5.0 CUMULATIVE IMPACTS

This chapter discusses the cumulative impacts of the 2050 RTP/SCS. CEQA Guidelines define a cumulative impact as one in which two or more individual effects which, when considered together, are considerable or which 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 which 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).

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.

The geographic scope defines the geographic area within which a proposed project and related projects may contribute to a specific cumulative impact. The geographic scope of the cumulative impact analysis varies depending upon the specific environmental issue being analyzed. The geographic scope for each environmental issue analyzed in this EIR is identified below in Section 5.1.

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

- A list of past, present, and reasonably anticipated 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 greenhouse gas 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. Any such document shall be referenced and made available to the public at a location specified by the lead agency.

A combination of the summary of projections and list of projects approaches is used for this cumulative impact analysis. Reasonable foreseeable probable future projects are further described below in Section 5.0.1. Projections contained in relevant plans for each resource topic are described in Section 5.2 below. In addition, the growth projections described in Section 5.0.2 below are used to supplement the projections in relevant plans.

5.0.1 CUMULATIVE PROJECTS

Several major transportation and infrastructure facility improvements associated with the 2050 RTP/SCS are within the authority of other implementing agencies and may occur within the timeframe of the 2050 RTP/SCS. These improvements have independent utility from the RTP/SCS, and do not rely on the 2050 RTP/SCS for their justification. Some of these improvements may span beyond the boundaries of the San Diego Region, have uncertain funding, and/or have no preliminary designs. These improvements include:
• California High Speed Rail. The project is being developed by the California High Speed Rail Authority and one segment is planned to connect San Diego to Los Angeles through the Inland Empire. See Figure 5.0-1 and Figure 5.0-2 for maps showing the routes.

• The California Coastal Trail (CCT). The CCT is a series of trails along 1300 miles of California coastline. It is intended as a continuous public right-of-way, as shown in Figure 5.0-3.

• Border Crossings/Ports of Entry. Several border crossing and port of entry infrastructure projects may occur.

• Airports. There may be additional projects in Airport Multimodal Accessibility Plan (AMAP) infrastructure improvements that would serve both cargo and passengers.

• Port/Maritime. The maritime capacity of the Port is limited by terminal space, landside access constraints, and dock space. However, some maritime facility growth may occur.

• Petroleum Pipelines. The volume of petroleum products shipped by pipeline in the region is projected to increase and new pipeline capacity may be required beginning 2015. Therefore, improved truck access to the pipeline terminal may be needed to ensure the efficient delivery of petroleum products.

• Freight Rail. Proposed improvements include: freight rail capacity to reduce the current passenger/freight rail bottlenecks and increased capacity of existing port and border related freight, new rail logistics centers at key locations that would allow rail and truck transfers, and track improvements on the San Diego-Tecate line.

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 will reach speeds in excess of 200 miles per hour 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 2.0-15 depicts a statewide map of the High Speed Rail project.

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 High Speed Rail projects are not included in the proposed project. The Los Angeles-San Diego route is currently in Stage 2 of Planning, that is, the Alternatives Analysis. (For more information, see http://www.cahighspeedrail.ca.gov/Los_Angeles_-_San_Diego.aspx)

In 2010, SANDAG completed a feasibility study that concluded that high-speed rail could be extended south from downtown San Diego to the international border, where it would connect to the proposed San Diego-Tijuana cross border facility on the U.S. side, offering travelers direct access to Tijuana International Airport. An extension to the border is not included in the statewide project.

CALIFORNIA COASTAL TRAIL

The California Coastal Trail (CCT) is now made up of a series of trails stretching 1,300 miles up and down the California coastline. The CCT is intended as a continuous public right of way that extends from the northern border of California to the southern border, all within sight, sound, or at least smell of the ocean.
Figure 5.0-1
California High-Speed Train Statewide Overview
October 2011

Source: California High-Speed Rail Authority
Map based on preferred alignments and station locations in the 2005 and 2008* program EIR/Ss.
* Authority rescinded 2008 Pacheco Pass selection to comply with Atherton judgment. Board will make new decision after revising Bay Area to Central Valley PEIR. New Decision could change depicted alignment connection Bay Area and Central Valley.
Two alignment options are currently under consideration by the California High Speed Rail Authority: University City/LOSSAN and SR 163.
Figure 5.0-3
California Coastal Trail
October 2011

- Improvements Adequate
- Needs Substantial Improvements
- Other Trails
SANDAG has developed a Technical Memorandum entitled “Feasibility Study for the San Diego Portion of the California Coastal Trail Technical Memorandum No. 1 Planning” to inform the scoping of a comprehensive feasibility study for the region. The Memorandum lays the groundwork and gathers preliminary material to help to identify existing and potential network segments, linkages, gaps, and coastal access routes. This Technical Memorandum, including figures are located in the 2050 RTP/SCS Technical Appendix 14 and can be found at www.sandag.org/CACoastalTrail.

**Border Crossings/Ports of Entry**

The San Diego region shares a common international border with the municipalities of Tijuana and Tecate in the State of Baja California, Mexico. There are three land border ports of entry (POEs) that connect Mexico with the San Diego region: San Ysidro (Puerta México), Otay Mesa (Mesa de Otay), and Tecate (Tecate). To accommodate the dynamic border transportation system, numerous improvements to Border/POE facilities are assumed. This includes a proposed POE at San Diego-Tijuana Airport Crossborder Facility (CBF) that would connect Otay Mesa and Tijuana International Airport. Other projects would improve access to the existing passenger and commercial border crossings in San Ysidro. including improvements to freight rail service. Collectively and in conjunction with projects at Imperial County border crossings, these projects will modernize and transform transportation infrastructure along the U.S.-Mexican border, from San Diego-Tijuana east to Arizona-Sonora.

**Airports**

Each year, more than 17 million air passengers use the San Diego region’s three commercial airports: San Diego International Airport (SDIA), McClellan-Palomar Airport, and Tijuana International Airport. These airports are part of the San Diego County Airport System of 12 public use airports in the San Diego region, along with Tijuana International (Figure 2.0-22). SDIA, McClellan-Palomar, and Tijuana International 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 general aviation only. Although the region has many airport facilities, as shown in Figure 2.0-22, 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 may be additional projects in the AMPA as well as Airport Master Plans that would serve both cargo and passengers at the region’s airports.

**PORT/MARITIME**

The Port of San Diego 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 the port access projects.

**PETROLEUM PIPELINES**

In the San Diego region, Kinder Morgan Energy Partners (a private company) is the key provider of bulk freight transport by pipeline. The pipeline network runs between the City of Orange, California, and the Kinder Morgan Terminal located in Mission Valley in the City of San Diego. The 66-acre terminal has the capacity to distribute significant amounts of petroleum products by truck on I-5, I-805, I-15, and Friars Road. The volume of petroleum products shipped by pipeline in the region is projected to
continually increase, and new pipeline capacity may be required beginning in 2015. Therefore, improved truck access to the pipeline terminal may be needed to ensure the efficient delivery of petroleum products.

FREIGHT RAIL

The San Diego region is served by three rail companies that own and/or operate rail facilities within the region. In the northern part of the region along the I-5 corridor, BNSF Railway operates on two lines owned by NCTD and MTS. In the southern portion of the region, San Diego and Imperial Valley Railroad (SD&IV), a subsidiary of Fortress Investment Group (formerly Rail America Inc.), operates two short lines owned by MTS. Additionally, the Carrizo Gorge Railway (CZRY) owns the rights to operate limited service between the Mexican border at San Ysidro/Tijuana, through Mexico to the U.S.-Mexican border crossing at Tecate.

Freight rail capacity along the coast and south to Mexico is currently constrained by limited infrastructure and the sharing of track with passenger operations, including Amtrak, the COASTER, and the Trolley. Rail capacity improvements to reduce current passenger/freight rail bottlenecks and increase capacity for existing port- and border-related freight will occur. New rail logistics centers at key locations would allow rail and truck transfers where the demand for local or subregional industrial/manufacturing is high and where land is less expensive. Track improvements on the San Diego-to-Tecate line would provide better connections and service to manufacturing centers in Mexico, with the potential to grow rail carloads.

5.0.2 GROWTH PROJECTIONS

Given the broad geographic scope considered for cumulative impacts associated with implementation of the 2050 RTP/SCS, this analysis relies upon the population projections gathered from a variety of sources, in addition to the projections contained in relevant plans for each resource topic described in Section 5.2 below. These population projections include:

- SANDAG 2050 Regional Growth Forecast in RTP/SCS
- SCAG’s Local Input/General Plan Growth Forecast for 2012 RTP
- California Department of Finance Population Projections
- Consejo Nacional de Poblacion (CONAPO) Population Projections

Population projections from these sources are provided in Table 5-1 for the 2020, 2035, and 2050 horizon years.

5.1 GEOGRAPHIC SCOPE

The geographic area that could be affected by the 2050 RTP/SCS varies depending on the type of environmental resource being considered. The general geographic area associated with different environmental effects of the 2050 RTP/SCS, and the location of adopted plans or related projects, define the boundaries of the area considered in the cumulative impact analysis. Table 5-2 presents the general geographic areas associated with the different resources addressed in this Program EIR analysis.
Table 5-1
Growth Projections for the 2050 RTP/SCS Cumulative Impact Analysis

<table>
<thead>
<tr>
<th>Region</th>
<th>2010</th>
<th>2020</th>
<th>2035</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANDAG</td>
<td>3,224,432</td>
<td>3,535,000</td>
<td>4,026,131</td>
<td>4,384,867</td>
</tr>
<tr>
<td>Southern California (SCAG)</td>
<td>18,626,078</td>
<td>20,591,188</td>
<td>23,005,159</td>
<td>27,060,027</td>
</tr>
<tr>
<td>Northern Baja</td>
<td>3,252,690</td>
<td>4,152,585</td>
<td>5,357,122*</td>
<td>5,617,774*</td>
</tr>
<tr>
<td>State of California</td>
<td>37,253,956</td>
<td>44,135,923</td>
<td>51,747,374</td>
<td>59,507,876</td>
</tr>
</tbody>
</table>

Sources:
- SANDAG = SANDAG 2050 Growth Forecast
- SCAG = SCAG Local Input/General Plan Growth Forecast for 2012 RTP (2008, 2020 and 2035); CA DOF 2007a for 2050
- Northern Baja = CONAPO
- State of California = CA DOF 2007b

Notes:
* 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).

Table 5-2
Geographic Scope of Cumulative Impacts

<table>
<thead>
<tr>
<th>Cumulative Impact Topic</th>
<th>Geographic Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aesthetics</td>
<td>Southern California/ Northern Baja California</td>
</tr>
<tr>
<td>Agriculture and Forestry Resources</td>
<td>California</td>
</tr>
<tr>
<td>Air Quality</td>
<td>Southern California/ Northern Baja California</td>
</tr>
<tr>
<td>Biological Resources</td>
<td>Southern California/ Northern Baja California</td>
</tr>
<tr>
<td>Cultural Resources/Paleontology</td>
<td>Southern California/ Northern Baja California</td>
</tr>
<tr>
<td>Environmental Justice</td>
<td>Southern California/ Northern Baja California</td>
</tr>
<tr>
<td>Geology/Soils/Mineral Resources</td>
<td>Southern California/ Northern Baja California</td>
</tr>
<tr>
<td>Greenhouse Gas Emissions</td>
<td>California</td>
</tr>
<tr>
<td>Hazards &amp; Hazardous Materials</td>
<td>Southern California/ Northern Baja California</td>
</tr>
<tr>
<td>Hydrology/Water Quality</td>
<td>Southern California/ Northern Baja California</td>
</tr>
<tr>
<td>Land Use/Planning</td>
<td>Southern California/ Northern Baja California</td>
</tr>
<tr>
<td>Noise</td>
<td>San Diego Region/ Northern Baja California</td>
</tr>
<tr>
<td>Population/Housing</td>
<td>Southern California/ Northern Baja California</td>
</tr>
<tr>
<td>Public Services, Utilities, and Energy</td>
<td>Southern California/ Northern Baja California</td>
</tr>
<tr>
<td>Recreation</td>
<td>Southern California/ Northern Baja California</td>
</tr>
<tr>
<td>Transportation/Traffic</td>
<td>Southern California/ Northern Baja California</td>
</tr>
<tr>
<td>Utilities/Service Systems</td>
<td>Southern California/ Northern Baja California</td>
</tr>
<tr>
<td>Water Supply</td>
<td>Lower Colorado River Basin/ Northern Baja California</td>
</tr>
</tbody>
</table>

5.2 CUMULATIVE IMPACT ANALYSES BY ISSUE AREA

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 California region. The southern California region includes the SANDAG region, the Southern California Association of Governments (SCAG) region (the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura). The northern Baja region includes it includes the municipalities of Tijuana, Tecate, Playas de Rosarito, parts of Mexicali, and the urban area of Ensenada. The Southern California and Northern Baja California regions contain a similar variation of viewsheds, landscapes, and visual character as the San Diego region. This cumulative impact
assessment relies on the impact analysis within this EIR for the 2050 RTP/SCS and SCAG 2008 RTP and its EIR (SCAG 2008) for the southern California region. There are no regional plans pertaining to aesthetics and visual resources for the northern Baja California region.

**Impacts of the 2050 RTP/SCS**

The analysis within this EIR concludes that implementation of the 2050 RTP/SCS would result in regional growth, land uses changes, and the construction of transportation network improvements that would block panoramic views or views of important landscape features or landforms (mountains, oceans, rivers, bays, or important man-made structures) as seen from public viewing areas, including state designated scenic highways. This could occur within each horizon year analyzed (2020, 2035, and 2050). Therefore, impacts related to blocking panoramic views or views of significant landscape features or landforms are significant.

In addition, the analysis also concluded that implementation of the 2050 RTP/SCS could result in development or 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. While some of the development forecasted by the 2050 RTP/SCS would be located in areas where they would not substantially change the surrounding visual character, those in outlying and less urbanized areas could substantially degrade the character of an area, including adding a visual element of urban character to an existing rural or open space area. This could occur within each horizon year analyzed (2020, 2035, and 2050). Therefore, impacts related to the degradation of visual character and the addition of new light and glare sources would be significant.

**Impacts of Associated Infrastructure Projects**

The southern California and northern Baja regions are areas of abundant and varied scenic resources. The topography, panoramic views, scenic roadways, open spaces, and significant landscape features found throughout these regions contributes greatly to the overall character and quality of the existing visual setting. Infrastructure projects planned in the southern California and northern Baja region, including the California High Speed Rail Train (HST), border/Port of Entry (POE) facility improvements, airport expansions in the San Diego region and Tijuana International Airport, port/maritime improvements, petroleum pipeline transportation infrastructure, and freight rail infrastructure, could 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 may result in bridges or elevated guideways or other features that may introduce visual contracts that could block existing views or result in shadow impacts (HSRA 2005). Cumulatively, the EIR prepared for the HST project determined that the project would result in significant cumulative impacts to aesthetic and visual resources Implementation of this project is anticipated by 2035. These related infrastructure projects not in the RTP/SCS would the potential to have adverse effects on aesthetic and visual resources in the San Diego region in 2020, 2035, and 2050. These infrastructure projects would add to the impacts associated with construction and implementation of the 2050 RTP/SCS.

**Impact Projections in Adopted Plans**

The SCAG 2008 RTP EIR found that by increasing mobility and including land-use-transportation measures, the 2008 RTP would influence the pattern of this urbanization. At the regional scale, the 2008 RTP’s contribution to impacts on the overall visual character of the existing landscape setting would be cumulatively significant (SCAG 2008). The 2008 SCAG RTP planning horizon is 2035. This document
and analysis was completed prior to the preparation of the 2050 RTP/SCS; thus, does not account for the impacts of the 2050 RTP/SCS.

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. 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 combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. The forecasted regional growth and land use changes, coupled with the implementation of the transportation network improvements included in the 2050 RTP/SCS for the 2020 horizon year would result in significant impacts related to aesthetic and visual resources through the implementation of development and transportation network improvements that would result in 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.

In addition, significant aesthetic and visual impacts were also identified in the California High Speed Rail Train System project environmental analysis and in the 2008 SCAG RTP EIR, and other associated infrastructure projects may also have adverse aesthetic and visual impacts, such as future Ports of Entry projects and/or airport and maritime improvements. The combination of the direct and cumulative aesthetic and visual resource-related impacts from these projects and SGAG’s adopted RTP would affect the southern California and northern Baja region could result in significant cumulative aesthetic and visual impacts, based on thresholds VIS-1 regarding panoramic views or views of significant landscape features or landforms and VIS-2 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 2050 RTP/SCS incremental aesthetic and visual resource impacts are significant, the 2050 RTP/SCS incremental aesthetic and visual resource impacts are also cumulatively considerable.

**2035**

A significant cumulative impact to aesthetics and visual resources in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. 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 opportunities for 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 could result in significant cumulative aesthetic and visual impacts, based on thresholds VIS-1 regarding panoramic views or views of significant landscape features or landforms and VIS-2 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 2050 RTP/SCS incremental aesthetic and visual resource impacts are significant, the 2050 RTP/SCS incremental aesthetic and visual resource impacts are also cumulatively considerable.

2050

A significant cumulative impact to aesthetics and visual resources in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. 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 are anticipated. 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 2008 SCAG RTP. However, with anticipated long-term growth and development throughout the region, it can be expected that similar land use impacts as would 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 could result in significant cumulative aesthetic and visual impacts, based on thresholds VIS-1 regarding panoramic views or views of significant landscape features or landforms and VIS-2 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 2050 RTP/SCS incremental aesthetic and visual resource impacts are significant, the 2050 RTP/SCS incremental aesthetic and visual resource impacts are also cumulatively considerable.

Mitigation Measures

Mitigation measures to minimize aesthetic and visual resource impacts due to implementation of the 2050 RTP/SCS as identified in Section 4.1-5 would be applicable to cumulative aesthetic and visual resource impacts as well. Related infrastructure projects not included in the 2050 RTP/SCS should implement similar mitigation measures.

Implementation of Mitigation Measures VIS-A through VIS-E would reduce significant impacts associated with aesthetics and visual resources related to blocking panoramic views, views of significant landscape features, scenic highways, and/or the degradation of visual character and light and glare. 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 4.1.5 could help to reduce significant project-level visual resources impacts to less than significant, or the project’s incremental impacts may 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 assured for each specific future project at this program level of analysis. Therefore, incremental contributions to the
cumulative aesthetic and visual resource impacts of the 2050 RTP/SCS are cumulatively considerable and would remain cumulatively considerable post-mitigation.

5.2.2 AGRICULTURE AND FOREST RESOURCES

The area of geographic consideration for cumulative impacts is the southern California region, which includes the SANDAG region, the Southern California Association of Governments (SCAG) region (the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura), and northern Baja. Information on population forecasts and transportation network improvements was compiled from the documents listed in Section 5.01. Table 5-2 shows these population forecasts for 2020, 2035, and 2050. Information on planned residential development and land use changes in southern California is available in adopted land use plans for individual cities and counties.

It is important to consider how land use change and transportation system improvements in southern California and northern Baja may impact existing agriculture and forest resources. The cumulative impact is the combination of the impacts of the 2050 RTP/SCS, related infrastructure projects, and impact projections in adopted plans. Significant cumulative impacts related to agriculture resources would occur if there were a cumulative loss of existing agriculture resources, including conversion of FMMP-lands to non-agricultural use and conflicts with Williamson Act contracts, lands designated for agricultural uses, or lands designated under the California Farmland Conservancy Act. Significant cumulative impacts related to forest lands or timberlands would occur if there were a cumulative loss or conversion of timberland and forest land.

Impacts of the 2050 RTP/SCS

The regional growth and land use change and transportation network improvements associated with the 2050 RTP/SCS would significantly impact agriculture and forest resources in the San Diego region. By 2050, the 2050 RTP/SCS would convert a total of 3,485.1 acres of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland to non-agricultural use, and conflict with a total of 7,030.8 acres of land with existing agricultural uses. Lands designated under the California Farmland Conservancy Act would be impacted as they would be included in the analysis for FMMP-designated lands. Impacts to lands with a Williamson Act contract would be significant in 2020 only.

As the San Diego region does not contain any lands designated as “timberland,” implementation of the 2050 RTP/SCS would not result in significant impacts related to timberland in 2020, 2035, or 2050. However, regional growth development and transportation network improvements by 2050 would together result in a direct loss of 15,882.2 acres of forest land. Impacts would be significant in 2020, 2035, and 2050.

Impacts of Associated Infrastructure Projects

The analysis of the 2050 RTP/SCS transportation network improvements found that significant impacts to agriculture and forest resources could result due to improvements that introduce a new or expanded transportation facility, such as a trolley line extension, road widening, or double-tracking of a rail line.

Related infrastructure projects, such as the California High Speed Rail Train System (HST) could have similar types of impacts as identified for the 2050 RTP/SCS transportation improvements. The environmental document for the HST identified a potentially significant impact related to agriculture resources for the segments planned for the southern California region. The HST would impact 7 to 140
acres of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland, depending on the alignment, which is a significant impact at a program level. The HST would also impact 8,091 to 23,160 acres of sensitive vegetation communities, which includes forest lands. This is also considered a significant impact at the program level. Implementation of the HST would be conducted in phases and is projected to be complete by 2035 (HSRA 2005).

Other transportation and facility projects, such as petroleum pipeline transportation infrastructure and freight rail infrastructure, may also impact agriculture and/or forest resources if these projects expand the right-of-way of highway or rail lines and convert agricultural uses or forest lands to transportation use.

**Impact Projections in Adopted Plans**

According to the EIR prepared for the 2008 SCAG RTP, which analyzes impacts to 2035, transportation projects included in the 2008 SCAG RTP would impact 853 acres of prime farmland in the SCAG region, as well as 267 acres of land designated as rural density residential, which may contain agricultural uses. Additionally, the EIR states that the contribution of the 2008 SCAG RTP to impacts on existing land use would be cumulatively considerable, as it would result in changes to existing land use, including prime farmlands. Impacts to agriculture resources are considered significant. Projects included in the 2008 SCAG RTP would also impact 1,544 acres of “coniferous forests and woodlands,” and impacts to sensitive vegetation communities are considered significant (SCAG 2008). Therefore, the 2008 SCAG RTP would significantly impact forest lands.

