

4.0 ALTERNATIVES

This section of the Program Environmental Impact Report (PEIR) describes alternatives to the proposed 2016 Regional Transportation Plan/Sustainable Communities Strategy (“2016 RTP/SCS,” “Plan,” or “Project”). Alternatives have been analyzed consistent with Section 15126.6 of the California Environmental Quality Act Guidelines (State CEQA Guidelines), which requires evaluation of a range of reasonable alternatives to the Project, or to the location of the Project, that would feasibly attain most of the basic objectives of the Project but would avoid or substantially lessen any of the significant effects of the Project, and evaluation of the comparative merits of the alternatives.

4.1 RATIONALE FOR ALTERNATIVES SELECTION

This section describes the ability of alternatives to meet, or partially meet, most of the basic objectives, and their ability to avoid or reduce the significant effects of the Project. The alternatives were developed to be substantially aligned with planning scenarios that were used to develop the 2016 RTP/SCS. Key provisions of the State CEQA Guidelines pertaining to the alternatives analysis are summarized below.¹

- The discussion of alternatives shall focus on alternatives to the project including alternative locations that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.
- The No Project Alternative shall be evaluated along with its potential impacts. The No Project Alternative analysis shall discuss the existing conditions at the time the notice of preparation is published, as well as what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by a “rule of reason.” Therefore, the EIR must evaluate only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the proposed project.
- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.
- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

¹ CEQA Guidelines, California Code of Regulations (CCR), Title 14, Division 6, Chapter 3, § 15126.6, 2011.

4.2 RANGE OF REASONABLE ALTERNATIVES

The range of feasible alternatives is selected and discussed in a manner intended to foster meaningful public participation and informed decision making. Among the factors that may be taken into account when addressing the feasibility of alternatives (as described in State CEQA Guidelines Section 15126.6(f)(1)) are environmental impacts, site suitability, economic viability, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and whether the proponent could reasonably acquire, control, or otherwise have access to the alternative site.

An EIR must briefly describe the rationale for selection and rejection of alternatives. The lead agency may make an initial determination as to which alternatives are feasible, and, therefore, merit in-depth consideration.² Alternatives may be eliminated from detailed consideration in the EIR if they fail to meet project objectives, are infeasible, or do not avoid any significant environmental effects.³

Project Objectives

Consistent with the provisions of Section 15126.6(a) of the State CEQA Guidelines, the EIR must consider “alternatives ... which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.” SCAG has established nine goals to serve as project objectives (see **Table 2.4.1-1, 2016 RTP/SCS Goals**, in **Section 2.0, Project Description**). In addition, while not specifically required under CEQA, other parameters may be used to further establish criteria for selecting alternatives such as adjustments to phasing, and other “fine-tuning” that could shape feasible alternatives in a manner that could result in reducing identified environmental impacts.

SCAG lacks the legal authority to require the elected decision makers of cities and counties to adopt or amend their respective land use policies, such as general plan and zoning code amendments that would be required to implement the land use patterns included in the SCS component of the Plan. Furthermore, SCAG lacks the legal authority to implement land use designations in the SCS component of the Plan or the alternatives. Nevertheless, pursuant to CEQA, the range of alternatives considered in the PEIR illustrates the different environmental consequences of potential alternatives to the Plan.

Limits of SCAG Authority

SCAG also does not have any legal jurisdiction to control population and employment levels in the region. The accuracy of growth projections at the regional scale, over both the short and long term, are inherently estimates that are subject to a wide variety of factors outside of the control of SCAG or any of its member counties and cities, such as the global recession. Accordingly, all alternatives assume the same forecasted regional growth in population and employment.

Estimating the environmental consequences of regional growth within the SCAG region is also subject to a wide variety of uncertainties that are outside of the control of SCAG, and for many topical areas are outside the control of SCAG’s member counties and cities.

² CEQA Guidelines, CCR, Title 14, Division 6, Chapter 3, §15126.6(f)(3), 2005.

³ CEQA Guidelines, CCR, Title 14, Division 6, Chapter 3, §15126.6(c), 2005.

4.3 ALTERNATIVES TO THE PROPOSED PROJECT

The alternatives were identified during the RTP/SCS scenario planning development process as having the potential to avoid significant effects of the Project. Section 15126.6(e) of the State CEQA Guidelines requires that a “No Project” Alternative must be evaluated. In addition to the No Project Alternative required to be considered pursuant to CEQA, this PEIR evaluates two other alternatives: (1) 2012 RTP/SCS Updated with Local Input Alternative and (2) Intensified Land Use Alternative (see **Table 4.3-1, Summary of Proposed Project and Alternatives**). Each of the three alternatives consists of a transportation network element and a land use pattern element, and is substantively aligned with the scenarios for developing the Plan.⁴ The No Project Alternatives is based on and aligned with the 2016 RTP/SCS Scenario 1 (“No Build/Baseline: No build network and trend SED”⁵). The 2012 RTP/SCS Updated with Local Input Alternative is based on and aligned with the 2016 RTP/SCS Scenario 2 (“Updated 2012 Plan/Local Input: Updated growth forecast”) of the Draft Scenario Planning Matrix. The Intensified Land Use Alternative is based on a combination of a transportation network of the 2016 RTP/SCS Scenario 3 and land use pattern of the 2016 RTP/SCS Scenario 4.

The alternatives are evaluated at a comparative level of detail, consistent with the provisions of Section 15126.6(d) of the State CEQA Guidelines (**Table 4.3-1**). Concentration of development to improve the transportation network and accommodated anticipated population growth are among the guiding principles for the 2016 RTP/SCS. Development of greenfields varies widely among the alternatives (**Table 4.3-1**). At 151 square miles, the No Project Alternative has the greatest anticipated conversion of greenfields, while Alternative 3: Intensified Land Use Alternative would reduce that development of greenfields to 90 square miles.

⁴ Southern California Association of Governments. Accessed 7 November 2015. *2016-2040 RTP/SCS Draft Scenario Planning Matrix*. Available at: <http://www.scag.ca.gov/committees/CommitteeDocLibrary/oswag021915draftscenario.pdf>

⁵ SED is social-economic data.

**TABLE 4.3-1
SUMMARY OF PROPOSED PROJECT AND ALTERNATIVES**

Elements	Proposed Project: 2016 RTP/SCS	Alternative 1: No Project	Alternative 2: 2012 RTP/SCS Updated with Local Input Alternative	Alternative 3: Intensified Land Use Alternative
Greenfield Land Consumption	118 square miles	151 square miles	138 square miles	90 square miles
Highway Network	78,819 lane mile 1.9 billion capacity mile	71,710 lane mile 1.7 billion capacity mile	78,819 lane mile 1.9 billion capacity mile	78,819 lane mile 1.9 billion capacity mile
Transit Network (route mile)	15,130	13,943	14,421	15,130
Transit Boarding (daily)	4.5 million	3.4 million	4.1 million	4.6 million
Congestion (speed)	36.0 (AM Peak) 34.0 (PM Peak)	30.5 (AM Peak) 29.1 (PM Peak)	35.7 (AM Peak) 33.7 (PM Peak)	36.3 (AM Peak) 34.1 (PM Peak)
Vehicle Miles Traveled (VMT)¹	503,803,907 (total) 22.79 (VMT per capita)	540,435,712 (total) 24.22 (VMT per capita)	510,300,297 (total) 23.07 (VMT per capita)	497,006,245 (total) 22.47 (VMT per capita)
Vehicle Hours Traveled (VHT)¹	12,977	15,633	13,225	12,763
Vehicle Hours Delay¹ (1,000 hours)	2,021 (total) 5.48 (Delay per capita)	3,741 (total) 10.15 (Delay per capita)	2,117 (total) 5.74 (Delay per capita)	1,954 (total) 5.30 (Delay per capita)
Active Transportation Strategies	12,700 miles local, regional and greenway networks; First mile/last mile strategy at and around 224 rail or fixed-guide way bus stations; 670 miles livable corridors; 880 stations and 8,800 bicycles for bike share services; 10,500 new or improved sidewalks; 50% of schools covered for Safe Routes to School (SRTS) programs and projects (approx. \$280 million)	7,042 mile local bikeway network; Remaining as 755 greenways; 7,576 miles of bikeways repaired/constructed Limited First mile/last mile strategy; No Livable Corridors; SRTS not available	10,000 mile local bikeway network; 1,8000 mile greenways; Limited First mile/last mile strategy; No Livable Corridors; 40% of schools covered for SRTS programs and projects	Same as the Plan 12,702 Local, regional, and greenway network; 880 stations for bike share services; 670 miles of Livable Corridors; 50% of schools covered for SRTS programs and projects
Active Transportation (billions of dollars)	12.9	0.520	6.7	12.9
Land Use and Transit Coordination (HQTAs)	47% homes 56% employees	36% homes 44% employees	39% homes 48% employees	50% homes 60% employees
Land Pattern Focus	13% urban infill 49% compact walkable 38% standard suburban	3% urban infill 11% compact walkable 86% standard suburban	13% urban infill 32% compact walkable 55% standard suburban	13% urban infill 52% compact walkable 35% standard suburban
Land Consumption (greenfield)	118 square miles	154 square miles	138 square miles	90 square miles
Housing Mix	41% Multifamily 8% Townhome 19% Single Family (SF) small lot 32% SF large lot	36% Multifamily 7% Townhome 18% SF small lot 39% SF large lot	39% Multifamily 8% Townhome 18% SF small lot 36% SF large lot	41% Multifamily 8% Townhome 19% SF small lot 32% SF large lot
Cumulative Residential and Commercial Building Energy Consumed and Energy Costs	19,559 trillion Btu \$735 billion	20,306 trillion Btu \$762 billion	19,983 trillion Btu \$750 billion	19,356 trillion Btu \$728 billion
Cumulative Residential and Commercial Building Water Use and Water Costs	133,135,367 acre-feet \$186 billion	133,996,824 acre-feet \$186 billion	133,468,304 acre-feet \$185 billion	132,723,264 acre-feet \$184 billion
Per Household Total Cost (driving + utilities)	\$13,993	\$15,966	\$14,680	\$13,340

