicycles, or pedestrians, and would not result in significant environmental impacts from loss of parking. Thus, the proposed Plan's contributions to cumulative impacts are not individually significant and are also not cumulatively considerable.

However, because implementation of regional growth and land use change as well as transportation network improvements and programs associated with the proposed Plan would increase total annual VMT and result in a significant impact, in combination with other cumulative traffic impacts occurring throughout the region, the traffic impact of increased total annual miles traveled is cumulatively considerable in 2050.

## **Mitigation Measures**

As detailed in Section 4.15, many features currently included in the proposed Plan (e.g., the SCS, increased transit and active transportation investments) have the effect of reducing total annual VMT that might otherwise occur. GHG mitigation measures GHG-4A, GHG-4B, GHG-4E, and GHG-4H are additional feasible VMT reduction measures not included in the proposed Plan that SANDAG would or other agencies could implement.

Other potential mitigation measures to reduce total VMT are included as components of the alternatives analyzed in Chapter 6.0, rather than as individual mitigation measures in this section. These include still more compact land use patterns, accelerated and increased transit investments, reduced or no highway investments, and policies to reduce transit fares, increase parking prices, and establish road user fees. . However, these mitigation measures would not reduce this impact to a less than significant level. Based on the above analysis and lack of feasible mitigation, the proposed Plan's incremental contributions to cumulative transportation impacts in years 2020, 2035, and 2050 would remain significant and cumulatively considerable post-mitigation.

### **5.2.16 WATER SUPPLY**

The geographic scope for the water supply cumulative analysis is the state of California, the Lower Colorado River Basin, and northern Baja California. The large geographic scope is appropriate because regional growth and land use change, transportation system needs, and the resulting water demand can influence water supply reliability across the region as a whole, as development and water supplies are not strictly characterized by jurisdictional boundaries.

The projection approach for the cumulative analysis of water supply is used. A projection approach allows for an overview discussion of regional impacts associated with water supply if existing water supplies and facilities were not adequate for projected regional demand or if general patterns of regional urbanization, growth, and land use changes and infrastructure development would result in the need for new or expanded water treatment and distribution facilities.

The plans and studies relied on and considered for the cumulative analysis include the SCAG 2012-2035 RTP/SCS and its EIR (SCAG 2012a), 2013 Regional Water Facilities Optimization and Master Plan Update (SDCWA 2014) Water Supply for Baja California: Economic – Engineering Analysis for Agricultural, Environmental and Urban Demands (Medellin-Azuara et al. 2009), California Water Action Plan (California Natural Resources Agency 2014), California Water Plan Update 2013 (California Department of Water Resources 2013), SDCWA's 2010 Urban Water Management Plan (SDCWA 2011), Metropolitan Water District of Southern California's 2010 Regional Urban Water Management Plan (Metropolitan Water District of Southern California 2010), Municipal Water District of Orange County's (MWDOC) 2010 Regional Urban Water Management Plan (Municipal Water District of Orange County 2011), Imperial Irrigation District's 2012 Integrated Regional Water Management Plan (IID 2012), 2034 Tijuana, Tecate, and Playas de Rosarito Metropolitan Strategic Plan (IMPLAN 2013), Colorado River Basin Water Supply and Demand Study (Bureau of Reclamation 2012), and Lower Colorado River Interim Shortage Criteria and associated EIS (Bureau of Reclamation 2007). While many of these documents do not have accompanying environmental analysis, they provide valuable information regarding the current and future status of water supply throughout the cumulative region.

Significant cumulative impacts related to water supply would occur if existing water supplies and facilities were not adequate to serve cumulative growth such that new or expanded water supplies or entitlements would be required, or if cumulative growth and infrastructure development resulted in construction of new or expanded water facilities that would cause significant environmental impacts.