Adopted land use plans for local jurisdictions in southern California and northern Baja may enact policy changes and zoning amendments that encourage and facilitate residential and employment growth. Some of the land use changes may 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, may 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 combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As described above, implementation of the regional growth and land changes and transportation network improvements associated with the 2050 RTP/SCS would significantly impact agriculture and forest resources by converting FMMP-designated land to non-agricultural uses and conflict with existing lands with agricultural uses, lands with Williamson Act contracts, and lands designated under the California Farmland Conservancy Act. In addition, significant impacts to agriculture and forest resources were also identified in the HST project environmental analysis and in the 2008 SCAG RPT EIR, and other associated infrastructure projects and land use plans may also contribute to substantial impacts to agriculture and forest resources. The combination of the direct and cumulative impacts from these projects and adopted plans would result in significant cumulative impacts to agriculture and forest resources in the southern California and northern Baja region by 2020, based on thresholds AG-1, AG-2, and FR-1 as described in Section 4.2 Agriculture and Forest Resources.

Because cumulative impacts to agriculture and forest resources throughout the southern California and northern Baja region by 2020 would be significant, and because the 2050 RTP/SCS incremental impacts to agriculture and forest resources are significant, the 2050 RTP/SCS incremental impacts to agriculture and forest resources are also cumulatively considerable.
2035

A significant cumulative impact in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. The cumulative analysis presented above for year 2020 would be applicable to year 2035. The combination of the direct and cumulative impacts from these projects and adopted plans would result in significant cumulative impacts to agriculture and forest resources in the southern California and northern Baja region by 2035, based on thresholds AG-1, AG-2, and FR-1 as described in Section 4.2 Agriculture and Forest Resources.

Because cumulative impacts to agriculture and forest resources throughout the southern California and northern Baja region by 2035 would be significant, and because the 2050 RTP/SCS incremental impacts to agriculture and forest resources are significant, the 2050 RTP/SCS incremental impacts to agriculture and forest resources are also cumulatively considerable.

2050

A significant cumulative impact in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. Additionally in 2050, implementation of the regional growth and land changes and transportation network improvements associated with the 2050 RTP/SCS would significantly impact agriculture and forest resources. Although the HST and projects included in the 2008 SCAG RTP would be implemented by 2035, it can be expected that other future transportation and development projects would convert existing FMMP-designated lands to non-agricultural use, or conflict with lands with agricultural uses, lands with Williamson Act contracts, or lands designated under the California Farmland Conservancy Act. Likewise, other future transportation and development projects may result in a loss of forest lands.

Because cumulative impacts to agriculture and forest resources throughout the southern California and northern Baja region by 2050 would be significant, and because the 2050 RTP/SCS incremental impacts to agriculture and forest resources are significant, the 2050 RTP/SCS incremental impacts to agriculture and forest resources are also cumulatively considerable.

Mitigation Measures

Mitigation measures to reduce impacts to agriculture and forest resources due to transportation improvements as identified in Section 4.2.5 would be applicable to cumulative impacts as well. Associated infrastructure projects not included in the 2050 RTP/SCS should implement similar mitigation measures.

Section 4.2.5 includes two mitigation measures for preservation of agriculture resources. Mitigation Measure AG-A states that local governments can and should support the acquisition or voluntary dedication of agriculture conservation easements and programs that preserve agricultural lands. Mitigation Measure AG-B states that SANDAG shall and other implementing agencies can and should reduce potential conflicts with agricultural operations through the incorporation of adequate buffers, setbacks, and project design measures to protect surrounding agriculture, such as roadways, topographic features, and open space. While these mitigation measures would reduce impacts to agriculture resources,
they would not reduce impacts to a less-than-significant level and impacts would remain significant and unavoidable.

Section 4.2.5 also includes Mitigation Measures FR-A and FR-B to preserve forest lands. Mitigation Measure FR-A states that during the design and CEQA review of development projects and transportation network improvements implementing the 2050 RTP/SCS, SANDAG shall and other implementing agencies should avoid impacting forest lands by including a design goal to replace forest land habitat with equal or better quality habitat to ensure no net loss of the resource. Mitigation Measure FR-B states that SANDAG shall and other implementing agencies can and should provide off-site mitigation when needed through acquisition and restoration (using EMP and other mitigation funds) of lands contiguous with areas of native habitat to maximize the biological value of the habitat provided as mitigation. While these mitigation measures would reduce impacts to forest resources, they would not reduce impacts to a less-than-significant level and impacts would remain significant and unavoidable.

The 2008 SCAG RTP EIR includes Mitigation Measure LU-19, which states that “on-going regional planning efforts will be used to build a consensus in the region to support changes in land use to accommodate future population growth while maintaining the quality of life in the region” (SCAG 2008). However, the EIR concludes that “the region will need to change land uses and increase the intensity of some existing land use” and that cumulative impacts to agriculture resources would remain significant (SCAG 2008). The EIR for the 2008 SCAG RTP also includes several mitigation measures to preserve sensitive vegetation communities such as forest lands, including measures to avoid native habitat removal and to replant disturbed areas with commensurate native vegetation of high habitat value adjacent to the project. The EIR concludes that while these mitigation measures would reduce impacts to forest resources, they would not reduce impacts to a less-than-significant level and impacts would remain significant (SCAG 2008).

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 at the program level, even with the application of mitigation strategies (HSRA 2005).

Based on the above analysis, following mitigation of the effects of 2050 RTP, associated infrastructure, and adopted plans, cumulative impacts on agriculture and forest resources would remain significant. Therefore, the 2050 RTP/SCS incremental contributions to impacts to agriculture and forest resources in years 2020, 2035, and 2050 would remain cumulatively considerable post-mitigation.

5.2.3 AIR QUALITY

The geographic scope for the air quality cumulative analysis is the southern California region and northern Baja Mexico. The plans relied on for this cumulative analysis includes: (1) the SCAG 2008 RTP and its EIR (SCAG 2008) and (2) the California-Baja California Border Master Plan (Caltrans 2008). The SCAG RTP and associated EIR encompass the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura. The area of Influence in the California-Baja Border Master Plan includes the geographic area 60 miles north and south of the California-Baja California International Border. In California, it includes the counties of San Diego, Orange, San Bernardino, Riverside, Los Angeles, Ventura and Imperial. In Baja California, it includes the municipalities of Tijuana, Tecate, Playas de Rosarito, parts of Mexicali, and the urban area of Ensenada.

It is important to consider land use change and how the transportation system may influence the air quality emissions across the region as a whole because transportation networks are the largest contributor
to air pollution in the region. Significant cumulative impacts related to air quality would occur if emissions are above planned estimates and budgets. Cumulative impacts would also occur if emission levels would contribute to or violate National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS), substantially increase pollutant levels, or expose sensitive receptors to substantial pollutant concentrations.

**Impacts of the 2050 RTP/SCS**

Analysis of the 2050 RTP/SCS shows that air pollutant emissions resulting from transportation network improvements, such as double-tracking, road widening projects, or Trolley line extensions would increase above existing conditions. Air pollutant emission budgets developed for the region account for increases in population and associated sources and development within individual jurisdictions would be required to go through appropriate approval processes and be consistent with applicable air quality plans and policies; thus minimizing potential for inconsistencies. However, while every effort to meet planning and policy goals may be implemented, the transportation network improvements as proposed in the 2050 RTP/SCS would still likely increase emissions beyond applicable air quality standards, expose sensitive receptors to substantial pollutant concentrations, and result in a cumulatively considerable net increase of emissions of criteria pollutants for which the project region is in nonattainment under applicable NAAQS or CAAQS in 2020, 2035, and 2050.

Increased densities and associated transportation networks may by 2050 create highly urban scenarios that would generate air pollutants in excess of applicable standards and would likely increase ambient pollutant levels substantially. The growth and expansion of rural residential uses into locations of undeveloped land would also likely increase pollutant levels substantially and generate new emissions sources that could that violate standards. Therefore, impacts related to air quality from the substantial expansion of both urban and rural transportation networks in 2050 would be significant.

**Impacts of Associated Infrastructure Projects**

The analysis of the 2050 RTP/SCS transportation network improvements found that significant air quality impacts could result due to improvements that introduce a new or expanded transportation facility, such as a trolley line extension, road widening, or double-tracking of a rail line. Related infrastructure projects, such as the California High Speed Rail Train System could have similar types of impacts as identified for the 2050 RTP/SCS transportation improvements. The environmental document for the California High Speed Rail project identified a potentially significant impact related to air quality when viewed on a system-wide basis. The EIR for the project found that while every effort had been made to incorporate emission controls and alternative energy sources, in the end complete mitigation of high speed train emissions would not be feasible. The potential for air quality impacts is considered significant at the programmatic level due to the uncertainties involved; however, such impacts may not be realized over the 20-year time horizon for implementing the high-speed train system (HSRA 2005). Cumulatively, the EIR found that the project could contribute to potential cumulative impacts associated with air quality. Implementation of this project is anticipated by 2035.

Other related infrastructure projects planned in the southern California and northern Baja region, including the border/Port of Entry (POE) facility improvements, airport expansions in the San Diego region and Tijuana International Airport, port/maritime improvements, petroleum pipeline transportation infrastructure, and freight rail infrastructure could also result in cumulative air quality impacts. Infrastructure projects, such as those discussed above, increase regional emissions by creating new and expanded mediums for mobile source emissions to be generated and by creating emission sources in new areas. As with the environmental analysis prepared for the California High Speed Rail project every effort
would be made to incorporate emission controls and alternative energy sources, in the end complete mitigation of all emissions from related all related infrastructure projects would not be feasible. Cumulatively, emissions from related infrastructure, both with and without the 2050 RTP/SCS, would contribute to potential cumulative impacts associated with air quality.

**Impact Projections in Adopted Plans**

The SCAG 2008 RTP EIR found that by increasing mobility and including land-use-transportation measures, the 2008 RTP would influence the pattern of this urbanization and its associated air pollutant emissions. The 2008 RTP’s influence on regional air pollutant levels would be cumulatively considerable and contribute to regionally significant air quality impacts (SCAG 2008). The 2008 SCAG RTP planning horizon is 2035. This document and analysis was completed prior to the preparation of the 2050 RTP/SCS; thus, does not account for the impacts of the 2050 RTP/SCS.

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. 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). This document was completed prior to the preparation of the 2050 RTP/SCS; thus, does not account for the 2050 RTP/SCS.

**Cumulative Impacts and Impact Conclusions**

**2020**

A cumulative impact in the year 2020 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As described above, implementation of the transportation network improvements as proposed in the 2050 RTP/SCS would potentially cause violations of air quality standards and result in substantial increases in pollutant concentrations at adjacent sensitive land uses in 2020. In addition, significant air quality impacts were also identified in the California High Speed Rail Train System project environmental analysis, the 2008 SCAG RPT EIR, and other associated infrastructure projects such as freight rail. The combination of the direct and cumulative air quality impacts from these projects and adopted plans that would affect the southern California region and northern Baja region could result in significant cumulative air quality impacts, based on thresholds AQ-2 and AQ-3; regarding violations of applicable air quality standards and a net increase of emissions of any criteria pollutant for which the region is in nonattainment under applicable NAAQS and CAAQS regulations; and AQ-4 regarding sensitive receptor exposure to substantial pollutant concentrations by 2020.

Similar to the program level analysis in Section 4.3.4, impacts to significance criteria AQ-1 and AQ-5 would not be cumulatively considerable. This plan and other regional plans are based on or include air quality plans, would not conflict with their efforts, and would therefore not cumulative contribute to an obstruction of regional planning efforts. The 2050 RTP/SCS would not generate substantial odor concentrations and would not contribute to the cumulative odor condition.
Because cumulative air quality impacts throughout the southern California region and northern Baja region by 2020 would be significant, and because the 2050 RTP/SCS incremental air quality impacts are significant, the 2050 RTP/SCS incremental air quality impacts are also cumulatively considerable.

2035

A cumulative impact in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As described above, implementation of the transportation network improvements as proposed in the 2050 RTP/SCS would potentially cause violations of air quality standards and result in substantial increases in pollutant concentrations at adjacent sensitive land uses in 2035. In addition, significant air quality impacts were also identified in the California High Speed Rail Train System project environmental analysis, the 2008 SCAG RPT EIR, and other associated infrastructure projects such as freight rail. The combination of the direct and cumulative air quality impacts from these projects and adopted plans that would affect the southern California region and northern Baja region could result in significant cumulative air quality impacts, based on thresholds AQ-2 and AQ-3; regarding—violations of applicable air quality standards and a net increase of emissions of any criteria pollutant for which the region is in nonattainment under applicable NAAQS and CAAQS regulations; and AQ-4 regarding sensitive receptor exposure to substantial pollutant concentrations by 2035.

Similar to the program level analysis in Section 4.3.4, impacts to significance criteria AQ-1 and AQ-5 would not be cumulatively considerable. This plan and other regional plans are based on or include air quality plans, would not conflict with their efforts, and would therefore not cumulative contribute to an obstruction of regional planning efforts. The 2050 RTP/SCS would not generate substantial odor concentrations and would not contribute to the cumulative odor condition.

Because cumulative air quality impacts throughout the southern California region and northern Baja region by 2035 would be significant, and because the 2050 RTP/SCS incremental air quality impacts are significant, the 2050 RTP/SCS incremental air quality impacts are also cumulatively considerable.

2050

A cumulative impact in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As described above, implementation of the transportation network improvements as proposed in the 2050 RTP/SCS would potentially cause violations of air quality standards and result in substantial increases in pollutant concentrations at adjacent sensitive land uses in 2050. In addition, significant air quality impacts were also identified in the California High Speed Rail Train System project environmental analysis, the 2008 SCAG RPT EIR, and other associated infrastructure projects such as freight rail. The combination of the direct and cumulative air quality impacts from these projects and adopted plans that would affect the southern California region and northern Baja region could result in significant cumulative air quality impacts, based on thresholds AQ-2 and AQ-3; regarding—violations of applicable air quality standards and a net increase of emissions of any criteria pollutant for which the region is in nonattainment under applicable NAAQS and CAAQS regulations; and AQ-4 regarding sensitive receptor exposure to substantial pollutant concentrations by 2050.

Similar to the program level analysis in Section 4.3.4, impacts to significance criteria AQ-1 and AQ-5 would not be cumulatively considerable. This plan and other regional plans are based on or include air quality plans, would not conflict with their efforts, and would therefore not cumulative contribute to an
obstruction of regional planning efforts. The 2050 RTP/SCS would not generate substantial odor concentrations and would not contribute to the cumulative odor condition.

Because cumulative air quality impacts throughout the southern California region and northern Baja region by 2050 would be significant, and because the 2050 RTP/SCS incremental air quality impacts are significant, the 2050 RTP/SCS incremental air quality impacts are also cumulatively considerable.

**Mitigation Measures**

Mitigation measures to reduce air quality impacts due to transportation improvements as identified in Section 4.3.5 would be applicable to cumulative air quality impacts as well. Associated infrastructure projects not included in the 2050 RTP/SCS should implement similar mitigation measures.

Mitigation measure AQ-A1, AQ-A2, AQ-B, and AQ-C require that SANDAG and other implementing agencies implement feasible construction and operational mitigation measures to reduce emissions of ozone precursor measures and PM10, PM2.5, NOX, and ROG, and to reduce localized CO and particulate concentrations. Mitigation measures for construction that avoid or substantially reduce impacts on air quality are included.

Mitigation measure AQ-D requires SANDAG and other jurisdictions conduct a full project level CO analysis when deemed appropriate from applicable screening procedures.

As outlined in Section 4.3.5, mitigation measures AQ-A1, AQ-A2, AQ-B, and AQ-C would not guarantee reduction of all 2050 RTP/SCS air quality impacts AQ-1 through AQ-4 to below a level of significance. Impacts related to CO exposure would be reduced to a less than significant level by mitigation measure AQ-D. Therefore, the 2050 RTP/SCS 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 is the southern California region, which includes the SANDAG region, the Southern California Association of Governments (SCAG) region (the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura), northern Baja, and the near-shore marine habitats and estuaries associated with those areas. Information on population forecasts and transportation network improvements was compiled from the documents listed in Section 5.01. Information on planned residential development and land use changes in southern California is available in adopted land use plans for individual cities and counties.

It is important to consider how land use change and transportation system improvements in southern California and northern Baja may impact biological resources. The cumulative impact is the combination of the impacts of the 2050 RTP/SCS, related infrastructure 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 2050 RTP/SCS, together with adopted plans and associated infrastructure, would have a (1) substantial adverse effect on any sensitive natural vegetation community, (2) substantial adverse effect on any candidate, sensitive, or special status species, (3) interfere substantially with the movement of any native resident or migratory fish or wildlife species, or (4) conflict with the provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan.
Impacts of the 2050 RTP/SCS

Implementation of the 2050 RTP/SCS projects resulting in regional growth/land use change and transportation system improvements would contribute to the loss of biological resources in the Southern California and Northern Baja California regions as a result of conversion of undeveloped lands to developed lands. Impacts to biological resources include direct impacts to native habitat and special status plant and wildlife species. Indirect impacts to biological resources could result from fragmentation, edge effects, and changes in hydrology associated with regional growth/land use change and transportation system improvements.

Although the SCS land use pattern identifies 1.37 million acres of protected natural resource areas, park land and open space, implementation of the 2050 RTP/SCS would still cause adverse impacts to sensitive natural communities and jurisdictional waters. Implementation of the 2050 RTP/SCS would result in land uses changes and the construction of transportation network improvements that would cause significant biological resource impacts because they would cause substantial adverse change to sensitive natural communities or resources; have a substantial adverse effect on species identified as a candidate, to sensitive, or special status species; and 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.

Permanent direct impacts would occur from construction within each of the project areas, including permanent direct losses to special status wildlife and/or plant species. Indirect impacts would occur to special status wildlife and/or plant species inhabiting habitat adjacent to projects. All regional growth/land use change and transportation system improvements that impact sensitive vegetation communities as discussed in BIO-1 could impact local home ranges, and therefore could impact movement or impede the use and/or function of native wildlife nursery sites (i.e. areas for raising offspring). These are significant impacts, for which mitigation measures are described in Section 4.2.5.

Implementation of the 2050 RTP/SCS would also result in land uses changes and the construction of transportation network improvements that both would conflict with the requirements of approved HCP/NCCPs or other local, regional, state, or federal regulations, policies, ordinances, or plans targeting the protection of biological resources. This is a significant impact for which mitigation measures are described in Section 4.2.5.

Impacts of Associated Infrastructure 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 will allow more precise evaluation in the second-tier, project-level environmental analyses.

Infrastructure projects not in the constrained RTP/SCS would the potential to have adverse effects on biological resources in the San Diego region in 2020, 2035, and 2050. These infrastructure projects would add to the impacts associated with construction and implementation of the 2050 RTP/SCS.
Impact Projections in Adopted Plans

According to the EIR for the 2008 SCAG RTP, which analyzes impacts to 2035, projects included in the 2008 SCAG RTP would potentially contribute to regional cumulatively considerable impacts for displacement of natural vegetation, damage to sensitive species habitat, habitat fragmentation, impacts to riparian and wetland habitats, construction and operational disturbances, and siltation (SCAG 2008).

The 2008 RTP would add approximately 48 freeway, 37 toll, 348 arterials/collectors and 194 HOV center lane miles of facilities. SCAG estimates that 7,594 acres of natural vegetation in the SCAG region occur within 150 feet of a freeway, transit, or freight rail project in the 2008 RTP. While site-specific analyses would be required to identify and minimize the potential impacts of each particular transportation and/or development project, the 2008 RTP would substantially affect vegetation communities and habitat, some of which is utilized by species of special status. The 2008 RTP would result in a significant impact on biological resources in the region.

The California-Baja California Border Master Plan is a binational comprehensive approach to coordinate planning and delivery of projects at land Points of Entry (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. However, the construction of new facilities would add to existing impacts from the projects associated with both the SANDAG and SCAG RTPs.

In addition to impacts considered in adopted plans, climate change has potential to impact sensitive vegetation and special status species in the region. Projected sea level rise would alter water depth in coastal and estuarine habitats, causing changes in habitat suitability for resident species. Similar changes to terrestrial habitats and impacts to the species that rely upon them may occur from changes in temperature, wind patterns, or other climatic factors.

Cumulative Impacts and Impact Conclusions

2020

A significant cumulative impact in the year 2020 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. Consistent with the discussion presented in Impacts BIO-1 through BIO-4, implementation of the 2050 RTP/SCS projects would have significant impacts related to biological resources in the San Diego Region by the year 2020. Additional infrastructure projects, such as the HST, developed in the southern California and northern Baja region by 2020 could also have a (1) substantial adverse effect on sensitive natural communities, (2) substantial adverse effect on candidate, sensitive, or special status species, (3) interfere substantially with the movement of any native resident or migratory fish or wildlife species, and (4) conflict with the provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan. Thus, the combination of the 2050 RTP/SCS and continued growth and development through the rest of the southern California and northern Baja region would result significant cumulative biological resource impacts based on thresholds BIO-1 through BIO-4.

Because cumulative biological resource impacts throughout the southern California and northern Baja region by 2020 would be significant, and because the 2050 RTP/SCS incremental biological resource impacts are significant, the 2050 RTP/SCS incremental biological resource impacts are cumulatively considerable.
A significant cumulative impact in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As described in the 2020 analysis, the Southern California and Northern Baja California regions and implementation of the 2050 RTP/SCS projects resulting in regional growth/land use change and transportation system improvements would contribute to the cumulative loss of biological resources in the Southern California and Northern Baja California regions as result of conversion of undeveloped lands to developed lands.

Implementation of the 2050 RTP/SCS 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 the additional infrastructure projects and plans developed in the southern California and northern Baja region by 2035 could also have a (1) substantial adverse effect on sensitive natural communities, (2) substantial adverse effect on candidate, sensitive, or special status species, (3) interfere substantially with the movement of any native resident or migratory fish or wildlife species, and (4) conflict with the provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan. Thus, the combination of the 2050 RTP/SCS and continued growth and development through the rest of the southern California and northern Baja region would result significant cumulative biological resource impacts based on thresholds BIO-1 through BIO-4.