NOTE:

1. This includes light and medium-duty vehicles, and heavy-duty trucks.

SOURCE:

SCAG Modeling, 2015.

Alternative 1: No Project Alternative

The No Project Alternative is required by Section 15126.6(e)(2) of the CEQA Guidelines and assumes that the Plan would not be implemented. The No Project Alternative allows decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The No Project Alternative evaluates “what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services” (CEQA Guidelines Section 15126.6(e)(2)).

For purposes of this document, the No Project Alternative is aligned with the 2016 RTP/SCS “Baseline” scenario (Scenario 1 in the Draft Scenario Planning Matrix⁶). The No Project Alternative includes those transportation projects that are in place at the time of preparation of the 2016 RTP/SCS and that are included in the first year of the previously conforming transportation plan and/or transportation improvement program (TIP), or have completed environmental review by December 2014. “Exempt projects” that include safety projects and certain mass transit projects, transportation control measures (“TCMs”) that are approved by the State Implementation Plan, and project phases that were authorized by the FHWA/FTA prior to expiration of SCAG’s conformity finding for the adopted 2012 RTP/SCS, would also be included in the No Project Alternative since they could move forward in the absence of an adopted 2016 RTP/SCS.⁷ These reasonably foreseeable projects fulfill the definition of the CEQA mandated “No Project Alternative.”

The land use strategies included in the No Project Alternative are based on the trending socioeconomic growth projection to the future (2040) using data from 1990 to the present, and updated with the same jurisdictional local input population, household and employment data as those in the 2016 RTP/SCS to reflect the most recent local input growth estimates in the region. This “trend baseline” is a “no build” scenario.

Alternative 2: 2012 RTP/SCS Updated with Local Input Alternative

For purposes of this document, the 2012 RTP/SCS Updated with Local Input Alternative is aligned with Scenario 2 in the Draft Scenario Planning Matrix.⁸ It retains transportation investments and land use strategies of the 2012 RTP/SCS, updated with the same local input incorporated in the 2016 RTP/SCS to reflect the most recent local input growth estimates in the region. This alternative does not include land use strategies included within the 2016 RTP/SCS, but includes all of the modifications and projects in the 2012 RTP/SCS through Amendment 2. This Alternative will consider continued implementation of the policies, strategies and projects included in the 2012 RTP/SCS.⁹

⁶ Southern California Association of Governments. Accessed 7 November 2015. *2016-2040 RTP/SCS Draft Scenario Planning Matrix*. Available at: <http://www.scag.ca.gov/committees/CommitteeDocLibrary/osw021915draftscenario.pdf>

⁷ Federal Highway Administration. *Transportation Conformity: A Basic Guide for State and Local Officials (Revised 2010)*, FHWA-HEP-11-001. Available at: http://www.fhwa.dot.gov/environment/air_quality/conformity/guide/guide10.cfm

⁸ Southern California Association of Governments. Accessed 7 November 2015. *2016-2040 RTP/SCS Draft Scenario Planning Matrix*. Available at: <http://www.scag.ca.gov/committees/CommitteeDocLibrary/osw021915draftscenario.pdf>

⁹ Southern California Association of Governments. Adopted April 2012. *2012-2035 Regional Transportation Plan/Sustainable Communities Strategy*. Available at: <http://scagrtpscsc.net/Pages/2012RTPSCS.asp>

Alternative 3: Intensified Land Use Alternative

This Intensified Land Use Alternative is based on a transportation network for the 2016 RTP/SCS (Scenario 3 in the Draft Scenario Planning Matrix), plus more aggressive densities and land use patterns of Scenario 4 in the Draft Scenario Planning Matrix. This Alternative's transportation network is based off the Plan's network with minor changes to the goods movement and transit projects. The land use pattern in this Alternative build on the land use strategies as described in the 2016 RTP/SCS and beyond. Specifically, it increases densities and intensifies land use patterns of the Plan, especially around high-quality transit areas (HQTAs) in an effort to maximize transit opportunities. The growth pattern associated with this Alternative optimizes urban areas and suburban town centers, transit oriented developments (TODs), HQTAs, livable corridors, and neighborhood mobility areas. It also includes a greater progressive job-housing distribution optimized for TODs and infill in HQTAs. This Alternative considers the basis of the Project with enhancements to increase benefits related to the region's accelerated SB 375 GHG emissions reduction trend into 2040 and beyond, and related improvements for air quality, livability, public health, active transportation opportunities, Environmental Justice, and affordability benefits. This Alternative assumes enhanced benefits from technology over the 25-year planning horizon.

4.4 COMPARATIVE ANALYSIS OF IMPACTS

The effectiveness of each of the alternatives to achieve the basic objectives of the Plan has been evaluated in relation to the statement of vision, goals, guiding policies and performance measures described in **Section 2.0, Project Description** (see **Table 4.4-1, Summary of Adequacy of Proposed Project and Alternatives to Attain Project Goals**). The Project would meet all of the goals of the Plan (**Table 4.4-1**). Although the No Project Alternative is not capable of meeting most of the goals of the Project, it has been analyzed, as required by CEQA. Alternative 2, meets some but not all the project goals. Specifically, it is less effective than the Plan in meeting three goals:

- Protect the environment and health for our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking).
- Actively encourage and create incentives for energy efficiency, where possible.
- Encourage land use and growth patterns that facilitate transit and non-motorized transportation.

Alternative 3 is capable of meeting most of the goals of the Plan. Specifically, it is less effective in meeting two goals:

- Maximize mobility and accessibility for all people and goods in the region.
- Ensure travel safety and reliability for all people and goods in the region.

Consistent with the requirements of Section 15126.6(d) of the State CEQA Guidelines, this section of the analysis provides information for the alternatives, including the No Project Alternative, to allow meaningful evaluation, analysis, and comparison with the Project, inclusive of direct, indirect, and cumulative impacts (**Table 4.4-2, Summary of Impacts for Proposed Project and Alternatives**). The evaluation demonstrates if the alternative is able to avoid or reduce the significant and unavoidable effects of the Project.