#### **Impacts of the Proposed Plan**

Reasonably foreseeable existing and future regional water supplies would not be adequate to meet regional water demands associated with growth and land use change and transportation network improvements in 2020, 2035, and 2050. Also, there would be a localized significant water supply impact in the Borrego Valley basin. Therefore, existing water supplies and facilities would not be adequate to serve growth, and new or expanded water supplies or entitlements would be required. Proposed Plan impacts associated with adequate water supplies in 2020, 2035, and 2050 are considered significant.

In 2020, 2035, and 2050, forecasted growth and land use change and implementation of transportation network improvements would require construction of new water facilities or the expansion of existing facilities; impacts of constructing these facilities would be significant.

### **Impact Projections in Adopted Plans**

While a majority of the documents and plans available for cumulative analysis do not have associated environmental analysis, they do provide anticipated water supply demand for the region and consider the adequacy of their existing supplies and plans for future supplies to meet future needs. These regional plans also offer resource management strategies and objectives for ensuring future water supply such as reduce water demand, improve operational efficiencies, increase and diversify water supply, and provide resource stewardship. Due to current drought conditions throughout the state of California, many water districts and other water suppliers have implemented a variety of drought responses that could influence the availability of water supplies and water deliveries as previously anticipated in local and regional plans. For example, MWD reduced water supply deliveries to member agencies by 15% in July 2015 (MWD 2015). Other drought responses include surcharges and fines for over-usage and water-saving incentives and rebates.

The SCAG 2012-2035 RTP/SCS EIR found that the 2012-2035 RTP/SCS influence on growth would contribute to an increased demand for water supply and its associated infrastructure. The EIR also identified the potential of the 2012-2035 RTP/SCS to contribute to cumulatively considerable demand on water resources.

As described in a paper titled, *Water Supply for Baja California: Economic – Engineering Analysis for Agricultural, Environmental and Urban Demands*, agricultural operations and population growth in California-Baja California has placed pressure on natural resources, particularly water supply. It is of significant concern to the California-Baja California border, where 50% of the entire United States-Mexico border population lives. The conditions of northern Baja region of arid climate, prominent agriculture, fast-growing border cities, and water-sensitive ecosystems indicate that future water supplies will be a problem (Medellin-Azuara et al. 2009).

SDCWA's 2010 Urban Water Management Plan reports that, for normal years through 2035, no water supply shortages would occur if supplies are developed as planned. Under the specific parameters assumed in the multiple dry-year analysis, some level of shortage could potentially be experienced. Shortages occur in early years because of unfinished water supply projects and transfers and in the later years due primarily to increasing water demands attributed to growth within the region (SDCWA 2011).

The SDCWA's 2013 Regional Water Facilities Optimization and Master Plan Update provided an update to the 2010 Urban Water Management Plan. The focus of the 2013 Master Plan Update was to optimize existing infrastructure and maintain the flexibility to adjust to a range of future regional planning outcomes through 2035. The update continued to find that the existing aqueduct system is fully capable of meeting regional demands through the mid-2020s and under normal and wet weather patterns, there is a very low occurrence of supply-demand gaps through 2035. However, during multiple dry-year weather patterns, the 2013 Regional Water Facilities Optimization and Master Plan Update identified that supply-demands gaps will likely occur (SDCWA 2014).

Metropolitan's 2010 Regional Urban Water Management Plan reports that Metropolitan has supply capabilities that would be sufficient to meet projected demands from 2015 through 2035 under the single dry-year and multiple dry-year conditions. Metropolitan has plans to address possible reductions in water supply and continued development of a diversified resource mix to meet its water supply needs (MWD 2010).

The MWDOC 2010 Regional Urban Water Management Plan (MWDOC 2011) concludes that the MWDOC service area (the region served by MWDOC is in Orange County and includes 26 cities and water districts) will have sufficient existing and planned supplies to meet full service demands under every water-year hydrologic scenario from 2015 through 2035. The plan also discusses potential sources of water supply that are being investigated to diversify the region's water supply portfolio, such as water transfers and exchange and ocean water desalination (MWDOC 2011).