Because cumulative biological resource impacts throughout the southern California and northern Baja region by 2035 would be significant, and because the 2050 RTP/SCS incremental biological resource impacts are significant, the 2050 RTP/SCS incremental biological resource impacts are cumulatively considerable.

A significant cumulative impact in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As described in the 2020 analysis, the Southern California and Northern Baja California regions and implementation of the 2050 RTP/SCS projects resulting in regional growth/land use change and transportation system improvements would contribute to the cumulative loss of biological resources in the Southern California and Northern Baja California regions as result of conversion of undeveloped lands to developed lands.

Implementation of the 2050 RTP/SCS 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 additional infrastructure projects and plans developed in the southern California and northern Baja region by 2050 could also have a (1) substantial adverse effect on sensitive natural communities, (2) substantial adverse effect on candidate, sensitive, or special status species, (3) interfere substantially with the movement of any native resident or migratory fish or wildlife species, and (4) conflict with the provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan. Thus, the combination of the 2050 RTP/SCS and continued growth and development through the rest of the southern California and northern Baja region would result significant cumulative biological resource impacts based on thresholds BIO-1 through BIO-4.
Because cumulative biological resource impacts throughout the southern California and northern Baja region by 2050 would be significant, and because the 2050 RTP/SCS incremental biological resource impacts are significant, the 2050 RTP/SCS incremental biological resource impacts are cumulatively considerable.

**Mitigation Measures**

Implementation of Mitigation Measures BIO-A through BIO-Q would reduce direct and indirect impacts of the 2050 RTP/SCS. Associated infrastructure projects not included in the 2050 RTP/SCS should implement similar mitigation measures. Some impacts to sensitive vegetation, special status species, and wildlife corridors may remain unmitigated after implementation of all applicable required mitigation measures. For these reasons the 2050 RTP/SCS projects are considered cumulatively considerable, and would contribute to cumulative impacts to sensitive natural communities, candidate, sensitive, or special status species, and movement of any native resident or migratory fish or wildlife species in the San Diego region.

There is no assurance that the proposed mitigation would reduce impacts of all development and transportation network improvement projects in Southern California and Northern Baja to a less than significant level. Therefore, the 2050 RTP/SCS incremental contributions to the biological resource impacts related to sensitive natural communities; candidate, sensitive, or special status species; and movement of any native resident or migratory fish or wildlife species or established native resident or migratory wildlife corridors, or the use of native wildlife nursery sites in years 2020, 2035, and 2050 that would occur throughout the southern California region would remain cumulatively considerable post-mitigation.

The SCS land use pattern incorporates finalized habitat plans as well as the conservation of other sensitive resource lands such as steep slopes, wetlands, and floodplains as reflected in plans by local jurisdictions. Implementation of Mitigation Measures BIO-P through BIO-RQ would reduce direct and indirect impacts of the 2050 RTP/SCS to a less than significant level. The 2050 RTP/SCS would not conflict with any other HCP, NCCP, or other approved local, regional, state, or federal regulations, policies, ordinances, or plans, including any plans in Southern California or Northern Baja. Though similar conclusions can be drawn for much of Southern California due to adoption of NCCP plans and similar conservation plans, conservation regulations in Northern Baja currently lack the comprehensiveness and level of enforceability necessary to assure that development and transportation projects will fully comply with the provisions of the plans. For this reason, it is likely that cumulative impacts resulting from conflicts with adopted conservation plans and policies will occur within the region. However, the 2050 RTP/SCS incremental contributions to biological resource impacts resulting from conflicts with the provisions of an adopted HCP or NCCP in years 2020, 2035, and 2050 would be less than cumulatively considerable post-mitigation.

**5.2.5 CULTURAL RESOURCES AND PALEONTOLOGY**

The area of geographic consideration for cumulative impacts to cultural resources is the southern California and northern Baja California region. The southern California region includes the SANDAG region, the Southern California Association of Governments (SCAG) region (the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura). The northern Baja region includes it includes the municipalities of Tijuana, Tecate, Playas de Rosarito, parts of Mexicali, and the urban area of Ensenada. This cumulative impact assessment relies on the impact analysis within this EIR for the 2050 RTP/SCS and SCAG 2008 RTP and its EIR (SCAG 2008) for the southern California region. The projects within the California-Baja California Border Master Plan are also considered for this analysis;
however, there is not an environmental document associated with this Master Plan (Caltrans 2008). Information on population forecasts and transportation network improvements was compiled from the documents listed in Section 5.01. Information on planned residential development and land use changes in southern California is available in adopted land use plans for individual cities and counties.

It is important to consider how land use change and transportation system improvements in southern California and northern Baja may impact cultural resources. The cumulative impact is the combination of the impacts of the 2050 RTP/SCS, related infrastructure projects, and impact projections in adopted plans. Significant cumulative impacts related to cultural resources, paleontological resources, and unique geologic features would occur if cumulatively there would be a substantial increase in impacts with regards to the significance of cultural resources, disturbance of human remains, or destruction of unique paleontological resources or unique geologic features.

**Impacts of the 2050 RTP/SCS**

The analysis within this EIR concluded that implementation of the 2050 RTP/SCS would result in land use changes and the construction of transportation network improvements that would result in 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, these activities have the potential to cause a substantial adverse change in the significance of a cultural resource. The 2050 RTP/SCS would also result in activities that may result in the loss of historical resources through the physical demolition, destruction, relocation, or alteration of a resource or its immediate surroundings such that the significance of a historical resource would be materially impaired. This could occur within each horizon year analyzed (2020, 2035, and 2050). Therefore, impacts related to causing a substantial adverse change in the significance of a cultural resource are significant.

The 2050 RTP/SCS would result in a less than significant impact associated with disturbing any human remains, including those interred outside of formal cemeteries, in violation of existing laws and regulations protecting human remains in 2020, 2035, and 2050. While ground-disturbing activities associated with the implementation of the 2050 RTP/SCS have the potential to uncover or disturb buried human remains, impacts associated with the disturbance of human remains would be less than significant because existing laws and regulations discussed in Section 4.5.2 would reduce the potential for encountering human remains and ensure the appropriate disposition of any human remains that are encountered. Therefore impacts related to disturbance of human remains would be less than significant.

The 2050 RTP/SCS would result in a significant impact associated with directly or indirectly destroying a unique paleontological resource or site or unique geological feature in 2020, 2035, and 2050. Ground-disturbing activities, such as construction associated with development, redevelopment, and transportation network improvements have the potential to 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 4.5.2 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/or unique geologic features would be significant.

**Impacts of Associated Infrastructure Projects**

The analysis within Section 4.5 of this EIR found that implementation of the 2050 RTP/SCS would result in ground disturbing activities that would impact cultural resources, buried human remains, paleontological resources, and unique geologic features. Related infrastructure projects planned in the
southern California and northern Baja region, including the California High Speed Rail Train (HST), border/Port of Entry (POE) facility improvements, airport expansions in the San Diego region and Tijuana International Airport, port/maritime improvements, petroleum pipeline transportation infrastructure, and freight rail infrastructure could result in similar types of impacts as identified for the 2050 RTP/SCS. For example, the HST project may result in have a potentially significant effect on cultural and historic resources when viewed on a system wide basis (HSRA 2005). Cumulatively, the EIR prepared for the HST project determined that the project would result in significant cumulative impacts related to cultural and paleontological resources/unique geological features. Another example of an infrastructure project that would result in additional impacts to cultural resources would be the construction of additional petroleum pipeline transportation infrastructure would likely require extensive trenching and grading in areas that have not been previously excavated. During these activities, there is potential for the physical demolition, destruction, relocation, or alteration of a cultural resource to occur. In addition, it is possible that the areas of moderate to high paleontological sensitivity would be disturbed depending on the alignment and location of the petroleum pipeline. These related infrastructure projects not in the RTP/SCS would the potential to have adverse effects on cultural resources in the San Diego region in 2020, 2035, and 2050.

Impact Projections in Adopted Plans

The SCAG 2008 RTP EIR found that by increasing mobility and including land-use-transportation measures, the 2008 RTP would influence the pattern of this urbanization. The 2008 RTP’s influence on growth would be cumulatively considerable and contribute to regionally significant impacts to existing historic resources and previously undisturbed and undiscovered cultural resources (SCAG 2008). The 2008 SCAG RTP planning horizon is 2035. This document and analysis do not account for year 2050 impacts.

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; however, projects included in the Master Plan could have adverse impacts to cultural resources. No detailed analysis of cultural resource impacts was conducted for this Master Plan. However, the construction of new facilities would add to existing impacts from the projects associated with both the SANDAG and SCAG RTPs.

Cumulative Impacts and Impact Conclusions

2020

A significant cumulative impact in the year 2020 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. The continued pressure to develop or redevelop areas throughout the region would result in incremental impacts to cultural resources. Regardless of the efforts to avoid impacts to cultural resources, the more that land is converted to developed uses, the greater the potential for impacts to cultural resources. While any individual project may avoid or reduce the direct loss of a specific resource, the effect is cumulatively considerable. As described above, implementation of the 2050 RTP/SCS and SCAG’s 2008 RTP would result in ground disturbing activities that could cause a substantial adverse change in the significance of a cultural resource are significant. In addition, significant cultural resource impacts could occur with the implementation of the related infrastructure projects mentioned above. These projects are regulated by federal, State and local regulations, as described in Section 4.5.2, and would be required to comply with these regulations. However, cumulative projects located in Mexico
would not be subject to compliance with such regulations. Additionally, even with regulations in place, individual historical resources would still have the potential to be impacted or degraded from demolition, destruction, alteration, or structural relocation as a result of new private or public development or redevelopment allowable under cumulative projects. Therefore, cumulative impacts on cultural resources would be significant because there would be cumulative adverse changes in the significance of cultural resources. Because the 2050 RTP/SCS impacts on cultural resources are significant, they are also cumulatively considerable.

In addition, implementation of the 2050 RTP/SCS combined with SCAG’s RTP and other related infrastructure projects within the region may result in adverse impacts to human remains from development activities. Cumulative projects would be required to comply with federal, State and local regulations, as described in Section 4.5.2, if human remains were encountered during project development. However, cumulative projects located in Mexico would not be subject to compliance with such regulations. Additionally, past projects involving development and construction have already impacted human remains within the region. Therefore, the cumulative disturbance of human remains by construction and development within the region would be significant. However, the 2050 RTP/SCS contribution to these impacts would be less than cumulatively considerable, because compliance with federal, State and local regulations would minimize these incremental impacts.

As with cultural resources, implementation of the 2050 RTP/SCS combined with SCAG’s RTP and other related infrastructure projects within the region have the potential to result in a significant cumulative impact associated with paleontological resources and unique geological features from extensive grading, excavation or other ground-disturbing activities. Related infrastructure projects that require significant excavation, such as regional energy and utility projects or the construction of new roadways under the 2050 RTP/SCS or the 2008 SCAG RTP would result in adverse impacts to paleontological resources. Additionally, if a cumulative project that requires excavation or grading is located in an area of high or moderate sensitivity, this would result in an increased potential for an adverse impact to a paleontological resource to occur. Cumulative projects would be regulated by State and local regulations, including CEQA and local jurisdictions’ grading ordinances. However, cumulative projects located in Mexico would not be subject to compliance with such regulations. Additionally, the loss of paleontological resources on a regional level may not be adequately avoided or reduced through methods specified in these regulations. Additionally, past projects involving development and construction have already impacted paleontological resources within the region. Based on the above analysis, cumulative impacts on paleontological resources and unique geological features would be significant. Because the 2050 RTP/SCS impacts on paleontological resources and unique geological features are significant, they are also cumulatively considerable.

2035

A significant cumulative impact to cultural resources in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. The cumulative analysis presented above for the horizon year of 2020 would be applicable to year 2035, and significant cumulative impacts to cultural 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 opportunities for adverse impacts related to changes in the significance of a cultural resource; the disturbance of human remains; and/or 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 cultural resources and paleontological resources/unique geological features would be significant because there would be cumulative adverse changes in the significance of cultural resources. Because the 2050 RTP/SCS impacts on cultural resources and paleontological resources/unique geological features are significant, they are also cumulatively considerable. However, the RTP/SCS contribution to significant cumulative impacts on human remains would be less than cumulatively considerable, because compliance with federal, State and local regulations would minimize these incremental impacts.

2050

A significant cumulative impact to cultural resources in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. 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 are anticipated. 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 related to changes in the significance of a cultural resource; the disturbance of human remains; and/or 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 cultural resources and paleontological resources/unique geological features would be significant because there would be cumulative adverse changes in the significance of cultural resources. Because the 2050 RTP/SCS impacts on cultural resources and paleontological resources/unique geological features are significant, they are also cumulatively considerable. However, the RTP/SCS contribution to significant cumulative impacts on human remains would be less than cumulatively considerable, because compliance with federal, State and local regulations would minimize these incremental impacts.

Mitigation Measures

Mitigation measures to minimize impacts to cultural resources and to paleontological resources/unique geological features due to implementation of the 2050 RTP/SCS as identified in Section 4.5.1 would be applicable to cumulative impacts as well. Related infrastructure projects not included in the 2050 RTP/SCS should implement similar mitigation measures.

Mitigation Measures CULT-A, CULT-B, CULT-C, CULT-D, and CULT-E, and CULT-F would reduce impacts that would cause a substantial adverse change in the significance of a cultural resource to a less than significant level. These mitigation measures would be included in project-level planning, design, and CEQA reviews. Implementation of these mitigation measures would require project implementation agencies to follow comprehensive, proven procedures to assess the magnitude of impact anticipated on a project level, and avoid or substantially reduce adverse changes in the significance of a cultural resource. The project implementation agencies would be responsible for ensuring adherence to the mitigation measures prior to construction.

Mitigation Measure PALEO-A would require project implementation agencies to assess potential impacts to paleontological resources or unique geological features prior to construction of individual projects associated with the 2050 RTP/SCS. If a project is determined to be located within an area of high or moderate paleontological resource sensitivity or unique geologic features, implementation of Mitigation Measure PALEO-A would require a qualified research to be stationed on-site of any future development to monitor construction and identify valuable paleontological specimens, if any. The on-site
research would recover and report on any significant resources found at the site. Implementation of this mitigation measure would reduce impacts by overseeing construction and related project activities to ensure the recovery of discovered paleontological resources and avoidance of unique geologic features.

For each future project requiring mitigation, mitigation measures such as those listed in Section 4.5.5 could help to reduce significant project-level cultural resources impacts to less than significant, or the project’s incremental impacts may remain significant and unavoidable where no feasible mitigation exists. While these mitigation measures would reduce project level impacts associated with the implementation of the 2050 RTP/SCS, there is no assurance that they would reduce cumulative impact to resources to below a level of significance. Therefore, the 2050 RTP/SCS incremental contributions to significant cumulative impacts to cultural resources and to paleontological resources/unique geological features would remain cumulatively considerable post-mitigation.

5.2.6 ENVIRONMENTAL JUSTICE

The geographic scope for the environmental justice cumulative analysis is southern California and northern Baja Mexico, as these are the areas analyzed in the other environmental issue areas. The plans relied on for the cumulative analysis include the SCAG 2008 RTP and its EIR (SCAG 2008), the California-Baja California Border Master Plan (Caltrans 2008), and a number of other actions that may affect activities throughout the region including those at border crossings, airports, ports, petroleum pipelines, and freight lines. The SCAG RTP and associated EIR encompass the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura. The area of influence in the California-Baja California Border Master Plan includes the geographic area 60 miles north and south of the California-Baja California International Border. In California, it includes the counties of San Diego and Imperial. In Baja California, it includes the municipalities of Tijuana, Tecate, Playas de Rosarito, parts of Mexicali, and the urban area of Ensenada.

With regard to environmental justice impacts, it is important to consider the entire range of human health and environmental impacts that may result from land use and transportation system changes across the region as a whole because many issues are related across and along jurisdictional boundaries. Significant cumulative impacts related to environmental justice would occur if human health and environmental impacts accrue disproportionately to communities of concern in the United States.

Impacts of the 2050 RTP/SCS

With regard to transportation and mobility impacts, the RTP/SCS transportation projects planned for the region are not likely to cause impacts to communities of concern. As demonstrated in the discussion of existing conditions, communities of concern have a much higher percentage of persons with convenient access to jobs, schools, and transit stations when compared to the general population. Community of concern populations are particularly well served by public transit in the San Diego region when compared to the general population. Mobility and transportation impacts that may accrue disproportionately to environmental justice impacts in the foreseeable future will likely be related to overall transportation cost. Recently, energy and fuel costs have increased, which have increased the cost of owning and using automobiles for many families. For low income families, these added costs have exacerbated existing issues with financial stability, causing many families to substantially change how they live in an attempt to keep family budgets under control. These families, too, are less likely to adapt by being able to purchase more fuel efficient vehicles. Increases in transit cost would also affect low income communities in much the same way as increased fuel costs may, by straining already present family financial shortfalls – particularly if increased transit use occurs for these families in response to increased automobile fuel costs and less driving.
The 2050 RTP/SCS involves numerous transportation projects and community development initiatives that may create a range of human health and environmental impacts depending on their location, the surrounding geography, and the presence of sensitive receptors. Table 5-3 briefly summarizes the various cumulative impacts identified for each environmental issue area.

### Table 5-3
**Significant Cumulative Impacts by Issue Area**

<table>
<thead>
<tr>
<th>Issue Area</th>
<th>Summary of Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aesthetics</td>
<td>Blocking panoramic views; alterations of scenic highways; added elements of urban character.</td>
</tr>
<tr>
<td>Agriculture and Forest Resources</td>
<td>Changes in land use and a reduction of available agricultural and forest lands.</td>
</tr>
<tr>
<td>Hazards and Hazardous Materials</td>
<td>Increased wildfire risk.</td>
</tr>
<tr>
<td>Cultural and Paleontological Resources</td>
<td>Adverse changes in the significance of cultural and/or paleontological resources.</td>
</tr>
<tr>
<td>Geology, Soils, and Mineral Resources</td>
<td>Loss of mineral resource extraction locations.</td>
</tr>
<tr>
<td>Population and Housing</td>
<td>Substantial population growth.</td>
</tr>
<tr>
<td>Public Services and Utilities</td>
<td>Solid waste disposal impacts.</td>
</tr>
<tr>
<td>Recreation</td>
<td>Loss of park lands.</td>
</tr>
<tr>
<td>Air Quality</td>
<td>Increases in NOx, PM2.5, TACs, and other harmful pollutants.</td>
</tr>
<tr>
<td>GHG Emissions</td>
<td>Emissions in GHGs that would contribute to global climate change.</td>
</tr>
<tr>
<td>Hydrology and Water Quality</td>
<td>Impacts to water quality, drainage patterns, flood related hazards, and tsunami.</td>
</tr>
<tr>
<td>Land Use</td>
<td>Incompatibilities in planned land use.</td>
</tr>
<tr>
<td>Transportation</td>
<td>Inability to accommodate increased growth and resulting demand.</td>
</tr>
<tr>
<td>Noise</td>
<td>Temporary and permanent ambient noise increases.</td>
</tr>
</tbody>
</table>

It is expected that mitigation measures employed for all present and reasonably foreseeable projects would include provisions that would reduce many impacts associated with these various issue areas; however, it is likely that at least some projects would ultimately result in significant and unavoidable impacts. It is unknown at this time which areas may experience significant and unavoidable cumulative impacts, but many communities of concern are located within 0.5 mile of proposed transportation network improvement corridors and communities that may experience new development and/or additional growth. It is possible that significant and unavoidable cumulative impacts would accrue disproportionately to these populations depending on the location of the project and the other, more indirect impacts these projects may cause. Depending on the racial, ethnic, and socioeconomic characteristics of the stakeholder groups cumulatively affected by the 2050 RTP/SCS, the project would create a cumulative environmental justice impact under some environmental issue areas.

### Impacts of Associated Infrastructure Projects

The analysis of the 2050 RTP/SCS transportation network improvements found that a range of human health and environmental impacts could result due to improvements that introduce a new or expanded transportation facility, such as a trolley line extension, road widening, or double-tracking of a rail line. Related infrastructure projects, such as the HST could have similar types of impacts as identified for the 2050 RTP/SCS transportation improvements. Other infrastructure projects in the region would include extensions of the California Coastal Trail, a new petroleum pipeline, and increased rail capacity. Depending on the racial, ethnic, and socioeconomic characteristics of the stakeholder groups affected, it is possible that the California High Speed Rail project would disproportionately affect communities of concern. However, such impacts may not be realized over the 20-year time horizon for implementing the high-speed train system (HSRA 2005), nor may impacts be realized for other infrastructure projects in the region dependent on siting and applicable mitigation. Cumulatively, the EIR found that the high-speed...
train system project could contribute to cumulative impacts associated with a range of issue areas. Implementation of this project is anticipated by 2035. Other infrastructure projects in the region may also contribute to cumulative impacts, particularly noise and air quality impacts for transportation projects.

**Impact Projections in Adopted Plans**

The SCAG 2008 RTP EIR found that by increasing mobility and including land-use-transportation, the 2008 RTP would influence the pattern of urbanization. The 2008 RTP’s influence on growth would be cumulative considerable and contribute to a range of impacts throughout the region (SCAG 2008). The 2008 SCAG RTP planning horizon is 2035. This document and analyses were completed prior to the preparation of the 2050 RTP/SCS; thus, does not account for the impacts of the 2050 RTP/SCS.

The California-Baja California Border Master Plan is a bi-national comprehensive approach to coordinated 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 impacts across a range of environmental issues. 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 additional to the POE facility itself, complementary actions related to transportation should be considered (Caltrans 2008). This document was completed prior to the preparation of the 2050 RTP/SCS; thus, does not account for the 2050 RTP/SCS.

**Cumulative Impacts and Impact Conclusions**

2020, 2035, and 2050

Significant cumulative impacts in the years 2020, 2035, and 2050 would result if the combination of impacts of the 2050 RTP/SCS (across all issue areas evaluated as resulting in environmental justice impacts), the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As mentioned above, implementation of the transportation network improvements as proposed in the 2050 RTP/SCS would create a number of environmental justice impacts depending on the demographic and socioeconomic characteristics of the stakeholder groups affected. Similar impacts would occur as a result of the California High Speed Rail Train System, 2008 SCAG RTP, and various actions at the region’s airports, ports, border crossings, and rail lines. The combination of the direct and cumulative impacts of these projects and adopted plans that would affect the San Diego region could result in significant environmental justice impacts, again, depending on the populations affected.