**TABLE 4.4-1
SUMMARY OF ADEQUACY OF PROPOSED PROJECT AND ALTERNATIVES TO ATTAIN PROJECT GOALS**

Goals	Proposed Project: 2016 RTP/SCS	Alternative 1: No Project	Alternative 2: 2012 RTP/SCS Updated with Local Input Alternative	Alternative 3: Intensified Land Use Alternative
Align the Plan investments and policies with improving regional economic development and competitiveness	Yes	No	Yes	Yes
Maximize mobility and accessibility for all people and goods in the region	Yes	No	Yes	No
Ensure travel safety and reliability for all people and goods in the region	Yes	No	Yes	No
Preserve and ensure a sustainable regional transportation system	Yes	No	Yes	Yes
Maximize the productivity of our transportation system	Yes	No	Yes	Yes
Protect the environment and health for our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking)	Yes	No	No	Yes
Actively encourage and create incentives for energy efficiency, where possible	Yes	No	No	Yes
Encourage land use and growth patterns that facilitate transit and non-motorized transportation	Yes	No	No	Yes
Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.	Yes	No	Yes	Yes

SOURCE:
Southern California Association of Governments. December 2015. *Draft 2016 Regional Transportation Plan/Sustainable Communities Strategy*. Chapter 4.

**TABLE 4.4-2
SUMMARY OF IMPACTS FOR PROPOSED PROJECT AND ALTERNATIVES**

Issue Area	Proposed Project: 2016 RTP/SCS	Alternative 1: No Project	Alternative 2: 2012 RTP/SCS Updated with Local Input Alternative	Alternative 3: Intensified Land Use Alternative
Aesthetics				
Scenic Vistas	Significant and Unavoidable	Less (Significant and Unavoidable)	Less (Significant and Unavoidable)	Somewhat Less (Significant and Unavoidable)
Scenic Highways	Less than Significant	Less (Less than Significant)	Less (Less than Significant)	Similar (Significant and Unavoidable)
Visual Character or Quality	Significant and Unavoidable	Greater (Significant and Unavoidable)	Somewhat Greater (Significant and Unavoidable)	Similar (Significant and Unavoidable)
Light and Glare/Shade and Shadow	Significant and Unavoidable	Greater (Light & Glare)/Less (Shade & Shadow) (Significant and Unavoidable)	Greater (Light & Glare)/Less (Shade & Shadow) (Significant and Unavoidable)	Similar (Light & Glare)/Greater in Urban Areas (Shade & Shadow) (Significant and Unavoidable)
Agriculture and Forestry Resources				
Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide or Local Importance	Significant and Unavoidable	Somewhat Greater (Significant and Unavoidable)	Somewhat Greater (Significant and Unavoidable)	Somewhat Less (Significant and Unavoidable)
Conflict with zoning for agricultural use, or a Williamson Act contract	Significant and Unavoidable	Somewhat Greater (Significant and Unavoidable)	Somewhat Greater (Significant and Unavoidable)	Similar (Significant and Unavoidable)
Conflict with zoning for forest land, timberland, or Timberland Production	Less than Significant	Similar (Less than significant)	Similar (Less than Significant)	Similar (Less than Significant)
Loss or conversion of forest land	Less than Significant	Similar (Less than Significant)	Similar (Less than Significant)	Similar (Less than Significant)
Conversion of Farmland to non-agricultural or forest land to non-forest use	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Somewhat Less (Significant and Unavoidable)
Air Quality				
Conflict with or obstruct implementation of an air quality plan	Less than Significant	Greater (Significant and Unavoidable)	Similar (Less than Significant)	Similar (Less than Significant)
Violate any air quality standard	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Similar (Significant and Unavoidable)
Cumulatively considerable net increase for pollutants in nonattainment	Less than Significant	Greater (Significant and Unavoidable)	Greater (Less than Significant)	Less (Less than Significant)
Sensitive receptors and public health	Significant and Unavoidable	Greater (Significant and Unavoidable)	Similar (Significant and Unavoidable)	Greater in some areas (Significant and Unavoidable)
Objectionable odors	Less than Significant	Similar (Less than Significant)	Similar (Less than Significant)	Similar (Less than Significant)
Biological Resources				
Listed, Sensitive, special status species	Significant and Unavoidable	Somewhat Greater (Significant and Unavoidable)	Somewhat Greater (Significant and Unavoidable)	Somewhat Less (Significant and Unavoidable)
Riparian habitat	Significant and Unavoidable	Somewhat Greater (Significant and Unavoidable)	Somewhat Greater (Significant and Unavoidable)	Somewhat Less (Significant and Unavoidable)
Federally protected wetlands	Less than Significant after Mitigation	Somewhat Greater (Less than Significant after Mitigation)	Somewhat Greater (Less than Significant after Mitigation)	Somewhat Less (Less than Significant after Mitigation)
Wildlife movement and corridors	Significant and Unavoidable	Somewhat Greater (Significant and Unavoidable)	Somewhat Greater (Significant and Unavoidable)	Somewhat Less (Significant and Unavoidable)
Conflict with local policies and ordinances	Significant and Unavoidable	Somewhat Greater (Significant and Unavoidable)	Somewhat Greater (Significant and Unavoidable)	Somewhat Less (Significant and Unavoidable)

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Issue Area	Proposed Project: 2016 RTP/SCS	Alternative 1: No Project	Alternative 2: 2012 RTP/SCS Updated with Local Input Alternative	Alternative 3: Intensified Land Use Alternative
Conflict with HCP or NCCP	Less than Significant after Mitigation	Somewhat Greater (Less than Significant after Mitigation)	Somewhat Greater (Less than Significant after Mitigation)	Somewhat Less (Less than Significant after Mitigation)
Cultural Resources				
Historical Resources	Significant and Unavoidable	Less (Significant and Unavoidable)	Similar (Significant and Unavoidable)	Less (Significant and Unavoidable)
Archeological Resources	Significant and Unavoidable	Greater (Significant and Unavoidable)	Similar (Significant and Unavoidable)	Less (Significant and Unavoidable)
Paleontological Resources	Significant and Unavoidable	Greater (Significant and Unavoidable)	Similar (Significant and Unavoidable)	Less (Significant and Unavoidable)
Human Remains	Significant and Unavoidable	Greater (Significant and Unavoidable)	Similar (Significant and Unavoidable)	Less (Significant and Unavoidable)
Energy				
Non-renewable energy consumption	Less than Significant	Greater (Less than Significant)	Greater (Less than Significant)	Less (Less than Significant)
Residential energy consumption	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Significant and Unavoidable)
Building energy consumption	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Significant and Unavoidable)
Water and water-energy consumption	Less than Significant	Greater (Less than Significant)	Greater (Less than Significant)	Less (Less than Significant)
Geology /Soils				
Seismicity	Significant and Unavoidable	Similar Significant and Unavoidable	Similar (Significant and Unavoidable)	Similar (Significant and Unavoidable)
Soil Erosion and Loss of Topsoil	Significant and Unavoidable	Less Significant and Unavoidable	Similar (Significant and Unavoidable)	Similar (Significant and Unavoidable)
Unstable soil, landslide, lateral spreading, subsidence, liquefaction	Significant and Unavoidable	Less Significant and Unavoidable	Similar (Significant and Unavoidable)	Similar (Significant and Unavoidable)
Expansive soils	Significant and Unavoidable	Less Significant and Unavoidable	Similar (Significant and Unavoidable)	Less (Significant and Unavoidable)
Suitability of soils for septic tanks	Less than Significant	Less than Significant	Less than Significant	Less than Significant
Greenhouse Gas Emissions				
GHG Emissions compared to existing conditions (2015)	Less than Significant	Greater (Less than Significant)	Greater (Less than Significant)	Less (Less than Significant)
Conflict with SB 375	Less than Significant	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Less than Significant)
Conflict with AB 32 or other applicable plans, policy, or regulation adopted for the purpose of reducing GHG emissions	Significant and unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Significant and Unavoidable)
Hazards & Hazardous Materials				
Routine transport, use, or disposal of hazardous materials	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Similar (Significant and Unavoidable)
Accidental release of hazardous materials	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)
Hazardous emissions or materials emission or handling near a school	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)