IID's 2012 Integrated Regional Water Management Plan states that the Imperial Region is faced with significant water resources challenges, most of which relate to the availability of imported water from the Colorado River. System and on-farm efficiency conservation measures have been formulated to enable IID to meet the reduction requirement of net annual consumptive use of Colorado River water by 408,000 acre-feet by 2026. These measures are designed to maintain historic levels of agricultural productivity and MCI water supplies; however, when forecasted renewable energy and other demands are added to the future demand, the historic amount would no longer be sufficient (IID 2012).

The Colorado River Basin Water Supply and Demand Study found that the Colorado River Basin faces a range of potential future imbalances between supply and demand and states that addressing such imbalances will require diligent planning and cannot be resolved through any single approach or option. Instead, an approach that applies a wide variety of ideas at local, state, regional, and portfolio exploration demonstrated that implementation of a broad range of options can reduce Basin resource vulnerability and improve the system's resiliency to dry hydrologic conditions while meeting increasing demands in the Basin and adjacent areas receiving Colorado River water (Bureau of Reclamation 2012).

The 2034 Tijuana, Tecate, and Playas de Rosarito Metropolitan Strategic Plan lists the low water availability in the region as a critical environmental issue, which is a limiting factor for future development. The plan states that water demand in 2025 will be greater than 80 percent of the available water reserves. Strategies for improvement listed in the plan include promote investment to ensure capacity of reuse and infiltration of treated water and install sea water desalination plants (IMPLAN 2013).

The Lower Colorado River Interim Shortage Criteria and associated EIS (Bureau of Reclamation 2007) represent a plan to share water supply shortages among Lower Colorado River water users, including SDCWA. The EIS prepared for the interim shortage criteria projects Lower Colorado River water supply and demand conditions through 2050. It also analyzes and considers trade-offs between the frequency and magnitude of shortages, and describes potential effects on water shortage in Lake Powell and Lake Mead, and on water supplies, power production, recreation, and other environmental resources.

As described in many of the plans above, often there is an expectation that future water supply could be met given certain parameters, such as proposed water supply projects are constructed and operational, entitlements are fully granted, water use reduction measures are successful, and no extended periods of multiple dry years occur. These factors are highly uncertain, and in some cases such as rainfall and drought conditions, are uncontrollable by the water agencies, districts, or suppliers.

## **Cumulative Impacts and Impact Conclusions**

### **2020**

A significant cumulative impact in the year 2020 would result if the combined impacts of the proposed Plan and impact projections from adopted plans within state of California, the Lower Colorado River Basin, and northern Baja California region were significant when considered together, even if not independently significant.

As described above, significant water supply impacts were identified for proposed Plan growth and land use change and transportation network improvements in 2020. Also, the SCAG 2012-2035 RTP/SCS was found to contribute to cumulatively considerable demand on water resources. While many of the regional water supply planning documents anticipate being able to adequately meet future water demand in the near term, their ability to do so is based on anticipated, but uncertain circumstances. Furthermore, a number of additional indeterminate factors could affect future water supply, including meteorological conditions; climate change; cost and use of energy; potential policy and permitting restrictions; endangered species protections; and demographic unknowns. The combined cumulative impacts of these regional and statewide plans, coupled with the uncertainties mentioned above, would be significant regarding increased demands on existing water supplies such that they would be inadequate to serve future demands, and new or expanded water supplies or entitlements would be needed by 2020.

Cumulative demand for water supply as a result of regional growth and land use change would likely necessitate the need for new water treatment or distribution facilities or the expansion of existing facilities. Construction of new or expanded facilities would cause short-term construction impacts that are typically controllable through adherence to regulations and BMPs, as well as operational impacts. There is no assurance the impacts from new or expanded water facilities would be less than significant for all projects. The SCAG 2012-2035 RTP/SCS was also found to contribute to cumulatively considerable demand on associated water supply infrastructure. Thus, the cumulative impact related to construction of new or expanded water treatment or distribution facilities would be significant in 2020.