Because cumulative environmental justice impacts throughout the southern California and northern Baja region would be significant, and because a number of 2050 RTP/SCS impacts would accrue disproportionately to communities of concern, the 2050 RTP/SCS impacts are also cumulatively considerable.

**Mitigation Measures**

Mitigation Measure EJ-A is meant to reduce environmental justice impacts, as described in Section 4.6.5. This mitigation measure would be applicable to cumulative environmental justice impacts as well. Associated infrastructure projects not included in the 2050 RTP/SCS should implement a similar mitigation measure.
Mitigation Measure EJ-A would include subsequent project-specific environmental review, including an environmental justice analysis, completed per CEQA and NEPA, as applicable, to further analyze the proposed improvements to determine how environmental impacts may accrue to communities of concern. In the event that environmental justice impacts are determined to occur, mitigation measures shall be developed that may include increased outreach to communities of concern, more culturally-specific outreach strategies to target specific community of concern populations, the involvement of community leaders in project planning and/or design, or the establishment of working groups with community of concern members to help guide the development of the project and communicate project impacts to the community, among other mitigation measures developed at that time that may improve communication and involvement between the agency and community stakeholders.

It is expected that Mitigation Measure EJ-A would reduce the 2050 RTP/SCS environmental justice impacts to below a level of significance. Therefore, the 2050 RTP/SCS incremental contributions to cumulative environmental justice impacts in the years 2020, 2035, and 2050 would cease to become cumulatively considerable post-mitigation.

5.2.7 GEOLOGY, SOILS, AND MINERAL RESOURCES

The area of geographic consideration for cumulative impacts is the southern California region, which includes the SANDAG region, the Southern California Association of Governments (SCAG) region (the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura), and northern Baja. Information on population forecasts and transportation network improvements was compiled from the documents listed in Section 5.01. Table 5-2 shows these population forecasts for 2020, 2035, and 2050. Information on planned residential development and land use changes in southern California is available in adopted land use plans for individual cities and counties.

It is important to consider how land use change and transportation system improvements in southern California and northern Baja may impact risks associated with geologic hazards, soils, and availability of mineral resources. The cumulative impact is the combination of the impacts of the 2050 RTP/SCS, related infrastructure projects, and impact projections in adopted plans. Significant cumulative impacts would occur if there were cumulative risks of geologic hazards, impacts to soils, and loss of availability of mineral resources in southern California and northern Baja.

Impacts of the 2050 RTP/SCS

Regional growth, land use changes, and the transportation network improvements assumed as part of the 2050 RTP/SCS would expose additional people and structures to seismic hazards such as ground shaking, fault rupture, liquefaction, earthquake-induced landslides as development occurs in hazard areas within the San Diego region. Future development forecasted would also place structures at risk to impacts caused by unstable soils, including expansive, collapsible, or unstable soils; landsliding; and cause erosion or loss of topsoil. Existing regulations discussed is Section 4.7.2 would assure most geologic and seismic hazards would be less-than-significant.

Existing regulations, however, would not reduce impacts to soil erosion and loss of topsoil or loss of availability of a known mineral resource. Regional growth and land use changes and transportation network improvements associated with the 2050 RTP/SCS would cause loss of availability of known mineral resources, and impacts would be significant for 2020, 2035, and 2050. Impacts to erosion and loss of topsoil would also be significant for these years, as major infrastructure projects associated with development and transportation network improvements would be implemented to accommodate forecasted growth.
Impacts of Associated Infrastructure Projects

Most of the southern California and northern Baja region is prone to seismic and geologic hazards (CSG 2007). The presence of regional faults and other geologic constraints increase the risk for structural damage and harm to populations caused by major earthquakes and other seismic hazards. These seismic and geologic constraints have the potential to create hazards to the public and the environment; proper building design can reduce potential property damage and human safety. Infrastructure projects planned in the southern California and northern Baja region, including the California High Speed Rail Train (HST), border/Port of Entry (POE) facility improvements, airport expansions in the San Diego region and Tijuana International Airport, port/maritime improvements, petroleum pipeline transportation infrastructure, and freight rail infrastructure, would subject additional people and structures to ground shaking, fault rupture, liquefaction, and earthquake-induced landslides. These infrastructure 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.

These impacts would generally be confined to a specific project area, rather than result in an incremental cumulative effect over the Southern California and Northern Baja California regions. All 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 are required and effectively reduce the effects of seismic activity and geologic hazards at the project level, as described in Section 4.7.5.

Infrastructure projects listed above would also cause soil erosion and loss of topsoil, particularly if they are located in erosion-prone areas or cause high amounts of water runoff. Soil erosion impacts from projects located outside the San Diego region but within the same watershed could add to soil erosion impacts from the 2050 RTP/SCS. The South Coast Watershed includes the counties of San Diego, Orange, Los Angeles, Ventura, and portions of San Bernardino and Riverside Counties (DOC 2007). The Tijuana River Watershed hydrologic unit encompasses the southern San Diego region and North Baja (EPA 2011). Application of existing stormwater regulations does not necessarily guarantee that erosion impacts will be less than significant for every project, particularly for large projects in areas prone to soil erosion.

Infrastructure projects which decrease available land in MRZ-2 locations would cause loss of availability of known mineral resources. According to the 2005 EIR/EIS prepared for the HST project, potential impacts on existing mineral resource areas and facilities in the southern California region would range from low to high, depending on the alignment alternative. Implementation of the California High Speed Rail Train System would be conducted in phases and is projected to be complete by 2035 (HSRA 2005). Border/POE projects would likely cause loss of available land with known mineral resources, as portions of land surrounding POE locations are within MRZ-2 zones.

Impact Projections in Adopted Plans

The EIR for the 2008 SCAG RTP, which analyzes impacts to the SCAG region to 2035, states that new transportation infrastructure and facilities associated with implementation of the proposed 2008 SCAG RTP would expose additional people and infrastructure to the effects of earthquakes and seismically-induced landsliding. Projects may also be located on expansive or unstable soils, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse. Impacts to soil erosion and loss of topsoil would also be significant (SCAG 2008).
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. 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. All 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 are required and effectively reduce the effects of seismic activity and geologic hazards at the project level, as described in Section 4.7.5. Projects associated with policy changes and amendments may also impact soil erosion and availability of known mineral resources, for the same reasons as discussed with infrastructure projects.

Cumulative Impacts and Impact Conclusions

2020

A significant cumulative impact in the year 2020 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As described above, implementation of the regional growth and land changes and transportation network improvements associated with the 2050 RTP/SCS would expose additional people and structures to seismic hazards such as ground shaking, fault rupture, liquefaction, earthquake-induced landslides as development occurs in hazard areas within the in San Diego region. Future development forecasted would also place structures at risk to impacts caused by unstable soils, including expansive, collapsible, or unstable soils; landsliding; and cause erosion or loss of topsoil. Impacts would generally be confined to a specific project area, rather than result in an incremental cumulative effect over the Southern California and Northern Baja California regions. All 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 effectively reduce the effects of seismic activity and geologic hazards at the project level, as described in Section 4.7.5. Therefore, the 2050 RTP/SCS would not result in cumulatively considerable impacts to the geologic and seismic hazards described above.

However, the 2050 RTP/SCS would significantly impact soil erosion and loss of topsoil, since existing regulations would not fully reduce impacts for large projects in erosion-prone areas, based on threshold GEO-3 in Section 4.7 Geology, Soils, and Mineral Resources. Combined with impacts from transportation facilities and other infrastructure projects located within the same watershed, impacts from the 2050 RTP/SCS would result in significant cumulative impacts to soil erosion and loss of topsoil.

The 2050 RTP/SCS would also significantly impact loss of availability of known mineral resources. Combined with potential impacts from the HST project and other infrastructure projects, impacts from the 2050 RTP/SCS would also result in significant cumulative impacts to availability of known mineral resources, based on threshold MR-1 in Section 4.7 Geology, Soils, and Mineral Resources.

Because cumulative impacts to soil erosion and mineral resources throughout the southern California and northern Baja region by 2020 would be significant, and because the 2050 RTP/SCS incremental impacts are significant, the 2050 RTP/SCS incremental impacts to geology, soils, and mineral resources are cumulatively considerable.
5.0 Cumulative Impacts

2035

As discussed above, a significant cumulative impact in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. Transportation and development projects associated with the 2050 RTP/SCS and other infrastructure projects in southern California and northern Baja would expose additional people and structures to geologic and seismic hazards such as ground shaking, fault rupture, liquefaction, earthquake-induced landslides, and would also place structures at risk to impacts caused by unstable soils, including expansive, collapsible, or unstable soils; landsliding; and cause erosion or loss of topsoil. Transportation network improvements and development projects associated with the 2050 RTP/SCS, as well as other infrastructure projects and development associated with adopted plans throughout the southern California and northern Baja region, would also result in loss of availability of known mineral resources.

Adherence to existing regulations described in Section 4.7.5 would effectively reduce the effects of seismic activity and geologic hazards at the project level. However, impacts from the 2050 RTP/SCS would result in significant cumulative impacts to soil erosion and loss of topsoil, as well as availability of known mineral resources. Because cumulative impacts to soil erosion and mineral resources throughout the southern California and northern Baja region by 2035 would be significant, and because the 2050 RTP/SCS incremental impacts are significant, the 2050 RTP/SCS incremental impacts to geology, soils, and mineral resources are cumulatively considerable.

2050

As discussed above, a significant cumulative impact in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. Transportation and development projects associated with the 2050 RTP/SCS and other infrastructure projects in southern California and northern Baja would expose additional people and structures to geologic and seismic hazards such as ground shaking, fault rupture, liquefaction, earthquake-induced landslides, and would also place structures at risk to impacts caused by unstable soils, including expansive, collapsible, or unstable soils; and landsliding. Adherence to existing regulations described in Section 4.7.5 would effectively reduce the effects of seismic activity and geologic hazards at the project level, and significant cumulative impacts in these issue areas would not occur. Although the 2050 time period is beyond implementation of the high speed rail project and the planning horizon of the adopted 2008 SCAG RTP and most adopted land use plans, this analysis would apply to future projects in the southern California and northern Baja region.

By 2050, transportation network improvements and development projects associated with the 2050 RTP/SCS would also result in significant impacts to soil erosion and loss of topsoil, as well as loss of availability of known mineral resources. Infrastructure projects developed in the southern California and northern Baja region by 2050 may cause soil erosion and loss of topsoil, particularly if located in erosion-prone areas or cause high amounts of water runoff. If located in an MRZ-2 location, infrastructure projects may also result in loss of availability of known mineral resources.

Because cumulative impacts to soil erosion and mineral resources throughout the southern California and northern Baja region by 2050 would be significant, and because the 2050 RTP/SCS incremental impacts are significant, the 2050 RTP/SCS incremental impacts to geology, soils, and mineral resources are cumulatively considerable.
5.0 Cumulative Impacts

Mitigation Measures

Mitigation Measure GEO-A to reduce impacts to soil erosion and loss of topsoil due to construction of transportation and infrastructure projects as identified in Section 4.7.5 would be applicable to cumulative impacts to soil erosion and loss of topsoil. Associated infrastructure projects not included in the 2050 RTP/SCS should implement a similar mitigation measure. Mitigation Measure GEO-A states that SANDAG shall and implementing agencies should, during project-specific design and CEQA review, develop and implement detailed erosion control mitigation measures tailored to the project and site to be developed and included in the SWPPP upon application for a Construction General Permit. As outlined in Section 4.7.6, Mitigation Measure GEO-A would reduce impacts from the 2050 RTP/SCS to soil erosion and loss of topsoil to a less-than-significant level. If other, infrastructure and development projects not included in the 2050 RTP/SCS implement a similar mitigation measure, the 2050 RTP/SCS incremental contributions to cumulative impacts for soil erosion and loss of topsoil in years 2020, 2035, and 2050 would not remain cumulatively considerable post-mitigation.

Mitigation Measures MR-A and MR-B to reduce impacts to availability of known mineral resources, as identified in Section 4.7.5, would be applicable to cumulative impacts to availability of known mineral resources. Associated infrastructure projects not included in the 2050 RTP/SCS should implement a similar mitigation measure. Mitigation Measure MR-A would require local jurisdictions to identify policies and objectives in their General Plan updates to conserve the most suitable lands in MRZ-2 locations for mineral resource extraction. Mitigation Measure MR-B would require SANDAG and implementing agencies to conserve the most suitable lands in MRZ-2 locations by evaluating alternative route alignments and locations for transportation facilities. However, as outlined in Section 4.7.5, these mitigation measures would not guarantee reduction of all 2050 RTP/SCS impacts to availability of known mineral resources to below a level of significance. Therefore, the 2050 RTP/SCS 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 geographic scope for global climate change and Greenhouse Gas (GHG) Emissions cumulative analysis is the state of California. A combined summary of projections and list of projects approach is used for analysis.

Impacts of 2050 RTP/SCS

As discussed Section 4.8.1, GHG emissions and impacts to global climate change are inherently cumulative. The GHG emissions impacts associated with implementation of the 2050 RTP/SCS are discussed Section 4.8.4. The section analyzes impacts resulting from the two main components of the 2050 RTP/SCS: regional growth/land use changes and transportation network improvements. In addition, the analysis for each significance criteria includes a programmatic-level discussion of anticipated GHG impacts in the planning horizon years of 2020, 2035 and 2050. In 2010, the GHG emissions for the region were 28.86 MMTCO2e.

The RTP/SCS estimates that San Diego’s net land use and transportation improvement GHG emissions will total 26.41 MMTCO2e for the year 2020. Implementation of the RTP/SCS would not substantially increase GHG emissions from 2010 to 2020. Therefore, there would be a less than significant impact in 2020.
Implementation of the proposed 2050 RTP/SCS projects would result in GHG emissions that total 30.18 MMT CO₂e for the year 2035. There would be an overall increase in 2035 compared to 2010 resulting in a significant impact for 2035.

The RTP/SCS estimates that San Diego’s net land use and transportation improvement GHG emissions will total 33.65 MMT CO₂e for the year 2050. Emissions for 2050 would increase over baseline levels and result in a significant impact.

The 2050 RTP/SCS also demonstrates how the region will meet the GHG targets related to SB 375 for passenger cars and light-duty trucks established by CARB for 2020 and 2035 by using land in a way that makes development more compact, conserving open space, and investing in a transportation network that reduces vehicle miles travelled and gives residents alternative transportation options. The RTP/SCS meets the targets. Therefore, the impact is less than significant.

**Impacts of Associated Infrastructure Projects**

Infrastructure projects planned in the southern California region, including the California High Speed Rail Train (HST), border/Port of Entry (POE) facility improvements, airport expansions in the San Diego region, port/maritime improvements, petroleum pipeline transportation infrastructure, and freight rail infrastructure, would have similar impacts as those described for the 2050 RTP/SCS transportation network improvements.

The EIR for the Proposed California HST concluded that the Proposed HST Alternative would reduce CO₂ emissions by approximately 1.43 percent compared to the No Project Alternative. The programmatic analysis in the EIR reviewed the potential global climate change impacts of the proposed HST system. Mitigation measures were also provided for implementation on a project level basis. Refer to the EIR for a complete list of the suggested mitigation measures for GHGs (CHSRA 2005).

The ports of entry (POE) in the San Diego Region San Ysidro, Tecate, would add additional GHG emissions to the San Diego region. However, the EIS for the San Ysidro Land Port of Entry Improvements Project concluded that the Preferred Alternative would result in a net decrease in GHG emissions due to improved traffic flow and associated reductions in idling times at the border crossing.

While some additional infrastructure projects would result in a reduction in GHG emissions associated with increased transit use and improved traffic flow, projects not included in the 2050 RTP/SCS could result in increased GHG emissions.

**Impact Projections in Adopted Plans**

The State of California was selected for analysis, in part, based on the existence of the approved AB 32 Scoping Plan which proposes a comprehensive set of actions designed to reduce overall GHG emissions in California. The Scoping Plan focuses on reductions and actions through 2020, and it does not included detailed projections through 2050.

Figure 5.0-4 below shows projected California GHG Emissions in 2020 and Recommended Reduction Measures. The Scoping Plan contains the main strategies California will implement to reduce CO₂e emissions by 174 MMT from the state’s projected 2020 emissions level of 596 MMT of CO₂e under a business-as-usual scenario. These reductions will allow California to achieve the AB 32 goal of reducing statewide GHG emissions to 1990 levels by 2020.
Figure 5.0-4. California GHG Emissions in 2020 and Recommended Reduction Measures

However, the Scoping Plan does include additional information on possible GHG emission reduction scenarios through 2050 that will be achieved through SB 375 and other land use and transportation strategies.

The Scoping Plan, Appendix I, Part 3 also discusses reduction strategies for reduction of GHGs through 2050, including all modes and sectors of transportation. The Scoping Plan also includes a section on the long range benefits of Land Use and Transportation Strategies (Appendix 1, pp. C-74, C-90, C-96).

Cumulative Impacts and Impact Conclusions

As mentioned earlier, the Scoping Plan does not include GHG emission projections for the state of California beyond the year 2020. In order to compare the possible future impacts for the 2050 RTP/SCS, GHG emissions were projected for the years 2035 and 2050 for the state of California. These projections are based on historical data, as well as information included in the Scoping Plan. The projections for the state of California assume that the 174 MMT CO2e included in the Scoping Plan will continue at the same rate for future years. Although GHG emissions reductions are likely to occur as a result of State, regional and local programs, it is not possible to know precisely the extent of the emissions reductions, especially as they may vary among jurisdictions. Therefore, the projections do not assume that additional reductions beyond the Scoping Plan measures will occur in 2035 and 2050.

2020

A significant cumulative impact in the year 2020 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently
5.0 Cumulative Impacts

significant. CARB’s Scoping Plan includes a description and evaluation of the statewide and regional conditions contributing to GHG cumulative impacts. The Scoping Plan also considered the reduction in GHG emissions attributable to land use and transportation strategies through 2020.

The Scoping Plan statewide projections account for GHG emissions from regional transportation and land use sources, including both those from the 2050 RTP/SCS and additional infrastructure projects not included in the constrained RTP. Implementation of the Scoping Plan would result in 2020 statewide GHG emissions being lower than in 2010; the net GHG emissions in 2020 are 422 MMT CO$_2$e compared with the 2010 emissions of 522 MMT CO$_2$e. The Scoping Plan would meet the emission reduction goals as required by AB 32.

As discussed in Section 4.8, implementation of the 2050 RTP/SCS would not substantially increase the GHG emissions in 2020 from 2010 levels and would result in less than a significant impact. Transportation and land-use change GHG emissions in 2020 in the San Diego region are expected to be lower than in 2010, consistent with the statewide estimates for 2020. Thus, the combination of the 2050 RTP/SCS and continued growth and development through the rest of California would not result in significant cumulative impact.

Because cumulative global climate change impacts throughout California by 2020 would be less than significant, and because the 2050 RTP/SCS incremental global climate change impacts are less than significant, the 2050 RTP/SCS incremental global climate change impacts would be less than cumulatively considerable.

SB 375 requires CARB to develop regional greenhouse gas emission reduction targets, compared to 2005 emissions, for car and light trucks for 2020 for each of the state’s MPO’s. The targets are established for each metropolitan region, and therefore, the cumulative impact is based on emissions only related to development that occurs in that area. For SANDAG, the targets are to reduce per-capita CO$_2$ emissions 7% below 2005 levels by 2020. As discussed in Section 4.8, per-capita transportation-related GHG emissions would be 47.617.5 lbs CO$_2$e per day, or a 36 percent reduction in per-capita emissions compared to 2005 levels. Therefore, implementation of the 2050 RTP/SCS would not conflict with SB 375 targets in 2020 and would not result in a significant cumulative impact. The 2050 RTP/SCS incremental global climate change impacts would be less than cumulatively considerable.

2035

A significant cumulative impact in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. Because at this time, AB 32 and the Scoping Plan do not call for specific GHG reduction measures beyond 2020, it is possible that statewide 2035 GHG emissions could increase.

As shown in Table 5-4, the net GHG emissions for the state of California in 2035 are 497 MMT CO$_2$e compared with the 2010 emissions of 522 MMT CO$_2$e. The total emissions expected in 2035 for both regional growth/land use change and transportation network improvements associated with the 2050 RTP/SCS would be 30.24-30.18 MMT CO$_2$e, accounting for state measures and including construction-related emissions. Compared with the estimated 2010 emissions of 28.8528.86 MMT CO$_2$e, implementation of the 2050 RTP/SCS would lead to an overall increase in GHG emissions in 2035 over baseline conditions. The combined 2050 RTP/SCS emissions and projections for the state of California would not increase overall emissions above 2010 levels; the additional 1.33-1.33 MMT CO$_2$e would result in a total of 498 MMT CO$_2$e compared with the 2010 emissions of 522 MMT CO$_2$e.
5.0 Cumulative Impacts

Table 5-4
State of California GHG Emission Projections

<table>
<thead>
<tr>
<th></th>
<th>1990</th>
<th>2010</th>
<th>2020</th>
<th>2035</th>
<th>2050</th>
</tr>
</thead>
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<tr>
<td>State of California</td>
<td>427</td>
<td>522</td>
<td>422</td>
<td>497</td>
<td>580</td>
</tr>
</tbody>
</table>

Source: AECOM 2011

However, the 2050 RTP/SCS would still result in a significant impact since there could be a net increase in 2010 GHG emissions (see Significance Criterion GHG-1) for the San Diego region in 2035. In addition, many of the infrastructure projects not included on the RTP/SCS would be coming on line during this period and adding GHG emissions. The Scoping Plan does not include projections or additional emissions that would occur in 2035. Since these additional emissions are not quantified, it is possible that implementation of the 2050 RTP/SCS and other projects throughout California could lead to an overall net increase in 2035 emissions above 2010 levels. Thus, the combination of the 2050 RTP/SCS and continued growth and development through the rest of California would result in significant cumulative impact.