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Hazardous sites database	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Significant and Unavoidable)
Airport hazards within an airport land use plan	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Significant and Unavoidable)
Private airstrip safety hazard	Less than Significant	Greater (Less than Significant)	Greater (Less than Significant)	Less (Less than Significant)
Interference with an emergency response or emergency evacuation plan	Less than Significant	Greater (Less than Significant)	Greater (Less than Significant)	Less (Less than Significant)
Expose people or structures to wild land fires	Less than Significant after Mitigation	Greater (Less than Significant after Mitigation)	Greater (Less than Significant after Mitigation)	Less (Less than Significant after Mitigation)
Hydrology / Water Quality				
Violate water quality or waste discharge standards	Less than Significant after Mitigation	Greater (Less than Significant after Mitigation)	Greater (Less than Significant after Mitigation)	Less (Less than Significant after Mitigation)
Deplete groundwater supplies or interfere with groundwater recharge	Significant and Unavoidable	Similar (Significant and Unavoidable)	Similar (Significant and Unavoidable)	Less (Significant and Unavoidable)
Alter existing drainage pattern	Less than Significant after Mitigation	Greater (Less than Significant after Mitigation)	Similar (Less than Significant after Mitigation)	Similar (Less than Significant after Mitigation)
create or contribute to runoff water	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Significant and Unavoidable)
Degrade water quality	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Significant and Unavoidable)
Place housing in a 100-year flood plain	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Significant and Unavoidable)
place structures in a 100-year flood hazard area	No Impact	Similar (No Impact)	Similar (No Impact)	Similar (No Impact)
Expose people or structures to loss and flooding from dam or levee failure	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Significant and Unavoidable)
Inundation by seiche, tsunami, or mudflow	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Significant and Unavoidable)
Land Use / Planning				
Conflict with an applicable land use plan, policy, or regulation	Significant and Unavoidable	Less (Significant and Unavoidable)	Similar (Significant and Unavoidable)	Greater (Significant and Unavoidable)
Physically divide an established community	Significant and Unavoidable	Less (Significant and Unavoidable)	Similar (Significant and Unavoidable)	Similar (Significant and Unavoidable)
Conflict with HCP or NCCP	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Significant and Unavoidable)
Mineral Resources				
loss of availability of a known mineral resource	Significant and Unavoidable	Less (Significant and Unavoidable)	Similar (Significant and Unavoidable)	Similar (Significant and Unavoidable)
Result in the loss of availability of a locally important mineral resource	Significant and Unavoidable	Less (Significant and Unavoidable)	Similar (Significant and Unavoidable)	Similar (Significant and Unavoidable)
Noise				
Exposure to or generation of noise in excess of standards	Significant and Unavoidable	Less (Significant and Unavoidable)	Less (Significant and Unavoidable)	Greater (Significant and Unavoidable)

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Issue Area	Proposed Project: 2016 RTP/SCS	Alternative 1: No Project	Alternative 2: 2012 RTP/SCS Updated with Local Input Alternative	Alternative 3: Intensified Land Use Alternative
Ground borne vibration	Significant and Unavoidable	Less (Significant and Unavoidable)	Less (Significant and Unavoidable)	Greater (Significant and Unavoidable)
Increase in ambient noise levels	Significant and Unavoidable	Less (Significant and Unavoidable)	Less (Significant and Unavoidable)	Greater (Significant and Unavoidable)
Temporary or periodic increase in ambient noise levels	Significant and Unavoidable	Less (Significant and Unavoidable)	Less (Significant and Unavoidable)	Greater (Significant and Unavoidable)
Airport noise levels	Less than Significant	Less (Less than Significant)	Less (Less than Significant)	Greater (Less than Significant)
Private airstrip noise levels	Less than Significant	Less (Less than Significant)	Less (Less than Significant)	Greater (Less than Significant)
Population / Housing				
Induce population growth	Significant and Unavoidable	Similar (Significant and Unavoidable)	Similar (Significant and Unavoidable)	Similar (Significant and Unavoidable)
Displace existing housing	Significant and Unavoidable	Less (Significant and Unavoidable)	Similar (Significant and Unavoidable)	Greater (Significant and Unavoidable)
Displace people requiring construction of replacement housing	Significant and Unavoidable	Less (Significant and Unavoidable)	Similar (Significant and Unavoidable)	Greater (Significant and Unavoidable)
Public Services				
Require additional Fire Protection and Emergency Response Service facilities	Less than Significant after Mitigation	Similar (Less than Significant after Mitigation)	Similar (Less than Significant after Mitigation)	Similar (Less than Significant after Mitigation)
Require additional Public Protective Security Service facilities	Less than Significant after Mitigation	Similar (Less than Significant after Mitigation)	Similar (Less than Significant after Mitigation)	Similar (Less than Significant after Mitigation)
Require additional School service facilities	Less than Significant after Mitigation	Similar (Less than Significant after Mitigation)	Similar (Less than Significant after Mitigation)	Similar (Less than Significant after Mitigation)
Recreation				
Increase use of existing recreational facilities	Significant and Unavoidable	Somewhat Less (Significant and Unavoidable)	Somewhat Less (Significant and Unavoidable)	Greater in urban areas (Significant and Unavoidable)
Require expansion or construction of recreation facilities	Significant and Unavoidable	Similar (Significant and Unavoidable)	Less (Significant and Unavoidable)	Similar (Significant and Unavoidable)
Transportation, Traffic, and Safety				
Conflict with a plan, ordinance, or policy	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)
Conflict with a congestion management plan	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)
Change in air traffic patterns	Less than Significant	Greater (Less than Significant)	Greater (Less than Significant)	Less (Less than Significant)
Increase hazards due to design features	Less than Significant	Greater (Less than Significant)	Greater (Less than Significant)	Greater (Less than Significant)
Inadequate emergency access	Less than Significant with Mitigation	Greater (Less than Significant with Mitigation)	Greater (Less than Significant with Mitigation)	Greater (Less than Significant With Mitigation)
Conflict with policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities	Less than Significant	Greater (Less than Significant)	Greater (Less than Significant)	Less (Less than Significant)

**TABLE 4.4-2
SUMMARY OF IMPACTS FOR PROPOSED PROJECT AND ALTERNATIVES**

Issue Area	Proposed Project: 2016 RTP/SCS	Alternative 1: No Project	Alternative 2: 2012 RTP/SCS Updated with Local Input Alternative	Alternative 3: Intensified Land Use Alternative
Utilities / Service Systems				
Exceed RWQCB wastewater treatment requirements	Less than Significant	Greater (Less than Significant)	Greater (Less than Significant)	Less (Significant and Unavoidable)
Construction of new water or wastewater treatment facilities	Less than Significant	Greater (Less than Significant)	Greater (Less than Significant)	Greater (Significant and Unavoidable)
Construction of new or expansion of existing stormwater drainage facilities	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Significant and Unavoidable)
Water supply	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Significant and Unavoidable)
Determination by wastewater treatment provider of inadequate capacity	Less than Significant	Greater (Less than Significant)	Greater (Less than Significant)	Less (Less than Significant)
Landfill capacity and solid waste	Significant and Unavoidable	Greater (Significant and Unavoidable)	Greater (Significant and Unavoidable)	Less (Significant and Unavoidable)
Noncompliance with federal, state, and local statutes and regulations related to solid waste	Less than Significant	Greater (Less than Significant)	Greater (Less than Significant)	Less (Significant and Unavoidable)

Alternative 1: No Project Alternative

Aesthetics

The No Project Alternative would result in less impacts to scenic vistas, scenic highways, and shade and shadow, and greater impacts to visual character and light and glare. With the exception of exempt projects, the No Project Alternative would result in fewer transportation projects than the Plan and would have a lesser impact in terms of obstructing views and scenic resources, creating contrasting visual elements and adding visual elements to existing natural, rural and open space areas. The No Project Alternative would not affect any State Scenic Highways or vista points.

The No Project Alternative is expected to accommodate the same increase in total population, households, and jobs as the Plan. However, the Plan includes strategies to focus growth in HQTAs, which would help reduce the consumption and disturbance of natural lands and reduce impacts to aesthetics and views. Under the No Project Alternative, these land use strategies may not occur—although individual jurisdictions may still seek to reduce the urban footprint through their general plans. The Plan also includes transportation improvements that facilitate access to undeveloped lands, making those lands more attractive for development than under the No Project Alternative. However, the Plan includes policies to dissuade such encroachment on open space and vacant lands and is anticipated to result in far fewer impacts.

The No Project Alternative's impacts to visual character would be greater than the Plan impacts because of the increased consumption of greenfield land (151 square miles, as opposed to 118 square miles under the Plan) that would result in loss of scenic resources and changes in visual character. As shade/shadow and glare impacts typically occur in urban areas, these impacts would be reduced under the No Project Alternative.

In addition, the No Project Alternative would result in greater light and glare impacts as many of the transportation projects would occur in areas that are currently undeveloped or underdeveloped and would introduce new sources of light and materials that cause glare.