Because cumulative water supply impacts throughout the state of California, the Lower Colorado River Basin, and northern Baja region by 2020 would therefore be significant, and because the proposed Plan incremental water supply impacts are significant, the proposed Plan incremental water supply impacts are also cumulatively considerable.

### **2035**

The cumulative analysis presented above for year 2020 would be applicable to year 2035. Significant water supply impacts were identified for proposed Plan growth and land use change and transportation network improvements in 2035. The combined cumulative water supply impacts of regional and statewide plans, coupled with the uncertainties mentioned in the 2020 analysis, would be significant in 2035 regarding available water supplies.

Construction of new or expanded facilities would cause short-term construction impacts that are typically controllable through adherence to regulations and BMPs, as well as operational impacts. There is no assurance the impacts from new or expanded water facilities would be less than significant for all projects. The SCAG 2012-2035 RTP/SCS was also found to contribute to cumulatively considerable demand on associated water supply infrastructure. Thus, the cumulative impact related to construction of new or expanded water treatment or distribution facilities would be significant in 2035.

Because cumulative water supply impacts throughout the state of California, the Lower Colorado River Basin, and northern Baja region by 2035 would therefore be significant, and because the proposed Plan incremental water supply impacts are significant, the proposed Plan incremental water supply impacts are also cumulatively considerable in 2035.

**2050**

The cumulative analysis presented above for years 2020 and 2035 would be applicable to year 2050. Significant water supply and facility impacts were identified for proposed Plan growth and land use changes as well as transportation network improvements in 2050. The combined cumulative water supply impacts of regional and statewide plans coupled with the uncertainties mentioned in the 2020 analysis, would be significant in 2050 regarding increased water demands on existing supplies such that they would be inadequate to serve future demands.

Construction of new or expanded facilities would cause short-term construction impacts that are typically controllable through adherence to regulations and BMPs, as well as operational impacts. There is no assurance the impacts from new or expanded water facilities would be less than significant for all projects. The SCAG 2012-2035 RTP/SCS was also found to contribute to cumulatively considerable demand on associated water supply infrastructure. Thus, the cumulative impact related to construction of new or expanded water treatment or distribution facilities would be significant in 2050.

Because cumulative water supply impacts throughout the state of California, the Lower Colorado River Basin, and northern Baja region by 2050 would therefore be significant, and because the proposed Plan incremental water supply impacts are significant, the proposed Plan incremental water supply impacts are also cumulatively considerable.

**Mitigation Measures**

Mitigation Measure WS-1A calls for implementation of water conservation measures for both transportation and land use projects. Mitigation Measure WS-1B calls for use of reclaimed water during design and construction of projects implementing the proposed Plan. Mitigation Measure WS-1C calls for verification of adequate water supply availability to satisfy projected water demands. Implementation of Mitigation Measures WS-1A, WS-1B, and WS-1C would not guarantee reduction of all proposed Plan impacts associated with the availability of water supplies to a level of less than significant. Therefore, the proposed Plan incremental contributions to the cumulative water supply impacts in years 2020, 2035, and 2050 would remain cumulatively considerable post-mitigation.

To reduce environmental impacts resulting from the construction of new or expanded water treatment or distribution facilities, Mitigation Measure WS-2A calls for jurisdictions or agencies with responsibility for the construction of new or expanded water treatment and conveyance facilities apply necessary mitigation measures to reduce significant environmental impacts associated with these facilities during the CEQA review process for individual facilities. However, it cannot be guaranteed that all future project-level impacts can be mitigated to a less than significant level. Therefore, the proposed Plan incremental contributions to the cumulative impacts from new or expanded water facilities in years 2020, 2035, and 2050 would remain cumulatively considerable post-mitigation.