Because cumulative global climate change impacts throughout California by 2035 could result in a significant increase in GHG levels, and because the 2050 RTP/SCS incremental global climate change impacts are significant, the 2050 RTP/SCS incremental global climate change impacts are cumulatively considerable.

Similar to 2020, SB 375 requires CARB to develop regional greenhouse gas emission reduction targets, compared to 2005 emissions, for car and light trucks for 2035. For SANDAG, the targets are to reduce per-capita CO₂ emissions 13% below 2005 levels by 2035. As discussed in Section 4.8, per-capita transportation-related GHG emission would be 14–15.4 lbs CO₂e/person/day, or a 43 percent reduction in per-capita emissions compared to 2005 levels. Therefore, implementation of the 2050 RTP/SCS would not conflict with SB 375 targets in 2035 and would not result in a significant cumulative impact. The 2050 RTP/SCS incremental global climate change impacts would be less than cumulatively considerable.

2050

A significant cumulative impact in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. Because at this time, AB 32 and the Scoping Plan do not call for specific GHG reduction measures beyond 2020, it is possible that statewide 2050 GHG emissions could increase, eventually exceeding statewide 2010 emissions.

As shown in Table 5-4, the net GHG emissions for the state of California in 2050 are 580 MMT CO₂e compared with the 2010 emissions of 522 MMT CO₂e. Land use changes and transportation network improvements associated with additional infrastructure projects and plans developed in the San Diego region by 2050 would increase GHG emissions to 33.4533.70 MMT CO₂e. Land-use and transportation-related GHG emissions in 2050 are expected to be greater than in 2010. Implementation of the 2050 RTP/SCS would lead to an overall increase in GHG emissions compared to baseline levels and constitutes a significant impact. In addition, many of the infrastructure projects not included on the RTP/SCS would be coming on line during this period and adding additional GHG emissions. This would be a significant cumulative impact since there could be a net increase in 2010 GHG emissions (see Significance Criterion GHG-1) in 2050 would add to this potentially significant cumulative impact. Thus, the combination of the 2050 RTP/SCS and continued growth and development through the rest of California would result significant cumulative global climate change impacts.
Because cumulative global climate change impacts throughout California by 2050 would be significant, and because the 2050 RTP/SCS incremental global climate change impacts are significant, the 2050 RTP/SCS incremental global climate change impacts are cumulatively considerable.

SB 375 does not require CARB to develop regional greenhouse gas emission reduction targets, compared to 2005 emissions, for car and light trucks for 2050. Because CARB has not developed a target for 2050, no analysis is provided for that year.

**Mitigation Measures**

Implementation of Mitigation Measures GHG-A through GHG-C would reduce direct and indirect impacts of the 2050 RTP/SCS. For the SANDAG 2050 RTP/SCS, SANDAG shall and other implementing agencies should implement Mitigation Measures GHG-A, B, and C. Similarly, SANDAG shall and other implementing agencies should implement Mitigation Measures GHG-A, B, and C, as applicable, for infrastructure projects not included in the constrained RTP.

There is no assurance that the proposed mitigation would reduce impacts of all development and transportation network improvement projects to a less than significant level. Therefore, the 2050 RTP/SCS incremental contributions to the global climate change impacts in 2035 and 2050 that would occur throughout California would remain cumulatively considerable post-mitigation.

**5.2.9 HAZARDS AND HAZARDOUS MATERIALS**

Typically, the geographic scope of cumulative impact analysis for hazards and hazardous materials includes the area immediately surrounding the affected hazardous materials location. However, the 2050 RTP/SCS includes the entire San Diego region and this cumulative analysis considers the combination of the impacts of the 2050 RTP/SCS, related infrastructure projects, and impact projections in adopted plans for neighboring regions. Therefore, the area of geographic consideration for cumulative impacts related to hazards and hazardous materials is the southern California and northern Baja California region. The southern California region includes the SANDAG region, the Southern California Association of Governments (SCAG) region (the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura). The northern Baja region includes the municipalities of Tijuana, Tecate, Playas de Rosarito, parts of Mexicali, and the urban area of Ensenada.

This cumulative impact assessment relies on the impact analysis within this EIR for the 2050 RTP/SCS and SCAG 2008 RTP and its EIR (SCAG 2008) for the southern California region. The projects within the California-Baja California Border Master Plan are also considered for this analysis; however, there is not an environmental document associated with this Master Plan (Caltrans 2008a). Information on population forecasts and transportation network improvements was compiled from the documents listed in Section 5.2. Information on planned residential development and land use changes in southern California is available in adopted land use plans for individual cities and counties.

**Impacts of the 2050 RTP/SCS**

Regional growth, land use changes, and the transportation network improvements assumed as part of the 2050 RTP/SCS would increase the risk of 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; handling or emissions of hazardous or acutely hazardous materials, substances, or waste within one quarter-mile of an existing or proposed school; and/or implementation of
a project located on or near a hazardous materials site. Future development and transportation network improvements would also occur near public airports and private airstrips, potentially exposing people and the environment to aircraft and airport-related safety hazards. Additionally, increased development and transportation network improvements may 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. However, adherence to the existing regulations discussed in Section 4.9.2 would assure that impacts related to these issue areas would be less than significant within each horizon year analyzed (2020, 2035, and 2050).

Existing regulations, however, would not reduce impacts related to wildland fires. Given the relatively large amount of area within the San Diego region that is considered to be at high risk for wildland fires, additional 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 zone. Furthermore, the frequency and intensity of wildland fires is predicted to increase over time due to climate change. This could occur within each horizon year analyzed (2020, 2035, and 2050). Therefore, impacts related to wildland fire hazards would be significant.

Impacts of Associated Infrastructure Projects

Related infrastructure projects planned in the southern California and northern Baja region, including the California High Speed Rail Train (HST), border/Port of Entry (POE) facility improvements, airport expansions in the San Diego region and Tijuana International Airport, port/maritime improvements, petroleum pipeline transportation infrastructure, and freight rail infrastructure could result in similar types of impacts as identified for the 2050 RTP/SCS. For example, the HSR project may result in dewatering during excavation, trenching, or tunneling could alter local subsurface hydraulic gradients and draw groundwater contamination into excavated areas, trenches, or tunnels. In addition, fuel or chemical vapors found in contaminated areas could be released into to excavated areas (during construction), or to underground structures associated with the rail line such as vaults and manholes (during project operation) (California High Speed Rail Authority 2005). However, the HST Final Program EIR/EIS determined that any hazardous wastes encountered through ground-disturbing activities during construction of either alternative would be handled and disposed of in accordance with regulatory requirements. Cumulatively, the EIR/EIS determined that project impacts related to hazardous material and waste would not be cumulatively considerable.

Impact Projections in Adopted Plans

The SCAG 2008 RTP EIR found that by increasing mobility and including land-use-transportation measures, the 2008 RTP would influence the pattern of this urbanization. The 2008 RTP’s influence on growth would be cumulatively considerable and contribute to regionally significant impacts related to hazardous material transportation and the disturbance of contaminated sites by new urban development (SCAG 2008). In addition, the 2008 RTP’s influence on growth contributes to regional cumulatively considerable fire threat to development in the SCAG region. The SCAG 2008 RTP planning horizon is 2035. This document and the analysis within do not account for year 2050 impacts.

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; however, 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. No detailed environmental analysis of these issue areas were conducted for this Master
Plan. However, the construction of new facilities would add to existing impacts from the projects associated with both the SANDAG and SCAG RTPs.

**Cumulative Impacts and Impact Conclusions**

**2020**

A significant cumulative impact in the year 2020 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. Future development associated with increased population growth forecasted in the 2050 RTP/SCS would increase the number of people potentially exposed to impacts related to hazardous materials, airport safety hazards, and interference with emergency response or emergency, and wildland fires.

As discussed in Section 4.9.4, implementation of the 2050 RTP/SCS could involve potential risks to human health and/or the environment from exposure to the hazards and/or release hazardous materials, including the risk of 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; handling or emissions of hazardous or acutely hazardous materials, substances, or waste within one quarter-mile of an existing or proposed school; and/or implementation of a project located on or near a hazardous materials site. Impacts associated with these hazards would generally be confined to a specific project area, rather than result in an incremental cumulative effect over the Southern California and Northern Baja California regions. Adherence to federal, state, and local regulations as described in Section 4.9.2 would minimize incremental impacts associated with exposure to hazards and hazardous materials in each of the affected project areas. 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 2050 RTP/SCS would also occur near public airports and private airstrips, potentially exposing people and the environment to aircraft and airport-related safety hazards. Related infrastructure projects in the southern California and northern Baja California regions would potentially result in incompatible land uses within the vicinity of a public airport or a private airstrip. This could result in a significant safety hazard for people residing or working in these project areas. However, cumulative projects would be subject to safety regulations as discussed in Section 4.9.2, such as ALUCPs, FAA standards and the State Aeronautics Act, which would assure safety hazards would be less than significant. Therefore, cumulative impacts associated with potentially exposing people and the environment 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 forecasted in the 2050 RTP/SCS may 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 infrastructure projects in the southern California and northern Baja California regions would also have the potential to impair existing emergency and evacuation plans. However, cumulative projects would be required to adhere to the applicable emergency response and evacuation policies outlined in regulations discussed in Section 4.9.2. Therefore, cumulative impacts associated with the interference in the implementation of an emergency response and evacuation plans would be less than significant.

However, increased development and transportation network improvements forecasted in the 2050 RTP/SCS would likely occur, at least to some extent, within high risk fire areas as discussed in Section 4.9.4. In addition, regional growth forecasted in southern California and northern Baja California would
likely place people and/or property within danger of wildland fires, due the widespread risk across these regions. Furthermore, as a result of climate change, more frequent and severe wildland fires are predicted in the future. Given the level of uncertainty with climate change, it is difficult to predict the magnitude of wildfire impacts. However, given the forecasted growth in the region, the location of future transportation network improvements, and the general susceptibility of the region to wildland fires, this is a significant cumulative impact. Although regulations exist to reduce cumulative hazards associated with wildland fires, they would not reduce the risk to below a level of significance. Because the 2050 RTP/SCS incremental impacts on wildfire hazards would be significant, they would also be cumulatively considerable.

2035

A significant cumulative impact in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. The cumulative analysis presented above for the horizon year of 2020 would be applicable to year 2035. 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; handling or emissions of hazardous or acutely hazardous materials, substances, or waste within one quarter-mile of an existing or proposed school; implementation of a project located on or near a hazardous materials site; potentially exposing people and the environment 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 plans. However, 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 opportunities for adverse impacts related wildland fires. Furthermore, as a result of climate change, more frequent and severe wildland fires are predicted in the future. Given the level of uncertainty with climate change, it is difficult to predict the magnitude of wildfire impacts. However, given the forecasted growth in the region, the location of future transportation network improvements, 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 risk to below a level of significance. Because the 2050 RTP/SCS incremental impacts on wildfire hazards would be significant, they would also be cumulatively considerable.

2050

A significant cumulative impact in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. 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; handling or emissions of hazardous or acutely hazardous materials, substances, or waste within one quarter-mile of an existing or proposed school; implementation of a project located on or near a hazardous materials site; potentially exposing people and the environment 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 plans. However, 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 related wildland fires. Furthermore, as a result of climate change, more frequent and severe wildland fires are predicted in the future. Given the level of uncertainty with climate change, it is difficult to predict the magnitude of wildfire impacts. However, given the forecasted growth in the region, the location of future transportation network improvements, 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 risk to below a level of significance. Because the 2050 RTP/SCS incremental impacts on wildfire hazards would be significant, they would also be cumulatively considerable.

**Mitigation Measures**

Implementation of the 2050 RTP/SCS would result in significant cumulative impacts associated with wildland fire in 2020, 2035, and 2050 as development would be implemented in areas that are known to be at high risk for wildland fires. While policies and programs are in place at the regional and local levels to reduce impacts associated with wildland fires, it is not possible to conclude that impacts would be reduced to a level less than significant due to the overall vulnerability of the region to fire hazards and the indirect impacts fire events have on other environmental resource areas, such as infrastructure and sensitive biological resources. Implementation of Mitigation Measures HM-A, HM-B, and HM-C would reduce impacts, though not below a less than significant level. Several mitigation measures were considered in attempting to reduce impacts associated with wildland fires to below a level of significance, as discussed in Section 4.9.5. However, it has been determined that these measures would be infeasible as they would be cost-prohibitive or cause direct or indirect impacts to other issue areas such as aesthetics and biological resources; therefore, these mitigation measures would not be implemented. Because there are no feasible mitigation measures to impacts to less than significant levels, 2050 RTP/SCS incremental impacts associated with wildland fires remain significant and unavoidable. Therefore, the 2050 RTP/SCS incremental contributions to significant cumulative impacts related to wildland fires remain cumulatively considerable post-mitigation.

**5.2.10 HYDROLOGY AND WATER QUALITY**

The geographic scope for the hydrology and water quality cumulative analysis is southern California and northern Baja Mexico. The area includes the San Diego region, the Southern California Association of Governments (SCAG) region (the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura), and northern Baja. Information on population forecasts and transportation network improvements was compiled from the documents listed in Section 5.01. Table 5-2 shows these population forecasts for 2020, 2035, and 2050. Information on planned residential development and land use changes in southern California is available in adopted land use plans for individual cities and counties. Some of the plans that were relied upon for the cumulative analysis include the Water Quality Control Plans for the five basins within the greater region: San Diego Basin (Region 9), Colorado River Basin (Region 9), Santa Ana Basin (Region 9), Los Angeles Basin (Region 9), and the Lahontan Basin (Region 9). As discussed in Section 4.10.2, these basin plans set forth water quality objectives for constituents that could have a significant impact related to the beneficial uses of water.

It is important to consider land use change and how the transportation system may influence the development pattern across the region as a whole because the majority of water bodies within the San Diego region are part of hydrologic systems located in multiple jurisdictions. As a result, water pollution produced by urban development in one jurisdiction can result in hydrology and water quality impacts that
affect other jurisdictions or the entire region. The cumulative impact is the combination of the impacts of the 2050 RTP/SCS, related infrastructure projects, and impact projections in adopted plans. Significant cumulative hydrologic and water quality impacts would occur if the 2050 RTP/SCS, adopted plans, and associated infrastructure were to cause cumulative impacts on water quality, drainage patterns, flood related hazards, and tsunami, seiche, and mudflows.

Impacts of the 2050 RTP/SCS

Regional growth, land use changes, and the transportation network improvements associated with the 2050 RTP/SCS would result in increased impervious surfaces within the region’s watersheds. Increases in impervious area would result in hydrologic impacts associated with water quality, absorption rates, drainage patterns, or rates of surface runoff, and impacts to floodplains. In addition, there is potential for increased flooding hazards due to climate change. Compliance with existing regulations discussed is Section 4.10.2 would assure the majority of these hydrologic and water quality impacts would be less-than-significant.

Though existing regulations would reduce impacts to drainage patterns, they would not be reduced to a level that is less than significant, as discussed in Section 4.10.4. Regional growth and land use changes and transportation network improvements associated with the 2050 RTP/SCS could substantially alter drainage patterns in a manner that would cause significant water quality impacts since the projects may occur in areas that are erosion prone and/or are in sensitive watersheds for 2020, 2035, and 2050.

Impacts of Associated Infrastructure Projects

Infrastructure projects planned in the southern California and northern Baja region, including the California High Speed Rail Train (HST), border/Port of Entry (POE) facility improvements, airport expansions in the San Diego region and Tijuana International Airport, port/maritime improvements, petroleum pipeline transportation infrastructure, and freight rail infrastructure, would have similar impacts as those described for the 2050 RTP/SCS transportation network improvements. These projects could result in impacts to hydrology and water quality. The severity of these impacts would be determined by the location of the projects within the watersheds, the sensitivity of the receiving bodies and the types of BMPs employed.

The EIR for the California High-Speed Train System concluded that on a programmatic level compliance with existing regulations would reduce all hydrology and water quality impacts to a level that is less than significant. Mitigation measures were also provided for implementation on a project level basis. Measures designed to avoid or limit impacts should be considered first and then, reconstruction, restoration, or replacement of resource measures should be considered second. Refer to the EIR for a complete list of the suggested mitigation measures for hydrology and water quality (HSRA 2005).

The three ports of entry (POE) in the San Diego Region San Ysidro, Tecate, and Otay Mesa could impact hydrology and water quality of the region, specifically, the Tijuana River Watershed. However, the EIS for the San Ysidro Land Port of Entry Improvements Project concluded that there would be no short or long-term impacts to hydrology and water quality with the implementation of the appropriate BMPs and conformance with all applicable regulations (USGSA 2009). A similar conclusion is expected from the other proposed improvements at the other ports of entry in the San Diego region.

Infrastructure projects listed above would impact drainage areas within the region, particularly if they are located in erosion-prone areas or cause high amounts of water runoff. Soil erosion impacts from projects located outside the San Diego region but within the same watershed could add to soil erosion impacts
from the 2050 RTP/SCS. The South Coast Watershed includes the counties of San Diego, Orange, Los Angeles, Ventura, and portions of San Bernardino and Riverside Counties (DOC 2007). The Tijuana River Watershed hydrologic unit encompasses the southern San Diego region and North Baja (EPA 2011). Application of existing stormwater regulations does not necessarily guarantee that erosion impacts will be less than significant for every project, particularly for large projects in areas prone to soil erosion.

**Impact Projections in Adopted Plans**

The EIR for the 2008 SCAG RTP, which analyzes impacts to the SCAG region to 2035, states that new transportation infrastructure and facilities associated with implementation of the 2008 SCAG RTP would significantly impact groundwater infiltration, water quality, and drainage patterns and have a less than significant impact to 100-year floodplains and related flood hazards (SCAG 2008).

Water Quality Control Plans or Basin Plans have been written by each RWQCB. They 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.

When a water body does not meet the water quality standards after technology-based controls, it is listed as a Water Quality Limited Segment under section 303(d). 303(d) listed water bodies are ranked by priority for development of their Total Maximum Daily Loads (TMDLs). The TMDL is the maximum amount of pollutant that can be discharge into a water body while maintaining while quality standards. Many water bodies have been 303(d) listed, but the TMDL has yet to be developed. Projects implemented that would discharge to a 303(d) listed water body must be designed to protect its beneficial uses. If the TMDL has been established, project proponents must work with the RWQCB and local agencies to assure the project does not cause exceedances.

The RWQCBs have also developed Erosion and Sediment Control Programs designed to protect water quality through the reduction and prevention of accelerated erosion to a level that is necessary to restore and protect beneficial uses of receiving waters now significantly impaired, or threatened by impairment, by sediment. Property owners are considered ultimately responsible for all adverse impacts to water quality from waste discharges and surface runoff. Local governments and agencies are responsible for controlling land use and construction activities that may cause erosion. They also may impose further conditions to protect water quality. BMPs should be implemented to reduce erosion and sedimentation.

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. 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, the sensitivity of the receiving bodies and the types of BMPs employed. All projects would be required to adhere to all of the regulatory requirements described in Section 4.10.2. Projects associated with policy changes and amendments may also impact hydrology and water quality, for the same reasons as discussed with infrastructure projects.

Waste discharges into receiving waters from Northern Baja California could ultimately discharge into the Tijuana River and the Pacific Ocean where it would impact beaches in the southern part of the San Diego Region. The Tijuana River is 303(d) listed for impairments from eutrophic conditions, indicator bacteria, low dissolved oxygen, pesticides, solids synthetic organics, trace elements and Trash. 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. Discharges from Northern Baja, though 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 combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As described above, implementation of the regional growth and land changes and transportation network improvements associated with the 2050 RTP/SCS would result in increased impervious surfaces within the region’s watersheds. Increases in impervious area would result in hydrologic impacts associated with water quality, absorption rates, drainage patterns, or rates of surface runoff, and impacts to floodplains. In addition, there is potential for increased flooding hazards due to climate change. Through compliance with existing regulations, the impacts to water quality, 100-year floodplain, flood hazards, seiche, tsunami, and mudflows would be reduced to a level that is less than significant, as discussed in Section 4.10.4. With the requirement for the protection of beneficial uses extending into the future, the strict water quality objectives, and the regulations pertaining to the floodplain and flood hazards, the impacts to these resources would be considered cumulatively less than significant.

Also discussed in Section 4.10.4, although compliance with existing regulation would reduce impacts to drainage patterns (WQ-2), site specific conditions would determine the severity of the impacts and regulations will not guarantee that impacts would be less than significant. Since the basin plans were written prior to the 2050 RTP/SCS, the proposed regional growth and transportation network improvements may not have been accounted for in the plans. As such, 2050 RTP/SCS would have a significant cumulative impact to drainage patterns.

**2035**

As discussed above, a significant cumulative impact in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. Transportation and development projects associated with the 2050 RTP/SCS and other infrastructure projects in southern California and northern Baja would result in increased impervious surfaces within the region’s watersheds. Increases in impervious area would result in hydrologic impacts associated with water quality, absorption rates, drainage patterns, or rates of surface runoff, and impacts to floodplains. In addition, there is potential for increased flooding hazards due to climate change. Through compliance with existing regulations, the impacts to water quality, 100-year floodplain, flood hazards, seiche, tsunami, and mudflows would be reduced to a level that is less than significant, as discussed in Section 4.10.4. With the requirement for the protection of beneficial uses extending into the future, the strict water quality objectives, and the regulations pertaining to the floodplain and flood hazards, the impacts to these resources would be considered cumulatively less than significant.

Also discussed in Section 4.10.4, although compliance with existing regulation would reduce impacts to drainage patterns (WQ-2), site specific conditions would determine the severity of the impacts and regulations will not guarantee that impacts would be less than significant. Since the basin plans were written prior to the 2050 RTP/SCS, the proposed regional growth and transportation network
improvements may not have been accounted for in the plans. As such, 2050 RTP/SCS would have a significant cumulative impact to drainage patterns.