Agriculture and Forestry Resources

The No Project Alternative would result in somewhat greater impacts to agriculture and forestry resources when compared with the Plan, with similar impacts in regard to the loss or conversion of forest land. The No Project Alternative would not include transportation and land use strategies that focus growth along existing corridors and in urbanized areas, nor would it encourage additional greenways. As a result, development would be more scattered throughout the region when compared to the Plan, and conversion of farmland and agricultural areas would increase, as would the potential for conflicts with zoning for agricultural uses, or a Williamson Act contract. The Plan includes transportation and land use strategies that focus growth along existing corridors and in urbanized areas, rather than allowing development of vacant, open space/recreation, and agricultural lands. This compact development pattern included in the Plan would concentrate population in urban areas. Without the Plan development pattern, impacts to agricultural resources would be more widespread throughout the region. Approximately 3.89 million people are expected to move into the SCAG region by 2040. This population growth is the same across all alternatives and the Plan. The type of construction associated with housing the increase would be influenced by the Plan and alternatives. Examination of the Trend

Baseline for the No Project Alternative indicates that there would likely be more construction of large lot single-family homes (39 percent as opposed to 32 percent for the Plan), concurrently with a fewer number of multifamily home construction (36 percent as opposed to 41 percent for the Plan) (**Table 4.3-1**). Impacts to agricultural resources are directly linked to the amount of agricultural land conversion in non-urban areas. Single-family homes will require more acreage to accommodate the influx of people into the SCAG region than multi-family homes, and will therefore result in additional conversion of agricultural lands and greater impacts to agriculture and forestry resources.

Air Quality

Under the No Project Alternative, no new transportation investments would be made, beyond those that are currently programmed. As a result, fewer transportation projects would be built than under the Plan resulting in less construction emissions. However, construction emissions would still likely exceed the significance thresholds established in the CEQA Guidelines. Similar to the Plan, construction emissions would result in a significant short-term impact. Projected long-term emissions are considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans. Unlike the Plan, the No Project Alternative may not conform to the local air quality management plans and could have a significant cumulative impact.

In the long term, Alternative 1 would have a similar impact to the local AQMPs and a reduced cumulative impact since development projects would be more efficient by design. As with the Plan, Alternative 1 achieves order of magnitude reductions in cancer risk levels associated with diesel particulate matter. As with the Plan, Cancer Risk for Alternative 1 remain above the acceptable standard of 1, established by U.S. Environmental Protection Agency. With respect to cancer risk and impact to public health for the No Project Alternative would be greater compared to the Plan due to the increase in VMT (**Table 4.4-3, Plan Compared to Alternative 1: Summary of Maximum Exposed Individuals Residential 30-Year Exposure Cancer Risk**). Three of the sixteen segments analyzed for Alternative 1 reduce Cancer Risk, beyond the reductions achieved by the Plan. However, for thirteen of the segments analyzed, result in increased Cancer Risk. The Cancer Risk in Segment 1, 2, 3, 5, 6, 11, 12, and 14 is substantially higher for Alternative 1 than the Plan; therefore, the sensitive receptors in these areas would be expected to result in exposure to greater health risk than the Plan .

**TABLE 4.4-3
PLAN COMPARED TO ALTERNATIVE 1: SUMMARY MAXIMUM EXPOSED INDIVIDUAL
RESIDENTIAL 30-YEAR EXPOSURE CANCER RISK**

Segment No.	Transportation Segment	County/Region	No Project Alternative	2016 RTP/SCS
1	IMP I-8	Imperial / El Centro	44	19
2	IMP SR-78	Imperial / Westmoreland	64	9
3	LA I-110	Los Angeles / Carson	62	46
4	LA I-710	Los Angeles / Compton	58	55
5	LA SR-60 DB	Los Angeles / Diamond Bar	93	60
6	LA SR-60 SEM	Los Angeles / South El Monte	55	44
7	ORA I-5	Orange / Orange	40	33
8	ORA I-405	Orange / Seal Beach	81	78
9	RIV I-10	Riverside / Banning	15	15
10	RIV I-15	Riverside / Temecula	27	38
11	RIV SR-91	Riverside / Corona	64	55
12	SB I-15 ONT	San Bernardino / Ontario	46	25
13	SB I-15 VIC	San Bernardino / Victorville	48	64
14	SB SR-60	San Bernardino / Ontario	44	39
15	VEN US-101 SB	Ventura / San Buenaventura	12	11
16	VEN US-101 TO	Ventura / Thousand Oaks	54	48

SOURCE:

Health Risk Assessment (**Appendix D**).

NOTE:

Cancer Risk Threshold is 10 per 1 million.

Objectionable odors are expected to be similar as well since construction impacts will be similar to the Plan. Objectionable odors are expected to be similar to the Plan since there would be fewer construction projects causing these odors but also higher VMT, causing more diesel emission odors.

Biological Resources

The No Project Alternative would result in somewhat greater impacts to biological resources when compared with the implementation of the Plan. Conversion of open space to development would be more dispersed as there would be 10 percent more standard residential and 11 percent less housing in HQTAs resulting in an additional 36 square miles of greenfield land to be converted (**Table 4.3-1**). As such, more sensitive biological resources would be expected to be affected under the No Project Alternative.¹⁰ The No Project Alternative would not include transportation and land use strategies that focus growth along existing corridors and in urbanized areas, nor would it encourage additional greenways. As a result, development would be more scattered throughout the region when compared to the Plan, and native habitat conversion and fragmentation would increase. The Plan includes transportation and land use strategies that focus growth along existing corridors and in urbanized areas, rather than allowing development of vacant, open space/recreation, and agricultural lands. This

¹⁰ SCAG modeling, 2015.

compact development pattern included in the Plan would concentrate population in urban areas. Without the Plan development pattern, impacts to biological resources would be more widespread throughout the region. Approximately 3.89 million people are expected to move into the SCAG region by 2035. The type of construction associated with housing the increase would be influenced by the Plan and alternatives. Examination of the Trend Baseline for the No Project Alternative indicates that there would likely be more construction of large lot single-family homes (39 percent as opposed to 32 percent for the Plan), concurrently with a fewer number of multifamily home construction (36 percent as opposed to 41 percent for the Plan) (**Table 4.3-1**). Additionally land use patterns would shift from 4 percent urban in the Plan to 2 percent urban in the No Project Alternative.¹¹ Impacts to biological resources are directly linked to the amount of native habitat conversion in non-urban areas. Single-family homes will require more acreage to accommodate the influx of people into the SCAG region than multi-family homes, and will therefore result in additional conversion in natural habitats and greater impacts to biological resources.

Cultural Resources

The No Project Alternative would result in greater impacts in regards to cultural resources when compared with the implementation of the Plan. Approximately 3.89 million people are expected to move into the SCAG region by 2040. The type of construction associated with housing the increase would be influenced by the Plan and alternatives. Examination of the Trend Baseline for the No Project Alternative indicates that there would be more construction of large lot single-family homes concurrently with a much lower emphasis on multifamily home construction. Impacts to cultural resources are directly linked to the amount of ground disturbance a potential project proposes. Single-family homes will require more acreage to accommodate the influx of people into the SCAG region than multi-family, and will therefore result in additional ground disturbance and greater impacts to cultural resources. In addition, under the No Project Alternative, conversion of open space to development would be more dispersed as there would be 10 percent more standard residential and 11 percent less housing in HQTAs resulting in an additional 36 square miles of greenfield land to be consumed (**Table 4.3-1**). Development of vacant land may result in the disturbance of previously undiscovered archaeological, paleontological, or human remains. Moreover, the Plan's greater focus on urban areas could result in greater impacts to historical buildings, although many jurisdictions have policies and ordinances in place to protect historic resources.

Energy

The No Project Alternative would result in greater impacts to energy across all categories as compared to the Plan. The No Project Alternative contains fewer transportation projects than the Plan, but would result in greater VMT as growth is not focused on HQTAs (**Table 4.3-1**). Therefore, the No Project Alternative will result in greater transportation fuel consumption. The No Project Alternative also includes a large proportion of standard development, leading to a higher proportion of larger single-family homes, which are typically less energy-efficient.

At 20,306 trillion Btu and \$762 billion, Alternative 1 would result in similar but somewhat higher consumptive energy use and estimated cost of energy use than the Plan.

¹¹ SCAG modeling, 2015.