2050

As discussed above, a significant cumulative impact in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. Transportation and development projects associated with the 2050 RTP/SCS and other infrastructure projects in southern California and northern Baja would result in increased impervious surfaces within the region’s watersheds. Increases in impervious area would result in hydrologic impacts associated with water quality, absorption rates, drainage patterns, or rates of surface runoff, and impacts to floodplains. In addition, there is potential for increased flooding hazards due to climate change. Through compliance with existing regulations, the impacts to water quality, 100-year floodplain, flood hazards, seiche, tsunami, and mudflows would be reduced to a level that is less than significant, as discussed in Section 4.10.4. With the requirement for the protection of beneficial uses extending into the future, the strict water quality objectives, and the regulations pertaining to the floodplain and flood hazards, the impacts to these resources would be considered cumulatively less than significant.

Also discussed in Section 4.10.4, although compliance with existing regulation would reduce impacts to drainage patterns (WQ-2), site specific conditions would determine the severity of the impacts and regulations will not guarantee that impacts would be less than significant. Since the basin plans were written prior to the 2050 RTP/SCS, the proposed regional growth and transportation network improvements may not have been accounted for in the plans. As such, 2050 RTP/SCS would have a significant cumulative impact to drainage patterns.

Although the 2050 time period is beyond implementation of the high speed rail project and the planning horizon of the adopted 2008 SCAG RTP and most adopted land use plans, this analysis would apply to any future project in the southern California and northern Baja region.

Mitigation Measures

Mitigation Measure WQ-A to reduce impacts to drainage patterns from regional growth and transportation network improvements as identified in Section 4.10.5 would be applicable to cumulative impacts to drainage patterns. Associated infrastructure projects not included in the 2050 RTP/SCS should implement a similar mitigation measure. Mitigation Measure WQ-A states that SANDAG shall, and implementing agencies can and should, during project-specific design and CEQA review, develop and implement detailed erosion control mitigation measures tailored to the project and site to be developed and included in the SWPPP upon application for a Construction General Permit and implement LID design features to the maximum extent practicable. As outlined in Section 4.10.6, Mitigation Measure WQ-A would reduce impacts from the 2050 RTP/SCS to drainage patterns to a less-than-significant level. If other infrastructure and development projects not included in the 2050 RTP/SCS implement a similar mitigation measure, the 2050 RTP/SCS incremental contributions to cumulative impacts for drainage patterns in years 2020, 2035, and 2050 would not remain cumulatively considerable post-mitigation.

5.2.11 LAND USE

The geographic scope for the land use cumulative analysis is southern California and northern Baja Mexico. The plans relied on for the cumulative analysis include: (1) the SCAG 2008 RTP and its EIR
(SCAG 2008) and (2) the California-Baja California Border Master Plan (Caltrans 2008). The SCAG RTP and associated EIR encompass the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura. The area of Influence in the California-Baja Border Master Plan includes the geographic area 60 miles north and south of the California-Baja California International Border. In California, it includes the counties of San Diego and Imperial. In Baja California, it includes the municipalities of Tijuana, Tecate, Playas de Rosarito, parts of Mexicali, and the urban area of Ensenada.

It is important to consider land use change and how the transportation system may influence the development pattern across the region as a whole because land uses merge and flow together along jurisdictional boundaries. Significant cumulative impacts related to land use would occur if inconsistent or incompatible land use patterns result due to future development or if development were to occur in a manner not consistent with existing plans and policies.

**Impacts of the 2050 RTP/SCS**

The analysis of the 2050 RTP/SCS shows that land use changes due to transportation network improvements, such as double-tracking, road widening projects, or Trolley line extensions would result in potential conflicts with applicable planning documents and planned land use. Development within individual jurisdictions would be required to go through appropriate approval processes and be consistent with land use plans and policies; thus minimizing potential for land use conflicts. However, implementation of the transportation network improvements as proposed in the 2050 RTP/SCS would potentially deteriorate community character and create substantial incompatibilities with land use plans and policies and significant land use impacts would result in 2020, 2035, and 2050.

Increased densities by 2050 may create highly urban scenarios that are out of character with the local communities in some cities. The growth and expansion of rural residential uses into locations of undeveloped land would compromise community character. Therefore, impacts related to deterioration of community character due to substantial expansion of both urban and rural development in 2050 would be significant.

**Impacts of Associated Related Infrastructure Projects**

The analysis of the 2050 RTP/SCS transportation network improvements found that significant land use impacts could result due to improvements that introduce a new or expanded transportation facility, such as a trolley line extension, road widening, or double-tracking of a rail line. Related infrastructure projects, such as the California High Speed Rail Train System (HST) could have similar types of impacts as identified for the 2050 RTP/SCS transportation improvements. The environmental document for the HST identified a potentially significant impact related to land use compatibility when viewed on a system-wide basis. The EIR for the project found that while every effort had been made to incorporate alignment and station options compatible with existing local land use plans and ordinances to the extent feasible, in many cases local plans and ordinances do not address transportation options such as the high speed train system. The potential for land use incompatibility is considered significant at the programmatic level due to the uncertainties involved; however, such impacts may not be realized over the 20-year time horizon for implementing the high-speed train system (HSRA 2005). Cumulatively, the EIR found that the project could contribute to potential cumulative impacts associated with community and neighborhood cohesion and property loss. Implementation of this project is anticipated by 2035.

Airport capacity for both passenger and cargo service in the southern California and a northern Baja region is becoming constrained. It is anticipated that SDIA will reach its airfield capacity sometime between 2020 and 2030, at approximately 28 million annual passengers (SDCRAA 2011). 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. There may be additional projects in the AMPA as well as Airport Master Plans that would serve both cargo and passengers at the region’s airports. Though no definitive plans or projects have been identified or undergone environmental review at this time, prospective future expansion or improvement of existing airport facilities or new airport development in the region would have the potential for substantial land use impacts.

**Impact Projections in Adopted Plans**

The SCAG 2008 RTP EIR found that by increasing mobility and including land-use-transportation measures, the 2008 RTP would influence the pattern of this urbanization. The 2008 RTP’s influence on growth would be cumulatively considerable and contribute to regionally significant land use impacts (SCAG 2008). The 2008 SCAG RTP planning horizon is 2035. This document and analysis was completed prior to the preparation of the 2050 RTP/SCS; thus, does not account for the impacts of the 2050 RTP/SCS.

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; however, projects included in the Master Plan could have adverse land use impacts. 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 land use should be considered (Caltrans 2008). This document was completed prior to the preparation of the 2050 RTP/SCS; thus, does not account for the 2050 RTP/SCS.

**Cumulative Impacts and Impact Conclusions**

**2020**

A significant cumulative impact in the year 2020 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As described above, implementation of the transportation network improvements as proposed in the 2050 RTP/SCS would potentially deteriorate community character and/or create substantial incompatibilities with land use plans and policies in 2020. In addition, significant land use impacts were also identified in the California High Speed Rail Train System project environmental analysis and in the 2008 SCAG RPT EIR, and other associated infrastructure projects may also have adverse land use impacts. The combination of the direct and cumulative land use impacts from these projects and adopted plans that would affect the southern California and northern Baja region could result in significant cumulative land use impacts, based on thresholds LU-1 regarding community character and cohesion and LU-2 regarding substantial conflicts with land use plans and policies by 2020.

Because cumulative land use impacts throughout the southern California and northern Baja region by 2020 would be significant, and because the 2050 RTP/SCS incremental land use impacts are significant, the 2050 RTP/SCS incremental land use impacts are also cumulatively considerable.
2035

A significant cumulative impact in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. The cumulative analysis presented above for year 2020 would be applicable to year 2035. The combination of the direct and cumulative land use impacts from the projects and adopted plans described above that would affect the southern California and northern Baja region could result in significant cumulative land use impacts based on thresholds LU-1 regarding community character and cohesion and LU-2 regarding substantial conflicts with land use plans and policies by 2035.

Because cumulative land use impacts throughout the southern California and northern Baja region by 2035 would be significant, and because the 2050 RTP/SCS incremental land use impacts are significant, the 2050 RTP/SCS incremental land use impacts are also cumulatively considerable.

2050

A significant cumulative impact in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California and northern Baja region were significant when combined together, even if not independently significant. Implementation of the transportation network improvements as proposed in the 2050 RTP/SCS would potentially deteriorate community character and/or create substantial incompatibilities with land use plans and policies in 2050. Additionally in 2050, land use impacts related to deterioration of community character due to changes in both urban and rural communities would result with implementation of the 2050 RTP/SCS. The 2050 time period is beyond construction of the high speed rail project and the planning horizon of the adopted 2008 SCAG RPT. However, with anticipated long-term growth and development throughout the region, it can be expected that similar land use impacts as would continue throughout the region. Thus, the combination of the 2050 RTP/SCS and continued growth and development through the rest of the southern California and northern Baja region would result significant cumulative land use impacts based on thresholds LU-1 regarding community character and cohesion and LU-2 regarding substantial conflicts with land use plans and policies by 2050.

Because cumulative land use impacts throughout the southern California and northern Baja region by 2050 would be significant, and because the 2050 RTP/SCS incremental land use impacts are significant, the 2050 RTP/SCS incremental land use impacts are also cumulatively considerable.

Mitigation Measures

Mitigation measures to minimize land impacts due to transportation improvements as identified in Section 4.11.5 would be applicable to cumulative land use impacts as well. Related infrastructure projects not included in the 2050 RTP/SCS should implement similar mitigation measures.

Mitigation measure LU-1LU-A requires that SANDAG and other implementing agencies implement feasible alignments, design options, and other design features that avoid or substantially reduce impacts on community character and cohesion, and avoid or substantially reduce conflicts with land use plans through coordination early in the planning process to identify potentially significant land use impacts, and address them through the facility planning and design process. Mitigation measure LU-2LU-B requires SANDAG and other jurisdictions review and reevaluate the SCS land use pattern in future years and SANDAG revise the SCS land use pattern in future RTP updates to be consistent with the latest updates to local general plans, and to reduce the potential for long-term impacts on community character; it also requires SANDAG, in updates to the RCP and Smart Growth Concept Map, to identify areas of the
region where additional growth could be accommodated to coincide with the increased investment in transit.

As outlined in Section 4.11.5, mitigation measures would not guarantee reduction of all 2050 RTP/SCS land use impacts to below a level of significance. As described, no additional measures were found to be feasible. Therefore, the 2050 RTP/SCS incremental contributions to the cumulative land use impacts in years 2020, 2035, and 2050 that would occur throughout the southern California region would remain cumulatively considerable post-mitigation.

5.2.12 NOISE

The geographic scope for the noise cumulative analysis is the San Diego region and northern Baja Mexico. The plans relied on for this cumulative analysis includes: (1) the SCAG 2008 RTP and its EIR (SCAG 2008) and (2) the California-Baja California Border Master Plan (Caltrans 2008). The SCAG RTP and associated EIR encompass the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura. The area of Influence in the California-Baja Border Master Plan includes the geographic area 60 miles north and south of the California-Baja California International Border. In California, it includes the counties of San Diego and Imperial. In Baja California, it includes the municipalities of Tijuana, Tecate, Playas de Rosarito, parts of Mexicali, and the urban area of Ensenada.

It is important to consider land use change and how the transportation system may influence the ambient noise environment across the region as a whole because transportation networks are the largest contributor to environmental noise in the region. Significant cumulative impacts related to noise would occur if thresholds N-1 and N-2 regarding violations of applicable noise and vibration regulations were exceeded, or if thresholds, N-3 and N-4 regarding substantial permanent and temporary increases in the ambient noise environment were exceeded.

Impacts of the 2050 RTP/SCS

The analysis of the 2050 RTP/SCS shows that land use changes due to transportation network improvements, such as double-tracking, road widening projects, or Trolley line extensions would result in potential conflicts with applicable local general plan noise policies and local ordinances. Development within individual jurisdictions would be required to go through appropriate approval processes and be consistent with noise policies and ordinances; thus minimizing potential for incompatible noise environments. However, implementation of the transportation network improvements as proposed in the 2050 RTP/SCS would potentially deteriorate the existing noise environment and create substantial incompatibilities with land use plans and policies and significant noise impacts would result in 2020, 2035, and 2050.

Increased densities and associated transportation networks may by 2050 create highly urban scenarios that would generate noise that exceeds applicable standards and would increase existing noise levels substantially. The growth and expansion of rural residential uses into locations of undeveloped land would also likely increase noise levels substantially and generate noise that exceeds existing standards. Therefore, impacts related to noise from the substantial expansion of both urban and rural transportation networks in 2050 would be significant.

Impacts of Associated Infrastructure Projects

The analysis of the 2050 RTP/SCS transportation network improvements found that significant noise impacts could result due to improvements that introduce a new or expanded transportation facility, such
as a trolley line extension, road widening, or double-tracking of a rail line. Related infrastructure projects, such as the California High Speed Rail Train System could have similar types of impacts as identified for the 2050 RTP/SCS transportation improvements. The environmental document for the California High Speed Rail project identified a potentially significant impact related to noise when viewed on a system-wide basis. The EIR for the project found that while every effort had been made to incorporate alignment and station options compatible with existing local noise policies and ordinances to the extent feasible, in many cases mitigation of a high speed train operations would not be feasible. The potential for noise impacts is considered significant at the programmatic level due to the uncertainties involved; however, such impacts may not be realized over the 20-year time horizon for implementing the high-speed train system (HSRA 2005). Cumulatively, the EIR found that the project could contribute to potential cumulative impacts associated with noise. Implementation of this project is anticipated by 2035. Expansion of other regional transportation networks and levels of service would also affect the regional noise environment. Improvements to freight rail lines, airports, and Ports of Entry/Border Crossings project could all contribute to potential cumulative impacts associated with noise.

Impact Projections in Adopted Plans

The SCAG 2008 RTP EIR found that by increasing mobility and including land-use-transportation measures, the 2008 RTP would influence the pattern of this urbanization and associated local noise environment. The 2008 RTP’s influence on noise would be cumulatively considerable and contribute to regionally significant noise impacts (SCAG 2008). The 2008 SCAG RTP planning horizon is 2035. This document and analysis was completed prior to the preparation of the 2050 RTP/SCS; thus, does not account for the impacts of the 2050 RTP/SCS.

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. 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 noise should be considered (Caltrans 2008). This document was completed prior to the preparation of the 2050 RTP/SCS; thus, does not account for the 2050 RTP/SCS.

Cumulative Impacts and Impact Conclusions

2020

A significant cumulative impact in the year 2020 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the San Diego region were significant when combined together, even if not independently significant. As described above, implementation of the transportation network improvements as proposed in the 2050 RTP/SCS would potentially cause violations of noise standards and result in substantial increases in the existing noise environment at adjacent sensitive land uses in 2020. In addition, significant noise impacts were also identified in the California High Speed Rail Train System project environmental analysis, the 2008 SCAG RPT EIR, and other associated infrastructure projects such as freight rail. The combination of the direct and cumulative noise impacts from these projects and adopted plans that would affect the San Diego region and northern Baja region could result in significant cumulative noise impacts, based on thresholds N-1 and N-2; regarding violations of applicable noise and vibration regulations, and N-3 and N-4 regarding substantial permanent and temporary increases in the ambient noise environment by 2020.
Because cumulative noise impacts throughout the San Diego region and northern Baja region by 2020 would be significant, and because the 2050 RTP/SCS incremental noise impacts are significant, the 2050 RTP/SCS incremental noise impacts are also cumulatively considerable.

2035

A significant cumulative impact in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the San Diego region were significant when combined together, even if not independently significant. As described above, implementation of the transportation network improvements as proposed in the 2050 RTP/SCS would potentially cause violations of noise standards and result in substantial increases in the existing noise environment at adjacent sensitive land uses in 2035. In addition, significant noise impacts were also identified in the California High Speed Rail Train System project environmental analysis, the 2008 SCAG RPT EIR, and other associated infrastructure projects such as freight rail. The combination of the direct and cumulative noise impacts from these projects and adopted plans that would affect the San Diego region and northern Baja region could result in significant cumulative noise impacts, based on thresholds N-1 and N-2; regarding violations of applicable noise and vibration regulations, and N-3 and N-4 regarding substantial permanent and temporary increases in the ambient noise environment by 2035.

Because cumulative noise impacts throughout the San Diego region and northern Baja region by 2035 would be significant, and because the 2050 RTP/SCS incremental noise impacts are significant, the 2050 RTP/SCS incremental noise impacts are also cumulatively considerable.

2050

A significant cumulative impact in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the San Diego region were significant when combined together, even if not independently significant. As described above, implementation of the transportation network improvements as proposed in the 2050 RTP/SCS would potentially cause violations of noise standards and result in substantial increases in the existing noise environment at adjacent sensitive land uses in 2035. In addition, significant noise impacts were also identified in the California High Speed Rail Train System project environmental analysis, the 2008 SCAG RPT EIR, and other associated infrastructure projects such as freight rail. The combination of the direct and cumulative noise impacts from these projects and adopted plans that would affect the San Diego region and northern Baja region could result in significant cumulative noise impacts, based on thresholds N-1 and N-2; regarding violations of applicable noise and vibration regulations, and N-3 and N-4 regarding substantial permanent and temporary increases in the ambient noise environment by 2050.

Because cumulative noise impacts throughout the San Diego region and northern Baja region by 2050 would be significant, and because the 2050 RTP/SCS incremental noise impacts are significant, the 2050 RTP/SCS incremental noise impacts are also cumulatively considerable.

Mitigation Measures

Mitigation measures to reduce noise impacts due to transportation improvements as identified in Section 4.12.5 would be applicable to cumulative noise impacts as well. Associated infrastructure projects not included in the 2050 RTP/SCS should implement similar mitigation measures.
Mitigation measure NOI-AN-1 requires that SANDAG and other implementing agencies implement feasible land use practices, site design, and noise reduction measures that avoid or substantially reduce impacts on noise as well as requiring a full project level acoustical analysis be conducting once specific projects are designed. Mitigation measure NOI-BN-2 requires SANDAG and other jurisdictions implement feasible transportation noise reduction measures that avoid or substantially reduce impacts on noise as well as requiring a full project level acoustical analysis be conducting once specific projects are designed. Mitigation measure NOI-CN-3 and NOI-DN-4 require SANDAG and other implementing agencies implement feasible short-term construction noise and vibration control measures to ensure minimum impact during buildout of proposed transportation improvements.

As outlined in Section 4.12.5, mitigation measures would not guarantee reduction of all 2050 RTP/SCS noise impacts to below a level of significance. As described, no additional measures were found to be feasible. Therefore, the 2050 RTP/SCS incremental contributions to cumulative 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 region, which includes the SANDAG region, the Southern California Association of Governments (SCAG) region (the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura), and northern Baja. Information on population forecasts and transportation network improvements was compiled from the documents listed in Section 5.01. Table 5-1 shows these population forecasts for 2020, 2035, and 2050. Information on planned residential development and land use changes in southern California is available in adopted land use plans for individual cities and counties.

It is important to consider how land use change and transportation system improvements in southern California and northern Baja may impact population growth and displacement of existing housing and businesses. The cumulative impact is the combination of the impacts of the 2050 RTP/SCS, related infrastructure projects, and impact projections in adopted plans. Significant cumulative impacts related to population and housing would occur if the land use changes and transportation network improvements associated with the 2050 RTP/SCS would contribute to substantial displacement of a substantial number of existing homes or businesses, or impede implementation of the RHNA allocation or housing elements for jurisdictions in southern California and northern Baja.

Impacts of the 2050 RTP/SCS

The regional growth and land use change and transportation network improvements associated with the 2050 RTP/SCS would significantly impact population and housing in the San Diego region. Land use changes and transportation network improvements would induce substantial population growth by supporting and facilitating the addition of homes and businesses. Construction of higher-density development, widening of highways, and expanding the right-of-way of transit projects would also displacing a substantial number of existing housing and businesses. The 2050 RTP/SCS would not conflict with implementation of the RHNA, as it is required by law to be consistent with the 2013 – 2020 RHNA cycle, and future updates to the 2050 RTP/SCS would be consistent with future RHNA allocations. Significance conclusions would be the same for 2020, 2035, and 2050.

Impacts of Associated Infrastructure Projects

Like the San Diego region, substantial population growth in southern California and northern Baja would be induced and supported by residential and nonresidential development and land use changes as well as
transportation network improvements. Population growth would also be induced through infrastructure projects that support residential and employment growth, such as airport expansions in the San Diego region and Tijuana International Airport, port/maritime improvements, petroleum pipeline transportation infrastructure, and freight rail infrastructure. Additionally, population growth would be induced from projects that accommodate forecasted public services, utilities, and water supply needs.

A major infrastructure project planned for development in southern California is the California High Speed Rail Train (HST). According to the 2005 EIR for the HST, the California High Speed Rail Authority (HSRA) has adopted strategies for HST stations that would incorporate transit oriented design and smart growth land use policies (HSRA 2005). These design and land use policies aim to be consistent with local land use plans to increase population densities near transit stations, thus inducing population growth in these areas. The HST project would also facilitate the movement of additional people and goods and support an overall increase in population growth in the southern California region. Additionally, implementation of the HST is likely to displace existing homes and businesses, as the majority of alignment alternatives would impact property in at least one location in southern California. The potential for high, medium, or low property impacts, and the location of these impacts, would depend on the alignment alternative chosen. Implementation of the California High Speed Rail Train System would be conducted in phases and is projected to be complete by 2035 (HSRA 2005).

Impact Projections in Adopted Plans

According to the EIR prepared for the 2008 SCAG RTP, which analyzes impacts to 2035, the 2008 SCAG RTP would induce population growth in the SCAG region. It also indicates that transportation network improvements, such as freeway widening and transit projects, including the California High Speed Rail System, would displace a substantial number of existing homes and businesses (SCAG 2008). Although the EIR for the 2008 SCAG RTP did not analyze potential conflicts with the RHNA allocation for southern California, it can be assumed that future updates to the 2008 SCAG RTP would be consistent with the RHNA allocation, as directed by SB 375.

The California-Baja California Border Master Plan is a binational comprehensive approach to coordinate planning and delivery of projects at land Points of Entry (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 crossborder 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. Environmental analysis would be conducted at a project-specific level, and it is unknown whether projects included in the Master Plan (that are not also included in the 2050 RTP/SCS) would displace a substantial number of homes or businesses. This document was completed prior to the preparation of the 2050 RTP/SCS; thus, does not account for the 2050 RTP/SCS.