Geology and Soils

Implementation of the 2016 RTP/SCS would result in a greater amount of transportation projects and would increase the amount of transportation infrastructure that would be subject to risk as a result of surface rupture, ground-shaking liquefaction, landslides, and other risks associated with seismic events. Impacts related to geologic and seismic resources would be similar to the Plan under the No Project Alternative because the population would be the same and entire region is subject to seismic risk. The No Project Alternative would result in similar impacts to the Plan as anticipated population growth would remain constant over all of the alternatives and the Project, and the entire region is subject to seismic risk. The No Project Alternative contains fewer transportation projects than the Plan, but new development would still occur as a result of population growth with a larger proportion of single-family homes and a more dispersed development pattern.

The No Project Alternative would result in similar impacts as the Plan with regard to the exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault, Strong seismic ground shaking, seismic-related ground failure, including liquefaction, and landslides due to anticipated population growth, remaining constant over all of the alternatives, and the entire region's seismic risk.

The No Project Alternative would result in less impacts than the Plan with regard to substantial soil erosion or the loss of topsoil due to there being fewer transportation projects than the Plan.

The No Project Alternative would result in less impacts than the Plan with regard to being located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse due to there being fewer transportation projects than the Plan.

The No Project Alternative would result in less impact than the Plan with regard to being located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property due to the No Project Alternative having fewer transportation projects than the Plan.

Greenhouse Gas Emissions and Climate Change

The greenhouse gas (GHG) emissions for building energy and water-related energy (58.1 million metric tons CO_{2e} [MMTCO_{2e}]) would be greater with the No Project Alternative compared to the Plan (54.8 MMTCO_{2e}) (**Table 4.3-1**). For transportation, the GHG emissions with No Project Alternative (197,241 tons of CO₂ per day) are also greater compared to the Plan (185,519 tons of CO₂ per day). The Plan would improve regional GHG emissions compared to the No Project Alternative.

Unlike the Plan, the No Project Alternative would not achieve SB 375 targets due to the inability to complete the transportation investments and increase density of development in HQTAs that were identified in the 2012 RTP/SCS that are required to achieve the GHG emission reductions made possible by the Plan. Because SCAG has no control over many future emissions factors (e.g., energy and water demand), SCAG made extremely conservative assumptions regarding these factors.

Senate Bill (SB) 375 requires CARB to develop regional CO₂ emission reduction targets, compared to 2005 emissions, for cars and light trucks only for 2020 and 2035 for each of the state's MPOs. Significantly, where SCAG has control over transportation network improvements and growth distribution as part of its Plan, it is able to meet the SB 375 target with the SCS. According to **Table 3.8.4-3, SB 375 Analysis**, in **Section 3.8, Greenhouse Gas Emissions and Climate Change**, regional per capita GHG emissions would decrease under the No Project Alternative compared to the 2005 baseline, but would not achieve the 8 percent target set for 2020. As a result, the No Project Alternative would not achieve the SB 375 emissions targets (as compared to the Plan which would meet the targets).

Hazards and Hazardous Materials

The No Project Alternative would result in greater impacts from hazardous materials when compared with the 2016 RTP/SCS. The transportation system improvements incorporated in the 2016 RTP/SCS, vehicle miles traveled (VMT) and vehicle hours of delay (VHD) would increase more by 2040 for the No Project Alternative than for the project (**Table 4.3-1**). Thus, there would be more opportunities for accidents with vehicles transporting hazardous materials in the No Project Alternative than in the Plan. Also, with fewer new roadways constructed, hazardous materials transport would be concentrated on existing routes, and could not be diverted to dedicated lanes or grade-separated from automobile traffic. Construction related to improvements and other projects in the 2016 RTP/SCS could involve construction on or adjacent to a greater number of potentially contaminated sites than under the No Project Alternative. In addition, the Plan assumes the implementation of land use strategies that would encourage greater property reuse and more infill development than under the No Project Alternative. Thus, it is more likely that previously contaminated sites would be encountered under the Plan than the No Project Alternative.

With the construction of fewer new lane miles and other transportation projects in the No Project Alternative compared to the Plan, more transportation demand could be transferred to surrounding counties, and therefore, more hazardous materials transportation could potentially be facilitated in those counties. The No Project Alternative could have fewer adverse cumulative hazardous materials impacts than the Plan.

Hydrology and Water Quality

The No Project Alternative would result in greater impacts from hydrology and water quality when compared with the 2016 RTP/SCS. Under the No Project Alternative, fewer areas would be impacted by excavation and construction activities related to transportation projects as compared to the 2016 RTP/SCS. While the No Project Alternative would reduce the number of transportation projects built in the SCAG region, it would result in greater vacant land consumption that would, in turn, increase the amount of impervious surfaces and increase impacts to water resources. Therefore, the No Project Alternative impacts to water resources would be greater than the impacts from the 2016 RTP/SCS.

Additionally, because the No Project Alternative would consume greater amounts of vacant land and result in a more spread out growth pattern which would result in the development of land, the No Project Alternative's cumulative impacts to water resources would be greater than those of the 2016 RTP/SCS.

With fewer transportation projects than the 2016 RTP/SCS, the direct effects of the No Project Alternative on water resources would be reduced when compared with the 2016 RTP/SCS. As the currently planned projects included in the No Project alternative are built, the impacts resulting from increased roadway runoff and drainage patterns would remain significant. Likewise, the impacts to groundwater infiltration caused by the increased impervious surfaces of roadway projects, and to increased flooding hazards, would remain significant. While the Plan and the No Project Alternative would result in the same total population, the more dispersed growth pattern under the No Project Alternative would result in less efficient use of water (more single-family homes with landscaping) and therefore would result in a greater per capita use of water. As the Plan's more compact growth pattern would be more water efficient, the Plan's water supply impacts would be less than the No Project.

Similar to water supply, wastewater could be increased through the less efficient land use patterns. More new development would be located in areas that are not served by existing infrastructure which could result in additional impacts. The impacts to water quality would be greater under the No Project Alternative as the projected urbanized acreage under the No Project Alternative would be greater compared to the Plan. Due to a more dispersed growth pattern, the No Project Alternative's impacts to both water quality and flood risk would be greater than those associated with the 2016 RTP/SCS. Flooding impacts would generally be site specific although with greater consumption of vacant land, the No Project Alternative has a greater risk of locating RTP projects and/or development in flood prone areas. Overall, it is anticipated that the Plan would result in fewer impacts to water resources because of a compact growth pattern that would result in less impervious surfaces and less demand for water.

Cumulatively, both the 2016 RTP/SCS and the No Project Alternative would impact water quality, groundwater recharge, flood hazards, and water supply. The No Project Alternative would accommodate the same increase in population as projected for the Plan but in a more dispersed pattern. To reduce land consumption, the Plan includes land use measures that encourage development targeted in HQTAs. These measures are largely absent in the No Project alternative. As discussed above, the larger lot development associated with the No Project Alternative would result in greater demands on water supply. This increase in water consumption would pull additional water from imported sources, thereby limiting water available for other parts of the state. Therefore, the No Project Alternative would result in greater cumulative impacts to water supply than the Plan.

Impacts to water quality would be greater under the No Project Alternative as increased impervious surface (which contributes to water quality impacts) would be greater under the No Project Alternative. This would result in greater impacts to water quality and could affect water in areas outside the SCAG region. Therefore, cumulative water quality impacts would be greater under the No Project Alternative than the 2016 RTP/SCS alternative.

Land Use and Planning

Under the No Project Alternative, no new transportation investments would be made, beyond those that are currently programmed. As a result, fewer transportation projects would be built than under the Plan and new growth would occur consistent with local general plans. As a result, there would be less potential for there to be conflicts with applicable plans, policies, and regulations. The No Project Alternative does not include any land use strategies and would result in less transportation projects being constructed than the Plan.

The 2016 RTP/SCS, No Project Alternative would result in less impacts with regard to conflicts with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect due to there being fewer transportation projects being programmed and no land use strategies to direct future growth into HQTAs and increase density.

The No Project Alternative would result in less impacts with regard to physically dividing an established community due to there being fewer transportation projects being programmed and no land use strategies to direct future growth into high-quality transit areas and increase density.

The No Project Alternative would result in greater impacts with regard to conflicting with an HCP or NCCP. The No Project Alternative would not include transportation and land use strategies that focus growth along existing corridors and in urbanized areas; nor would it encourage additional greenways. As a result, development would be more scattered throughout the region when compared to the Plan, and native habitat conversion and fragmentation would increase. The Plan includes transportation and land use strategies that focus growth along existing corridors and in urbanized areas, rather than allowing development of vacant, open space/recreation, and agricultural lands. This compact development pattern included in the Plan would concentrate population in urban areas. Without the Plan development pattern, impacts to biological resources would be more widespread throughout the region and the likelihood of conflicts with an existing HCP or NCCP would be greater.

Mineral Resources

The No Project Alternative would result in less impacts to mineral resources than the Plan. Less transportation projects would be constructed requiring less aggregate resources for construction of the transportation network. However, the No Project Alternative includes transportation projects likely to be implemented if the Plan were not adopted and population growth, and subsequent related development would still occur requiring limited aggregate resources for construction.

The No Project Alternative would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state due to significant impacts from transportation projects likely to be implemented if the Plan were not adopted and population growth, and subsequent related development would still occur requiring limited aggregate resources for construction.

The No Project Alternative would result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan due to significant impacts from transportation projects likely to be implemented if the Plan were not adopted and population growth, and subsequent related development would still occur requiring limited aggregate resources for construction.

Noise

The No Project Alternative would result in reduced impacts from noise when compared with the 2016 RTP/SCS. Under the No Project Alternative, no new transportation investments would be made, beyond those that are currently programmed. Therefore, the No Project Alternative would not include transportation and land use strategies that focus growth along existing corridors and in urbanized areas,

would not result in construction or operation of new transportation infrastructure, and would not develop new HQTAs. As a result, fewer transportation projects would be built than under the 2016 RTP/SCS, resulting in less construction noise. However, construction noise would still exceed the significance thresholds established in the CEQA Guidelines. Development would be more scattered throughout the region when compared to the 2016 RTP/SCS, which concentrates population in urban areas to increase transportation efficiency. Therefore, operational noise would likely be reduced when compared to the 2016 RTP/SCS since transportation-related activities would be more dispersed throughout the region rather than focused on HQTAs. However, operational noise would still likely exceed the significance thresholds established in the CEQA Guidelines.

The No Project Alternative would result in less impacts from the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to significant impacts from temporary construction noise and permanent operational noise.

The No Project Alternative would result in less impacts from the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels due to significant impacts from temporary construction vibration and permanent operational vibration from heavy trucks and trains.

The No Project Alternative would result in less impacts from the substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project due to the significant impacts from permanent operational noise.

The No Project Alternative would result in less impacts from the substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project due to the significant impacts from permanent operational noise.

The No Project Alternative would result in less impacts from the substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project due to significant impacts from temporary construction noise.

The No Project Alternative would result in less than significant impacts for projects located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, that result in the exposure of people residing or working in the project area to excessive noise levels.

The No Project Alternative would result in less than significant impacts for projects within the vicinity of a private airstrip that result in the exposure of people residing or working in the project area to excessive noise levels.

Population and Housing

The No Project Alternative is expected to accommodate the same increase in total population, housing, and employment as the Plan. Therefore, the No Project Alternative would result in the same population growth impacts as the Plan. Under the No Project Alternative, no new transportation investments would be made, beyond those that are currently programmed. As a result, fewer transportation projects would be built than under the Plan. However, the same population growth will still occur for

Plan, the No Project Alternative, and the remaining two alternatives. With regard to population displacement and the need to construct replacement housing, the No Project Alternative would result in less impacts as no new transportation investments would be made, beyond those that are currently programmed resulting in less likelihood that transportation projects will result in the displacement of people and the need to construct replacement housing.

The No Project Alternative would result in similar impacts as the Plan with regard to the Inducement of substantial population growth in an area, either directly or indirectly due to all alternatives accommodating the same increase in total population growth.

The No Project Alternative would result in less impacts as the Plan with regard to the displacement of substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere due to there being fewer transportation projects.

The No Project Alternative would result in less impacts than the Plan with regard to the displacement of substantial numbers of people, necessitating the construction of replacement housing elsewhere due to there being fewer transportation projects.

Public Services

The No Project Alternative would result in similar impacts to the Plan with regard to requiring additional fire protection and emergency response service facilities, and additional public protective security service facilities. Although the number of transportation improvement projects would be less, there would still be a need for new public services as a result of population growth. Population growth would remain constant over all of the alternatives and the No-Project, would result in a similar need for fire protection and emergency response service facilities, and additional public protective security service facilities, but the congestion that would result from a lack of additional transportation improvements and a more dispersed population distribution would result in delayed emergency vehicle response times that would require the provision of additional fire protection and emergency response facilities as well as public protective security service facilities to provide adequate service levels. In particular, additional fire protection facilities would be necessary than under the Plan in order to meet emergency response time standards, which range from 5 minutes in urban areas to 12 minutes in more rural areas.. Police protection standards are based on sworn officers per 1,000 persons. As a result, the same population growth for the SCAG region over all alternatives would mean that same number of sworn officers would be required. With regard to the need for additional schools, impacts would be similar to the Plan as a more dispersed land pattern would result in more need for additional school facilities in rural areas but less need for additional school facilities than in the areas targeted for increased population densities, such as TOD areas, HQTAs, and urban infill areas under the Plan.

Recreation

Under the No Project Alternative, there would be the same population growth that is anticipated for the Plan. With no concentration of growth, the park usage would be more disperse in urban and suburban areas, resulting in less accelerated deterioration of urban park facilities and fewer communities with planned high-density growth that would not be able to meet Quimby Act targets for parks than under the Plan. Therefore, there would be less but still significant impacts to the increase use of existing recreational facilities due to the population growth. Considering the same population growth and less

density in this alternative, there would be a reduced need for expansion or construction of recreation facilities since the use is more dispersed. This would result in similar impacts to expansion or construction of recreation facilities, as the reduced need for parks would also be associated with construction of recreational facilities in less urban areas where there is a greater potential for adverse physical effects on the environment to occur.

Transportation, Traffic, and Safety

The No Project Alternative would result in more impact to transportation, traffic, and safety when compared to without implementation of the Plan. The relationship between the VMT in 2040 with implementation of the Plan and without implementation of the Plan is shown in **Table 3.17.4-1, Daily Vehicle Miles Traveled in 2015 and 2040**, in **Section 3.17, Transportation, Traffic, and Safety**. The No Project Alternative would not include transportation and land use strategies that focus growth along existing corridors and in urbanized areas. Nor would the No Project Alternative encourage additional greenways, First and Last Mile strategies, Livable Corridors, increase HQTAs and Limited Safe Routes to School (SRTS). As a result, population would be more scattered throughout the region when compared to the Plan, and per capita VMT and overall efficiency of the system would not be reduced and other transportation metrics would not be improved. The No Project Alternative would generally be expected to result in more miles traveled, more hours traveled and more delay. In 2040, the No Project Alternative would result in 24.44 VMT per capita, 15,633 vehicle hours traveled (VHT) and 10.15 vehicle hours of delay in thousands of hours (VHD) per capita (**Table 4.3-1**). Implementation of the Plan would reduce vehicle miles traveled by approximately 7 percent to 22.78 VMT per capita, reduce VHT by 17 percent to 12,977 VHT, and reduce VHD by 46 percent to 5.48 VHD per capita. The relationships between the percent of work opportunities within 45 minutes travel time with implementation of the Plan and without implementation of the Plan are shown in **Table 3.17.4-4, Percentage of PM Peak Period Work Trips Complete within 45 Minutes**. Implementation of the No Project Alternative would decrease the work opportunities within 45 minutes travel time by single occupancy vehicle in 2040 as compared to the Plan from 89.1 percent to 82.4 percent, would decrease the work opportunities within 45 minutes travel time by transit from 23 to 20 percent. Passenger vehicle fuel use would reduce from 161.4 billion gallons to 138.1 billion gallons comparing No Project to the Plan. Additionally, the No Project Alternative has a much weaker land use and transit coordination in HQTAs (36% homes and 44% jobs) than that for the Plan (47% homes and 56% jobs) (**Table 4.3-1**).

Furthermore, the Plan would result in a system-wide daily fatality rate of 0.17 fatalities per million persons for all travel modes, a decrease of 0.01 daily fatalities per million persons when compared to the No Project Alternative. Lastly, implementation of the Plan would result in a system-wide daily injury rate of 12.93 injuries per million persons for all travel modes, a decrease of 0.74 daily injuries per million persons when compared to the No Project Alternative rate of 13.67¹².