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. In order for redevelopment to occur, existing housing and businesses would likely be displaced from their current structures.
Cumulative Impacts and Impact Conclusions

2020

A cumulative impact in the year 2020 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As described above, implementation of the regional growth and land changes and transportation network improvements associated with the 2050 RTP/SCS would induce substantial population growth and displace a substantial number of existing homes and businesses. In addition, population and housing impacts were also identified in the HST project environmental analysis and in the 2008 SCAG RPT EIR, and other associated infrastructure projects and land use plans may also contribute to substantial population growth and displacement of homes or businesses. The combination of the direct and cumulative population and housing impacts from these projects and adopted plans would result in significant cumulative population and housing impacts in the southern California and northern Baja region by 2020, based on thresholds PH-1 and PH-2 as described in Section 4.13 Population and Housing.

Because cumulative population and housing impacts throughout the southern California and northern Baja region by 2020 would be significant, and because the 2050 RTP/SCS incremental land use impacts are significant, the 2050 RTP/SCS incremental population and housing impacts are also cumulatively considerable.

2035

A cumulative impact in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As discussed in the 2020 analysis, implementation of the regional growth and land changes and transportation network improvements associated with the 2050 RTP/SCS would induce substantial population growth and displace a substantial number of existing homes and businesses. In addition, population and housing impacts were also identified in the HST project environmental analysis and in the 2008 SCAG RPT EIR, and other associated infrastructure projects and land use plans may also contribute to substantial population growth and displacement of homes or businesses. The combination of the direct and cumulative population and housing impacts from these projects and adopted plans would result in significant cumulative population and housing impacts in the southern California and northern Baja region by 2035, based on thresholds PH-1 and PH-2 as described in Section 4.13 Population and Housing.

Because cumulative population and housing impacts throughout the southern California and northern Baja region by 2035 would be significant, and because the 2050 RTP/SCS incremental land use impacts are significant, the 2050 RTP/SCS incremental population and housing impacts are also cumulatively considerable.

2050

A cumulative impact in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As discussed in the 2020 and 2035 analyses, implementation of the regional growth and land changes and transportation network improvements associated with the 2050 RTP/SCS would induce substantial population growth and displace a substantial number of existing homes and businesses. Although the HST is planned to be constructed by 2035, land use impacts would continue to occur, such as increased
population densities near stations. The HST would continue to support population growth and higher density uses in southern California after implementation. Although 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 businesses. The combination of the direct and cumulative population and housing impacts from these projects and adopted plans would result in significant cumulative population and housing impacts in the southern California and northern Baja region by 2050, based on thresholds PH-1 and PH-2 as described in Section 4.13 Population and Housing.

Because cumulative population and housing impacts throughout the southern California and northern Baja region by 2050 would be significant, and because the 2050 RTP/SCS incremental land use impacts are significant, the 2050 RTP/SCS incremental population and housing impacts are also cumulatively considerable.

**Mitigation Measures**

Section 4.13.5 of the 2050 RTP/SCS includes mitigation measure PH-A, which states that for transportation network improvements, design strategies shall be developed for application at the project level to avoid or reduce the temporary or permanent acquisition of residential and nonresidential property. For projects with the potential to displace homes and/or businesses, project implementation agencies shall evaluate alternate route alignments and transportation facilities that minimize the displacement of homes and businesses.

The 2008 SCAG RTP EIR includes a similar mitigation measure to evaluate alternate route alignments and transportation facilities that minimize the displacement of homes and businesses (SCAG 2008). In addition, the 2005 HST EIR/EIS states that potential land use displacement and property acquisition (temporary use and/or permanent and nonresidential property) are expected to be avoided to the extent feasible by considering further alignment adjustments and design changes in the future at the project level (HSRA 2005). These mitigation measures and design strategies would reduce impacts to the displacement of residences and businesses, but would not fully reduce impacts from these transportation projects. Displacement of homes and businesses from regional growth and land use changes would continue to be cumulatively considerable.

Mitigation regarding inducement of substantial population growth by the 2050 RTP/SCS was found to be infeasible, as described in Section 4.13.5. For the same reasons, potential mitigation to reduce population growth in southern California and northern Baja would also be considered infeasible.

As outlined in Section 4.13.5, Mitigation Measure PH-A would not guarantee reduction of all 2050 RTP/SCS land use impacts to below a level of significance. No additional measures were found to be feasible. Therefore, the 2050 RTP/SCS 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, UTILITIES, AND ENERGY**

The area of geographic consideration for cumulative impacts is Southern California, which includes the SANDAG region, the Southern California Association of Governments (SCAG) region (the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura), and Northern Baja. Information on population forecasts and transportation network improvements was compiled from the documents
listed in Section 5.01. Table 5-1 shows the population forecasts for the SANDAG, SCAG, Northern Baja California for the years 2020, 2035, and 2050.

Growth, land use change, and transportation system improvements occurring throughout the Southern California and Northern Baja region may impact public services, utilities, and energy. Significant cumulative impacts related to public services, utilities, and energy would occur if the combination of impacts from individual projects included as part of the 2050 RTP/SCS, related infrastructure projects, and impact projections in adopted plans would cause a substantial increase in impacts resulting from the construction of governmental facilities, wastewater treatment facilities, storm water drainage facilities, and/or natural gas, electricity, or transportation fuel facilities; and/or be served by landfills with insufficient permitted capacity, and/or cause noncompliance with solid waste regulations.

**Impacts of the 2050 RTP/SCS**

Analysis in Section 4.14 of the 2050 RTP/SCS describes how regional growth, land use change, and/or transportation network improvements would increase demand for governmental facilities, wastewater treatment facilities, storm water drainage facilities, and natural gas, electricity, and transportation fuel facilities. Increased demand would require or result in the construction of new facilities or expansion of existing facilities, which may result in short-term construction related impacts to air quality, noise, and traffic, and other areas of concern. Construction related impacts are typically controllable and can be mitigated below a level of significance through actions of the implementing agency, including adherence to existing regulations and best management practices. Because details about the timing, location, and project-specific information are not known, there is no assurance that impacts from the construction of new or expansion of existing facilities will always be less than significant. Therefore, conclusions for PS-1 (public services), US-1 (wastewater treatment facilities), US-2 (storm water drainage facilities), and US-5 (energy facilities), as described in Section 4.14.4, are significant. Regional growth and transportation network improvements included as part of the 2050 RTP/SCS would comply with federal, state, and local laws and regulations related to solid waste, and Section 4.14.4 concludes that impacts associated with US-3 would be less-than-significant. Analysis in Section 4.14.4 also concluded that if no new landfills are permitted and in operation, the region would be served by landfills with insufficient permitted capacity to meet the solid waste disposal needs of regional growth forecasted for the San Diego region by the 2050 RTP/SCS for the years 2020, 2035, and 2050; this impact is significant.

**Impacts of Associated Infrastructure Projects**

There are a number of infrastructure projects planned in the Southern California and Northern Baja region, including the California High Speed Rail Train (HST), border/Port of Entry (POE) facility improvements, airport expansions in the San Diego region and Tijuana International Airport, port/maritime improvements, petroleum pipeline transportation infrastructure, and freight rail infrastructure. These infrastructure projects would not substantially increase the demand for public services, or generate significantly larger volumes of wastewater such that new or expanded facilities would be required since they would not directly result in population increases that would require these facilities.

While most of the transportation improvements would occur in already urbanized areas, some improvements would convert vacant land to impervious surfaces, resulting increase storm water flow volume and/or velocity and storm water drainage facilities would be required. In addition, any increase in the volume of storm water generated would require storm water drainage facilities with sufficient capacity downstream in channels and other drainage outlets. In addition, transportation network improvements would increase the demand for natural gas, electricity, and other transportation fuels that would be
required to power the automobiles, trains, planes, and boats throughout Southern California and Northern Baja California. Construction of new storm water drainage facilities and natural gas, electricity, and other transportation fuel facilities would result in short-term construction related impacts that would be significant unless actions are taken to control and mitigate impacts. In addition, these impacts would generally be confined to a specific project area, rather than result in an incremental cumulative effect over the Southern California and Northern Baja California regions.

**Impact Projections in Adopted Plans**

The EIR for the 2008 SCAG RTP analyzes impacts to the SCAG region to 2035, and states that by increasing mobility and including land-use-transportation measures, the SCAG RTP would influence the pattern of urbanization. The 2008 SCAG RTP’s influence on growth contributes, without implementation of identified mitigation measures, to regional cumulatively considerable impacts: to the staffing level of police and fire and emergency services in the SCAG region; to the number of school-age children and the demand for school facilities in different parts of the SCAG region; to the demand for solid waste services in the SCAG region; to a cumulatively considerable increase in the amount of total energy consumed in the SCAG region between 2008 and 2035 (SCAG 2008). The 2008 SCAG RTP planning horizon is 2035. This document and analysis was completed prior to the preparation of the 2050 RTP/SCS; thus, does not account for the impacts of the 2050 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 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 forecsts 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. However, construction of facilities projects included in these plans would likely result in construction related impacts if no project-specific mitigation is identified and implemented.

**2020**

A significant cumulative impact in the year 2020 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As described above, based upon the thresholds related to the construction of new or expanded facilities for public services, utilities, and energy, including PS-1 (public services), US-1 (wastewater treatment facilities), US-2 (storm water drainage facilities), and US-5 (energy facilities), implementation of the 2050 RTP/SCS, cumulative impacts from the 2050 RTP/SCS, associated infrastructure projects, and adopted plans on the San Diego region, Southern California and Northern Baja would be significant in 2020. Because the 2050 RTP/SCS’s incremental contribution to these impacts is significant, it is also cumulatively considerable.

In addition, associated infrastructure projects and adopted plans are assumed to comply with Federal, State, and local laws regulating solid waste disposal, and, based upon threshold US-4 (solid waste regulatory compliance), cumulative impacts from the 2050 RTP/SCS, associated infrastructure projects, and adopted plans on the San Diego region, Southern California and Northern Baja would be less than significant in 2020.
5.0 Cumulative Impacts

However, the capacity of existing landfills that serve the Southern California and Northern Baja California region is limited by the maximum volume of solid waste that can physically be held and by the rate at which disposal occurs. The landfills that serve the Southern California and Northern Baja California area do not have the capacity to accommodate the cumulative solid waste disposal needs to support the regional growth and land use changes forecasted as part of the 2050 RTP/SCS. Implementation of the 2050 RTP/SCS would contribute incrementally more amounts of solid waste. New landfills would be needed due to the finite capacity of existing landfills. If no new landfills are identified and permitted in the San Diego region, solid waste would need to be exported to a landfill outside of the region. Within the Southern California and Northern Baja California region it is difficult to find suitable sites for landfills due to economic and regulatory barriers, including environmental review, permit approval, and the increased cost of developing and operating waste management facilities.

Therefore, cumulative impacts on solid waste disposal capacity from the 2050 RTP/SCS, associated infrastructure projects, and adopted plans on the San Diego region, Southern California and Northern Baja would be significant in 2020. Because the 2050 RTP/SCS’s incremental contribution to solid waste disposal capacity impacts is significant, it is also cumulatively considerable.

2035

A significant cumulative impact in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As described above, based upon the thresholds related to the construction of new or expanded facilities for public services, utilities, and energy, including PS-1 (public services), US-1 (wastewater treatment facilities), US-2 (storm water drainage facilities), and US-5 (energy facilities), cumulative impacts from implementation of the 2050 RTP/SCS, associated infrastructure projects, and adopted plans on the San Diego region, Southern California and Northern Baja would be significant in 2035. Because the 2050 RTP/SCS’s incremental contribution to these impacts is significant, it is also cumulatively considerable.

In addition, associated infrastructure projects and adopted plans are assumed to comply with Federal, State, and local laws regulating solid waste disposal, and, based upon threshold US-4 (solid waste regulatory compliance), cumulative impacts from the 2050 RTP/SCS, associated infrastructure projects, and adopted plans on the San Diego region, Southern California and Northern Baja would be less than significant in 2035.

However, unless new landfills are permitted and operational, the landfills that serve the Southern California and Northern Baja California area would not have the capacity to accommodate the cumulative solid waste disposal needs to support the regional growth and land use changes forecasted as part of the 2050 RTP/SCS. Implementation of the 2050 RTP/SCS would contribute incrementally more amounts of solid waste. New landfills would be needed due to the finite capacity of existing landfills. Solid waste would need to be exported to a landfill outside of the region. Within the Southern California and Northern Baja California region it is difficult to find suitable sites for landfills due to economic and regulatory barriers, including environmental review, permit approval, and the increased cost of developing and operating waste management facilities. As described above, the SCAG region is also served by landfills with insufficient permitted capacity.

Therefore, cumulative impacts on solid waste disposal capacity from the 2050 RTP/SCS, associated infrastructure projects, and adopted plans on the San Diego region, Southern California and Northern Baja
would be significant in 2035. Because the 2050 RTP/SCS’s incremental contribution to solid waste disposal capacity impacts is significant, it is also cumulatively considerable.

2050

A significant cumulative impact in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As described above, based upon the thresholds related to the construction of new or expanded facilities for public services, utilities, and energy, including PS-1 (public services), US-1 (wastewater treatment facilities), US-2 (storm water drainage facilities), and US-5 (energy facilities), cumulative impacts from implementation of the 2050 RTP/SCS, associated infrastructure projects, and adopted plans on the San Diego region, Southern California and Northern Baja would be significant in 2050. Because the 2050 RTP/SCS’s incremental contribution to these impacts is significant, it is also cumulatively considerable.

In addition, associated infrastructure projects and adopted plans are assumed to comply with Federal, State, and local laws regulating solid waste disposal, and, based upon threshold US-4 (solid waste regulatory compliance), cumulative impacts from the 2050 RTP/SCS, associated infrastructure projects, and adopted plans on the San Diego region, Southern California and Northern Baja would less than significant in 2050.

However, unless new landfills are permitted and operational, the landfills that serve the Southern California and Northern Baja California area would not have the capacity to accommodate the cumulative solid waste disposal needs to support the regional growth and land use changes forecasted as part of the 2050 RTP/SCS. Implementation of the 2050 RTP/SCS would contribute incrementally more amounts of solid waste. New landfills would be needed due to the finite capacity of existing landfills. Solid waste would need to be exported to a landfill outside of the region. Within the Southern California and Northern Baja California region it is difficult to find suitable sites for landfills due to economic and regulatory barriers, including environmental review, permit approval, and the increased cost of developing and operating waste management facilities. As described above, the SCAG region is also served by landfills with insufficient permitted capacity.

Therefore, cumulative impacts on solid waste disposal capacity from the 2050 RTP/SCS, associated infrastructure projects, and adopted plans on the San Diego region, Southern California and Northern Baja would be significant in 2050. Because the 2050 RTP/SCS’s incremental contribution to solid waste disposal capacity impacts is significant, it is also cumulatively considerable.

Mitigation Measures

Mitigation measures to reduce impacts associated with public services, utilities, and energy as identified in Section 4.14.5 would be applicable to cumulative impacts as well. Associated projects and plans not included in the 2050 RTP/SCS should implement similar mitigation measures.

Section 4.14.5 includes Mitigation Measures PS-A, US-A, US-C, and US-E that state that for during the CEQA review process for individual facilities, San Diego region cities, the County of San Diego and all school districts, colleges and universities, special districts, and utilities with responsibility for construction of governmental facilities, wastewater treatment facilities, storm water drainage facilities, or energy facilities can and should apply necessary mitigation measures to avoid or reduce significant environmental impacts associated with the construction or expansion of such facilities. The environmental impacts associated with such construction or expansion should be avoided or reduced through the
imposition of conditions required to be followed by those directly involved in the construction or expansion activities.

Section 4.14.5 also includes Mitigation Measure US-B that states that during the CEQA review process for individual development projects, San Diego region cities, the County of San Diego and special districts with responsibility for project approval can and should apply necessary mitigation measures to conserve water and reduce the generation of wastewater. Mitigation Measure US-F states that during the CEQA review process for individual development projects, San Diego region cities, the County of San Diego and special districts with responsibility for project approval can and should apply necessary mitigation measures to reduce energy consumption and promote the use of renewable energy. Such measures should be imposed through conditions required to be followed by those directly involved in the design, construction, and operation of projects.

Implementation of Mitigation Measures PS-A, US-A, US-C, and US-E, would reduce impacts associated with the construction of governmental facilities, wastewater treatment facilities, storm water drainage facilities, and energy facilities to a level less than significant through CEQA review of specific facilities, which would mitigate project-specific construction related impacts to less-than-significant levels. Implementation of Mitigation Measures US-B and US-F would reduce the need for additional wastewater and energy facilities.

Therefore, with the implementation of Mitigation Measures PS-A, US-A, US-B, US-C, US-E, and US-F, the 2050 RTP/SCS would not result in incremental contributions to cumulative impacts from the construction of governmental facilities, wastewater treatment facilities, storm water drainage facilities, or energy facilities in years 2020, 2035, and 2050 and impacts would not be cumulatively considerable post-mitigation.

Mitigation Measure US-D requires that SANDAG, San Diego region cities, and the County of San Diego to support identification of the need for new landfills and possible sites through CIWMP and regular updates to the Countywide Siting Element, while continue to support solid waste diversion efforts to reduce the need for additional landfill capacity. As outlined in Section 4.14.5, mitigation measures would not guarantee reduction of 2050 RTP/SCS solid waste disposal impacts below a level of significance. As described, no additional measures were found to be feasible. Therefore, the 2050 RTP/SCS incremental contributions to solid waste disposal impacts in years 2020, 2035, and 2050 would remain cumulatively considerable post-mitigation.

5.2.15 RECREATION

The area of geographic consideration for cumulative impacts is the southern California region, which includes the SANDAG region, the Southern California Association of Governments (SCAG) region (the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura), and northern Baja. Information on population forecasts and transportation network improvements was compiled from the documents listed in Section 5.01. Table 5-1 shows these population forecasts for 2020, 2035, and 2050. Information on planned residential development and land use changes in southern California is available in adopted land use plans for individual cities and counties.

It is important to consider how land use change and transportation system improvements in southern California and northern Baja may impact parkland and recreation facilities. The cumulative impact is the combination of the impacts of the 2050 RTP/SCS, related infrastructure projects, and impact projections in adopted plans. Significant cumulative impacts related to parkland and recreation facilities would occur if there was a cumulative increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be
accelerated, or cumulative demands for construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

**Impacts of the 2050 RTP/SCS**

The regional growth and land use change and transportation network improvements associated with the 2050 RTP/SCS would significantly impact parkland and recreation facilities in the San Diego region. In the analysis discussed in Section 4.15 Recreation, regional growth and land use changes associated of the 2050 RTP/SCS would increase persons per capita use of parkland (parks and open space), which would result in significant impacts related to the substantial physical deterioration of existing parks and other recreational facilities. While transportation network improvements would convert parkland to transportation use, the relatively small amount of acreage converted to transportation use would be would not be likely to increase the use of existing parks such that they would experience substantial deterioration. Significant impacts to recreation from regional growth and land use change would result in 2020, 2035, and 2050.

**Impacts of Associated Infrastructure Projects**

As discussed in the cumulative analysis for population and housing impacts, substantial population growth in southern California and northern Baja would be induced and supported by residential and nonresidential development and land use changes as well as transportation network improvements. Population growth would also be induced through infrastructure projects that support residential and employment growth, such as airport expansions in the San Diego region and Tijuana International Airport, port/maritime improvements, petroleum pipeline transportation infrastructure, and freight rail infrastructure. Increased population growth would contribute to increased per capita use of parkland, which would result in significant impacts related to the substantial physical deterioration of existing parks and other recreational facilities. Additionally, these infrastructure projects may convert parkland to other uses, which would decrease acreage of existing parkland and increase per capita use. If additional parkland or recreation facilities are constructed or existing facilities are expanded due to population increase, construction activities may result in adverse environmental impacts.

A major infrastructure project planned for development in southern California is the California High Speed Rail Train (HST). According to the 2005 EIR/EIS, the HST would have, depending on the alignment chosen, 36 to 69 potential conflicts with 4(f) and 6(f) resources in the southern California region. These resources include federal parks, state parks, local parks, schools, historic sites, and recreational sites. The EIR concludes that “at the programmatic level of analysis, it is not possible to know precisely the location, extent and particular characteristics of impacts to park resources. Because of this uncertainty, at the programmatic level of analysis the impact is considered significant,” (HSRA 2005). The large number of conflicts could reduce the amount of existing parkland and recreation facilities, which would increase per capita use such that substantial physical deterioration of the facilities would occur or be accelerated. The HST would also facilitate the movement of additional people and goods and support an overall increase in population growth in the southern California region, which would also contribute to increased per capita use of parkland and recreation facilities, or the expansion or construction of new facilities.

Another associated infrastructure project, the California Coastal Trail (CCT), would increase recreation opportunities in the southern California region.
Impact Projections in Adopted Plans

According to the EIR for the 2008 SCAG RTP, which analyzes impacts to 2035, projects included in the 2008 SCAG RTP would impact 800 acres of land designated for open space and recreation, and the contribution of the 2008 RTP to impacts on existing land use would be cumulatively considerable (SCAG 2008).

The California-Baja California Border Master Plan is a binational comprehensive approach to coordinate planning and delivery of projects at land Points of Entry (POEs) and transportation infrastructure serving those POEs in the California-Baja California region. Priority projects include new POEs, highway and roadway improvements on both sides of the border, rail modernization and expansion projects, interchange projects, public transit, non-motorized transportation projects, and other cross-border improvements (Caltrans 2008). The Master Plan does not include an environmental analysis; project-level impacts are analyzed in individual environmental documents. As discussed in the cumulative section for population and housing impacts, the projects included in the Master Plan would support and facilitate crossborder travel demand and economic activity, thus inducing population growth.

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. As discussed above for infrastructure projects, increases in population would contribute to increased per capita use of parkland and recreation facilities, or require the expansion or construction of new facilities, which would result in adverse environmental impacts.

Cumulative Impacts and Impact Conclusions

2020

A significant cumulative impact in the year 2020 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As described above, implementation of the regional growth and land changes associated with the 2050 RTP/SCS would result in increased per capita use of parkland. In addition, significant impacts to parkland and recreation were identified in the HST environmental analysis and in the 2008 SCAG RPT EIR, which would increase use of existing parkland and recreation facilities. The projects included in the California-Baja California Border Master Plan, local land use plans, and plans for other transportation and infrastructure improvements may also contribute to substantial population growth as well as potential impacts to existing parkland. These impacts would accelerate the substantial physical deterioration of existing parks and other recreational facilities in the southern California and northern Baja region, or require the expansion or new recreation facilities, the construction of which would cause adverse environmental impacts. The combination of the direct and cumulative impacts to parkland and recreation facilities from these projects and adopted plans would result in significant cumulative impacts to recreation in the southern California and northern Baja region by 2020, based on thresholds REC-1 and REC-2 as described in Section 4.15 Recreation.

Because cumulative impacts to recreation throughout the southern California and northern Baja region by 2020 would be significant, and because the 2050 RTP/SCS incremental impacts to recreation are significant, the 2050 RTP/SCS incremental impacts to recreation are also cumulatively considerable.
**2035**

A significant cumulative impact in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As discussed in the 2020 analysis, implementation of the regional growth and land changes associated with the 2050 RTP/SCS would result in significant impacts to per capita use of parkland and recreation facilities and require the expansion or new facilities, the construction of which would cause adverse environmental impacts. Impacts from other infrastructure projects and plans, as described above, would also result in significant impacts to parkland and recreation facilities. The combination of the direct and cumulative impacts to parkland and recreation facilities from these projects and adopted plans would result in significant cumulative impacts to recreation in the southern California and northern Baja region by 2035, based on thresholds REC-1 and REC-2 as described in Section 4.15 Recreation.

Because cumulative impacts to recreation throughout the southern California and northern Baja region by 2035 would be significant, and because the 2050 RTP/SCS incremental impacts to recreation are significant, the 2050 RTP/SCS incremental impacts to recreation are also cumulatively considerable.

**2050**

A significant cumulative impact in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California region were significant when combined together, even if not independently significant. As discussed in the 2020 and 2035 analyses, implementation of the regional growth and land changes associated with the 2050 RTP/SCS would result in significant impacts to per capita use of parkland and recreation facilities and require the expansion or new facilities, the construction of which would cause adverse environmental impacts. Although projects included in the 2008 SCAG RTP and the HST are planned to be constructed by 2035, these projects would induce population growth that would continue into future years. For example, it is likely that local jurisdictions would update land use plans to increase housing and employment density around HST stations. Although 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 intended timeframes. This population growth would increase per capita use of parkland recreation facilities, which as discussed above, would result in significant impacts to recreation.

The combination of the direct and cumulative impacts to parkland and recreation facilities from these projects and adopted plans would result in significant cumulative impacts to recreation in the southern California and northern Baja region by 2050, based on thresholds REC-1 and REC-2 as described in Section 4.15 Recreation.

Because cumulative impacts to recreation throughout the southern California and northern Baja region by 2050 would be significant, and because the 2050 RTP/SCS incremental impacts to recreation are significant, the 2050 RTP/SCS incremental impacts to recreation are also cumulatively considerable.

**Mitigation Measures**

Mitigation measures to reduce impacts to recreation as identified in Section 4.15.5 would be applicable to cumulative impacts to recreation as well. Associated projects and plans not included in the 2050 RTP/SCS should implement similar mitigation measures.
Section 4.15.5 of this includes Mitigation Measure REC-A, which states that the 19 incorporated cities, the County of San Diego and special districts with responsibility for the construction of new recreation facilities or the expansion of existing facilities can and should acquire parkland concurrent with forecasted development through the Quimby Act and other means described in Section 4.15.2, and use local plans, ordinances, and other means to acquire parkland and recreation facilities as their populations increase to adequately meet projected needs. Mitigation Measure REC-B states that During project-specific design and CEQA review, the 19 incorporated cities, the County of San Diego and special districts with responsibility for the construction of new or expanded recreation facilities can and should apply mitigation measures to avoid or substantially reduce construction and operational impacts on air quality, noise, traffic, biological resources, cultural resources, greenhouse gas emissions, hydrology and water quality, and other resources.

As outlined in Section 4.15.5, Mitigation Measure REC-B would reduce construction-related impacts to the expansion or construction of new recreation facilities. However, Mitigation Measure REC-A would not guarantee reduction of all 2050 RTP/SCS impacts to the deterioration of existing parkland and recreation facilities to below a less-than-significant level, as it cannot be assured that adequate resources would be available to acquire the amount of parkland needed to meet forecasted population growth.

The EIR for the 2008 SCAG RTP identifies Mitigation Measure LU-19, which states that “SCAG’s ongoing regional planning efforts will be used to build a consensus in the region to support changes in land use to accommodate future population growth while maintaining the quality of life in the region.” The EIR concludes that even with adherence to LU-19, land use change impacts on existing land use (including parkland) would be significant (SCAG 2008). The EIS/EIR for the HST identifies potential mitigation to reduce impacts to 4(f) resources, including the restoration of directly impacted park lands and relocation of facilities. However, it is likely that some parks would still be impacted (HSRA 2005). It is also likely that population growth induced by other infrastructure projects and land use plans would increase per capita use of existing parkland and recreation facilities, and it is unknown whether the acquisition of additional parkland would be feasible due to environmental or financial constraints, even with the use and consideration of the Quimby Act and other regulations and programs discussed in Section 4.15.2.

As outlined in Section 4.15.5, mitigation measures would not guarantee reduction of all 2050 RTP/SCS impacts to recreation to below a level of significance. Therefore, the 2050 RTP/SCS incremental contributions to cumulative impacts to recreation in years 2020, 2035, and 2050 would remain cumulatively considerable post-mitigation.

5.2.16 TRANSPORTATION

The geographic scope for the transportation cumulative analysis is the Southern California region, which includes the San Diego region, the Southern California Association of Governments region (the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura), and northern Baja (Mexico) region.

Urban development and transportation systems within this geographic area are not bound by jurisdictional boundaries as movement within, through, and beyond the region is necessary for commuters, personal travel, and goods movement. This, however, is not necessarily the case when considering the international border with Mexico as transportation across the border in both directions is controlled through the POE. Thus, traffic flow across the border is dependent upon the queue length, rather than operational conditions of the transportation network. Cumulative impacts related to transportation would occur if future operating conditions of the regional transportation system, including both the SANDAG, SCAG, and
northern Baja regions did not accommodate increased demand as indicated by the transportation performance measures evaluated throughout this section.

**Impacts of the 2050 RTP/SCS**

The analysis of the 2050 RTP/SCS shows that significant transportation impacts would result in 2035 and 2050 due to the increase in average commute times. Additionally, a forecasted decrease in the percentage of work-related trips accessible within 15 minutes would result in a significant impact in 2035 and 2050. Also, in 2050, the increase in congested VMT in peak periods would exceed the 3 percent threshold and would also result in a significant transportation impact (Impact T-4).

No significant transportation impacts were identified for year 2020 and 2035. Additionally, analysis of some performance measures, such as T-2 and T-4 indicate a reduction in congestion in 2020 as compared to 2010 conditions.

**Impacts of Associated Related Infrastructure Projects**

Related infrastructure projects, such as the California High Speed Rail Train System could result in potentially significant transportation impacts. The environmental document for the California High Speed Rail 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 high speed train 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 California High Speed Rail Train System project could 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 a northern Baja region is becoming constrained. It is anticipated that SDIA will reach its airfield capacity sometime between 2020 and 2030, at approximately 28 million annual passengers (SDCRAA 2011). 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 may 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 could also result.

In addition to the transportation network improvements that would be implemented per the 2050 RTP/SCS, individual jurisdictions would also be implementing local arterial network improvements that would serve to further reduce traffic or transit impacts.

**Impact Projections in Adopted Plans**

The EIR document prepared for the 2008 SCAG RTP states that the SCAG region is expected to add an additional 5.14 million people, 1.8 million households, and 2.17 million jobs between 2008 and 2035. The EIR identified a significant cumulative impact resulting from implementation of the 2008 SCAG RTP
regarding transportation impacts such as VMT and vehicle hours traveled in delay to counties outside of the SCAG region (SCAG 2008).

According to the California-Baja California Border Master Plan, approximately 2,487,400 people resided in Baja California in 2000 and population is expected to reach more than 5,209,000 residents by 2030. The Master Plan does not have an associated environmental analysis documents. The Master Plan concludes that the expansion of residents in the border region will increase crossborder 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

A significant cumulative impact in the year 2020 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within the southern California and northern Baja regions were significant when combined together, even if not independently significant. As described above, the analysis of the year 2020 shows that transportation operations would continue to operate at acceptable levels and growth would be appropriately accommodated within the transportation network. Additionally, analysis of some performance measures, such as T-2 and T-4 show improved traffic and transit operating conditions and indicate a reduction in congestion in 2020 as compared to 2010 conditions. The acceptable operating conditions and reduced congestion in 2020 would accommodate both local traffic as well as interregional trips traversing the San Diego region. Though significant transportation impacts were identified in the California High Speed Rail Train System project environmental analysis and in the 2008 SCAG RPT EIR, and other associated infrastructure projects may also have adverse transportation impacts, implementation of the 2050 RTP/SCS would serve to improve transportation conditions in the region as compared to current conditions. For this reason, the 2050 RTP/SCS would not considerably contribute to cumulative impacts in the year 2020.

2035

As described in the 2020 analysis, the consideration of cumulative transportation impacts includes the southern California region, encompassing the SANDAG, SCAG, and northern Baja regions. The 2050 RTP/SCS would show adverse impacts for Impacts T-1 through T-4, though these would be less than significant. As shown through the analysis of year 2035 within this section, the planned improvements for the regional transportation network and the proposed growth strategy would not adequately accommodate the increased transportation demand as indicated by the exceedance of various performance measures. Though the 2050 RTP/SCS works towards providing a growth strategy and transportation network to accommodate increased growth and resulting demand on the transportation system, and it would not generally achieve this per the performance measures analyzed for 2035. In addition, significant transportation impacts were also identified in the California High Speed Rail Train System project environmental analysis and in the 2008 SCAG RPT EIR, and other associated infrastructure projects may also have adverse transportation impacts. The combination of the direct and cumulative transportation impacts from these projects and adopted plans that would affect the southern California and northern Baja region would result in significant cumulative transportation impacts, based on thresholds T-1 regarding average commute time and T-3 regarding the percentage of work non-work related trips accessible within 15 minutes.
Because cumulative transportation impacts throughout the southern California and northern Baja region would be significant, and because the 2050 RTP/SCS incremental transportation impacts are significant by 2035, the 2050 RTP/SCS incremental transportation impacts, even though they are less-than-significant on a project basis, are also cumulatively considerable in 2035.

**2050**

As described in the 2020 analysis, the consideration of cumulative transportation impacts includes the southern California region, encompassing the SANDAG, SCAG, and northern Baja regions. As shown through the analysis of year 2050 within this section, the planned improvements for the regional transportation network and the proposed growth strategy would not adequately accommodate the increased transportation demand as indicated by the exceedance of various performance measures T-3 and T-4 for non-work trip travel time and congestion. Though the 2050 RTP/SCS works towards providing a growth strategy and transportation network to accommodate increased growth and resulting demand on the transportation system, it would not fully achieve this per the performance measures analyzed for 2050. In addition, significant transportation impacts were also identified in the California High Speed Rail Train System project environmental analysis and in the 2008 SCAG RPT EIR, and other associated infrastructure projects may also have adverse transportation impacts. The combination of the direct and cumulative transportation impacts from these projects and adopted plans that would affect the southern California and northern Baja regions would result in significant cumulative transportation impacts, based on thresholds T-1 regarding average commute time, T-3 regarding the percentage of work non-work-related trips accessible within 15 minutes, and T-4 regarding congested VMT in peak periods.

Similar to 2035, because cumulative transportation impacts throughout the southern California and northern Baja regions would be significant, and because the 2050 RTP/SCS incremental transportation impacts are significant by 2050, the 2050 RTP/SCS incremental transportation impacts are also cumulatively considerable in 2050.

**Mitigation Measures**

Mitigation measures to minimize transportation impacts as identified in Section 4.16.5 would be applicable to cumulative transportation impacts as well. Related infrastructure projects not included in the 2050 RTP/SCS should implement similar mitigation measures.

Mitigation measure T-4–A requires that SANDAG and other implementing agencies reevaluate regional travel times and modify the timing and priority of transportation network improvements in future RTPs consistent with available funding programs to most quickly implement those improvements that would reduce impacts. It also requires that, when feasible, SANDAG shall in future RTP/SCSs modify the timing and priority of transportation network improvements to be consistent with available funding programs to most quickly implement those improvements that would reduce impacts T-3 and T-4 to less than significant levels.

As outlined in Section 4.16.5, mitigation measures would not guarantee reduction of all 2050 RTP/SCS transportation impacts to below a level of significance. As described, no additional measures were found to be feasible. Therefore, the 2050 RTP/SCS incremental contributions to the cumulative transportation impacts in years 2035 and 2050 that would occur throughout the southern California and northern Baja regions would remain cumulatively considerable post-mitigation.
5.0 Cumulative Impacts

5.2.17 WATER SUPPLY

The geographic scope for the water supply cumulative analysis is Southern California, the Lower Colorado River Basin and northern Baja Mexico. The plans relied on for the cumulative analysis include: (1) the SCAG 2008 RTP and its EIR (SCAG 2008), (2) the California-Baja California Border Master Plan (Caltrans 2008a), and (3) Lower Colorado River Interim Shortage Criteria and associated EIS (Reclamation 2007). The SCAG RTP and associated EIR encompass the counties of Imperial, Orange, San Bernardino, Riverside, Los Angeles, and Ventura. The area of Influence in the California-Baja Border Master Plan includes the geographic area 60 miles north and south of the California-Baja California International Border. In California, it includes the counties of San Diego and Imperial. In Baja California, it includes the municipalities of Tijuana, Tecate, Playas de Rosarito, parts of Mexicali, and the urban area of Ensenada. The Lower Colorado River Basin includes portions of California, Arizona, Nevada, Utah, and New Mexico.

The geographic scope for the water supply analysis includes both the Lower Colorado River Basin and northern Baja Mexico because anticipated land use changes, transportation system demand, and resulting water demand influence water supply reliability across the region as a whole, as development and water supplies are not strictly characterized by jurisdictional boundaries. Significant cumulative impacts related to water supply would occur if existing water supplies and facilities were not adequate to serve cumulative growth, or if cumulative growth and infrastructure development resulted in construction of new water treatment and distribution facilities that could cause significant adverse environmental impacts.

Impacts of the 2050 RTP/SCS

The analysis of the 2050 RTP/SCS shows that population growth in the San Diego region would create new demand for water for domestic and industrial use. The water demand would, in turn, create a need for new water supplies and facilities. Although regional water supplies and facilities would be adequate to serve 2020 growth, local water supplies in the Borrego Valley would not be adequate; therefore this impact is considered significant. Water supplies would be adequate to serve projected 2020 RTP transportation projects.

In 2035 and 2050, the adequacy of water supply is uncertain, and water supplies and facilities would not be adequate to serve water demands from growth and land use changes. Therefore, impacts associated with adequate water supplies and facilities in 2035 and 2050 are considered significant. In addition, water demand associated with 2050 transportation network improvements would be higher than in 2035, and the availability of water treatment and distribution facilities to serve this water demand in 2050 is uncertain; this and impacts is considered significant.

In 2020, 2035, and 2050, forecasted growth and land use changes would require construction of new water treatment or distribution facilities or the expansion of existing facilities; impacts of constructing these facilities would be considered significant. Implementation of the 2050 RTP/SCS transportation network improvements would result in less than significant impacts related to construction of new water treatment and distribution facilities in 2020 and 2035, but would result in significant impacts in 2050.

Impacts of Related Infrastructure Projects

There are a number of infrastructure projects planned in the Southern California region, including the California High Speed Rail Train (HST), border/Port of Entry (POE) facility improvements, airport expansions in the San Diego region and Tijuana International Airport, port/maritime improvements, petroleum pipeline transportation infrastructure, and freight rail infrastructure. These infrastructure
projects would result in project-specific increases in water demand. These increases would be small in comparison to water demands caused by 2020, 2035, and 2050 regional growth and land use changes.

Impact Projections in Adopted Plans

The SCAG 2008 RTP EIR found that by increasing mobility and including land-use-transportation measures, the 2008 RTP would influence the pattern of this urbanization. The 2008 RTP’s influence on growth would contribute to an increased demand for water supply and its associated infrastructure. Water agencies in the SCAG region produce many long-range planning studies to provide a system adequate to supply water demand; however the existing water supplies and infrastructure would not be sufficient to meet the expected demand in 2035. Because the specific, detailed solutions necessary to assure adequate water supply in 2035 have not yet been developed, the 2008 RTP’s influence on growth and water supply would be cumulatively considerable and contribute to regionally significant water supply impacts (SCAG 2008). The 2008 SCAG RTP planning horizon is 2035. This document and analysis was completed prior to the preparation of the 2050 RTP/SCS; thus, it does not account for the impacts of the 2050 RTP/SCS.

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; however, projects included in the Master Plan could have adverse water supply impacts. 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 land use should be considered (Caltrans 2008a). This document was completed prior to the preparation of the 2050 RTP/SCS; thus, does not account for the 2050 RTP/SCS.

The Lower Colorado River Interim Shortage Criteria and associated EIS (Reclamation 2007) represent a plan to share water supply shortages among Lower Colorado River water users, including SDCWA. These criteria are interim operational guidelines used to address the operations of Lake Powell and Lake Mead during drought and low reservoir conditions during shortage years; during shortage years, projected Lower Colorado River water supplies would not meet projected water demands. The interim shortage criteria were developed to address multi-year drought, decreasing system storage, and growing demands for Colorado River water. 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.

Cumulative Impacts and Impact Conclusions

2020

A significant cumulative impact in the year 2020 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within Southern California and the Lower Colorado River Basin region were significant when combined together, even if not independently significant.

As described above, adequate water supplies would be available to support implementation of the transportation network improvements in 2020 as proposed in the 2050 RTP/SCS. However, significant water supply and facility impacts were identified for 2050 RTP/SCS growth and land use changes (Borrego Valley), and for implementation of the SCAG 2008 RTP. Additional water demands from
related infrastructure projects, Border Master Plan projects, and Lower Colorado River water users would cause additional water supply and facility impacts. Furthermore, a number of uncertainties could affect future water supply, including climate change; cost and use of energy; potential policy and permitting restrictions; endangered species protections; and demographic unknowns. The combined cumulative impacts of these plans and projects, coupled with the uncertainties mentioned above, would be significant based on thresholds WS-1WS-A regarding available water supplies and water treatment facilities and WS-2WS-C regarding new or expanded water treatment or distribution facilities by 2020.

Because cumulative water supply impacts throughout Southern California, the Lower Colorado River Basin and northern Baja region by 2020 would be significant, and because the 2050 RTP/SCS incremental water supply impacts are significant, the 2050 RTP/SCS incremental water supply impacts are also cumulatively considerable.

2035

A significant cumulative impact in the year 2035 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within Southern California and the Lower Colorado River Basin region were significant when combined together, even if not independently significant. The cumulative analysis presented above for year 2020 would be applicable to year 2035.

The combined cumulative water supply impacts of plans and projects, coupled with the uncertainties mentioned in the 2020 analysis, would be significant in 2035, based on thresholds WS-1WS-A regarding available water supplies and water treatment facilities and WS-2WS-C regarding new or expanded water treatment or distribution facilities by 2035. Because cumulative water supply impacts throughout Southern California, the Lower Colorado River Basin, and northern Baja region by 2035 would be significant, and because the 2050 RTP/SCS incremental water supply impacts are significant, the 2050 RTP/SCS incremental water supply impacts are also cumulatively considerable.

2050

A significant cumulative impact in the year 2050 would result if the combination of impacts of the 2050 RTP/SCS, the related infrastructure projects, and impact projections from adopted plans within Southern California and the Lower Colorado River Basin were significant when combined together, even if not independently significant. The cumulative analysis presented above for years 2020 and 2035 would be applicable to year 2050, except that the incremental water supply impacts of 2050 RTP/SCS transportation network improvements would be significant in 2050, whereas they are less than significant in 2020 and 2035.

The combined cumulative water supply impacts of plans and projects, coupled with the uncertainties mentioned in the 2020 analysis, would be significant in 2050, based on thresholds WS-AWS-1 regarding available water supplies and water treatment facilities and WS-CWS-2 regarding new or expanded water treatment or distribution facilities by 2035. Because cumulative water supply impacts throughout Southern California, the Lower Colorado River Basin and northern Baja region by 2035 would be significant, and because the 2050 RTP/SCS incremental water supply impacts are significant, the 2050 RTP/SCS incremental water supply impacts are also cumulatively considerable.
Mitigation Measures

Mitigation measures to minimize water supply impacts due to transportation improvements as identified in Section 4.17.5 would be applicable to cumulative water supply impacts as well. Related infrastructure projects not included in the 2050 RTP/SCS should implement similar mitigation measures.

Mitigation measure WS-A provides that local governments can and should implement all feasible water conservation measures, including, but not limited to, those measures and policies regarding water efficiency, conservation, capture, and reuse identified by water suppliers and in local government general plans during the CEQA review process for individual development projects. Mitigation measure WS-B provides that SANDAG can and other implementing agencies should utilize reclaimed water (to the greatest extent feasible during design and construction of the projects implementing the 2050 RTP/SCS, to minimize potential impacts to the San Diego regional water supply. In addition, mitigation measure WS-C provides that San Diego region cities, the County of San Diego and special districts with responsibility for the construction of new or expanded water treatment and conveyance facilities should apply necessary mitigation measures to reduce significant environmental impacts associated with these facilities during the CEQA review process for individual facilities.

As outlined in Section 4.17.5, mitigation measures WS-A and WS-B would not guarantee reduction of all 2050 RTP/SCS impacts associated with the availability of water supplies and the construction of water treatment facilities to a level of less than significant. As described in that section, no additional measures were found to be feasible. Therefore, the 2050 RTP/SCS incremental contributions to the cumulative water supply impacts in years 2020, 2035, and 2050 would remain cumulatively considerable post-mitigation.