The Plan includes transportation and land use strategies that focus growth along existing corridors and in urbanized areas, rather than allowing development of vacant, open space/recreation and agricultural lands. This compact pattern of development is complemented by Active Transportation Strategies that encourages development of walking and biking infrastructure, and supportive first mile/last mile strategies. This compact development pattern included in the Plan would concentrate population in

¹² SCAG modeling, 2015.

urban areas and encourage alternative modes of travel other than automobiles. Without the Planned development patterns, vehicles miles travels, vehicle hours of delay, worker commute trips, and accident rates would be higher than under the Plan.

Utilities and Service Systems

The No Project Alternative would result in greater impacts related to utilities as compared to the 2016 RTP/SCS. Contrary to the Plan, there would be less compact development under Alternative 1. With a less compact development pattern, the need for solid waste disposal facilities for construction related material would be greater under the No Project Alternative than the 2016 RTP/SCS. The need for new or expanded wastewater treatment facilities and stormwater drainage facilities to accommodate the less compact development patterns would be greater under the No Project Alternative than under the 2016 RTP/SCS. There would be a greater extension of solid waste transport and disposal infrastructure under the No Project Alternative. At 133,996,824 acre-feet comparing to 133,135,367 acre-feet under the Plan, Alternative 1 would result in similar consumptive water use and estimated cost of water to the Plan.

Alternative 2: 2012 RTP/SCS Updated with Local Input Alternative

Aesthetics

Alternative 2 would result in greater impacts to visual character and light and glare, similar impacts to scenic vistas and scenic highways, and less impacts to shade and shadow than the Plan. Conversion of greenfield to development would be more dispersed as there would be more standard suburban residential and less compact walkable land use and homes in HQTAs, resulting in an additional 20 square miles of greenfield land to be consumed (see **Table 4.3-1** and **Table 4.4-1**). Alternative 2 would not have a direct impact on the scenic highways because of the dispersion of population growth. Therefore, there would be a similar impact as the Plan to scenic highways. Because population growth would be less concentrated in existing open areas than the 2016 RTP/SCS, there would be greater overall impacts to visual character and quality than the Plan, and greater nighttime lighting impacts would occur in undeveloped areas, yet fewer shadow-sensitive uses, such as homes, near grade separation projects as the projects are more dispersed. Therefore, shade/shadow under Alternative 2 would have less but still significant and unavoidable impacts compared to the Plan.

Agriculture and Forestry Resources

Alternative 2 would result in somewhat greater impacts to agriculture and forestry resources when compared with the Plan. Alternative would include transportation and land use strategies that focus growth along existing corridors and in urbanized areas. However, the focused growth land use strategies would be at a lesser degree than the Plan. As a result, development would be more scattered thought the region when compared to the Plan, and conversion of farmland and agricultural areas would increase, as would the potential for there to be conflicts with zoning for agricultural uses, or a Williamson Act contract. The Plan includes transportation and land use strategies that focus growth along existing corridors and in urbanized areas, discouraging development of vacant natural lands, open space, and agricultural lands. This compact development pattern included in the Plan would concentrate population in urban areas. Without the Plan development pattern, impacts to agricultural resources would be more widespread throughout the region. Approximately 3.89 million people are

expected to move into the SCAG region by 2040. This population growth is the same across all alternatives and the Plan. The type of construction associated with housing the increase would be influenced by the Plan and alternatives.

While Alternative 2 includes the most recent jurisdictional-level local input-based growth forecast (same as that included in the Plan) and captures the HQTAs strategies in the 2016 RTP/SCS, this Alternative has a slightly less aggressive land use pattern compared to the Project. Alternative 2 encourages a land use pattern and housing mix that is slightly less compact (39 percent homes and 48 percent jobs in HTQAs) than the Plan (47 percent and 56 percent, respectively) and includes more construction of large lot single-family homes (36 percent or 4 percent more as opposed to 32 percent for the Plan), concurrently with fewer construction of multifamily home (2 percent less from 41 percent for the Plan to 39 percent for Alternative 2) (**Table 4.3-1**). Impacts to agricultural resources are directly linked to the amount of agricultural land conversion in non-urban areas. Neither the Plan nor this Alternative are expected to result in the loss of forest land or the conversion of forest land to no-forest use. Single-family homes, especially large lot single-family homes, will require more acreage to accommodate the influx of people into the SCAG region than multi-family homes, and will therefore result in additional conversion of agricultural lands and greater impacts to agriculture and forestry resources.

Air Quality

Alternative 2 would have the same population, housing, and employment as the Plan, but in a less dense fashion. Similar to the No Project Alternative, construction emissions would still likely exceed the significance thresholds established in the CEQA Guidelines and result in a significant short-term impact. However, in the long term, Alternative 2 would have a similar less than significant impact to the local AQMPs and a greater but still less than significant cumulative impact. In the long term, Alternative 2 would have a similar impact to the local AQMPs and a reduced cumulative impact since development projects would be more efficient by design. As with the Plan, Alternative 2 achieves order of magnitude reductions in cancer risk levels associated with diesel particulate matter. As with the Plan, Cancer Risk for Alternative 2 remains above the acceptable standard of 1, established by the U.S. Environmental Protection Agency. The cancer risk and impact to public health for Alternative 2 would be substantively similar compared to the Plan since the transportation network is the same as the Plan (**Table 4.4-4, *Plan Compared to Alternative 2: Summary of Maximum Exposed Individuals Residential 30-Year Exposure Cancer Risk***). Three of the sixteen segments analyzed for Alternative 2 reduce Cancer Risk by a factor of 1, beyond the reductions achieved by the Plan.

**TABLE 4.4-4
PLAN COMPARED TO ALTERNATIVE 2: SUMMARY MAXIMUM EXPOSED INDIVIDUAL
RESIDENTIAL 30-YEAR EXPOSURE CANCER RISK**

Segment No.	Transportation Segment	County/Region	Alternative 2	2016 RTP/SCS
1	IMP I-8	Imperial / El Centro	19	19
2	IMP SR-78	Imperial / Westmoreland	9	9
3	LA I-110	Los Angeles / Carson	45	46
4	LA I-710	Los Angeles / Compton	55	55
5	LA SR-60 DB	Los Angeles / Diamond Bar	60	60
6	LA SR-60 SEM	Los Angeles / South El Monte	43	44
7	ORA I-5	Orange / Orange	32	33
8	ORA I-405	Orange / Seal Beach	78	78
9	RIV I-10	Riverside / Banning	15	15
10	RIV I-15	Riverside / Temecula	38	38
11	RIV SR-91	Riverside / Corona	56	55
12	SB I-15 ONT	San Bernardino / Ontario	25	25
13	SB I-15 VIC	San Bernardino / Victorville	64	64
14	SB SR-60	San Bernardino / Ontario	39	39
15	VEN US-101 SB	Ventura / San Buenaventura	11	11
16	VEN US-101 TO	Ventura / Thousand Oaks	48	48

SOURCE:

Health Risk Assessment (**Appendix D**).

NOTE:

Cancer Risk Threshold is 10 per 1 million.

Objectionable odors are expected to be similar as well since construction impacts will be similar to the Plan. Objectionable odors would be expected to be similar as well, since construction impacts would be similar to the Plan.

Biological Resources

Alternative 2 would result in somewhat greater impacts to biological resources when compared with the Plan. While Alternative 2 includes the most recent jurisdictional-level local input-based growth forecast (same as that included in the Plan) and captures the HQTAs strategies in the 2016 RTP/SCS, this Alternative has slightly less aggressive land use pattern compared to the Project. Alternative 2 encourages a land use pattern and housing mix that is slightly less compact (39 percent homes and 48 percent jobs in HTQAs) than the Plan (47 percent and 56 percent, respectively) and includes more construction of large lot single-family homes (36 percent or 4 percent more as opposed to 32 percent for the Plan), concurrently with less construction of multifamily homes (2 percent less from 41 percent for the Plan to 39 percent for Alternative 2) (**Table 4.3-1**). In addition, conversion of greenfield to development would be more dispersed under Alternative 2 as there would be 4 percent more standard residential and 8 percent less housing in HQTAs resulting in an additional 20 square miles of greenfield land to be converted.¹³ Without a more compact land use development pattern as included in the Plan,

¹³ SCAG modeling, 2015.

impacts to biological resources would be more widespread throughout the region. Impacts to biological resources are directly linked to the amount of ground disturbance and habitat conversion in non-urban areas a potential project proposes. Single-family homes, especially large lot single-family homes will require more acreage to accommodate the influx of people into the SCAG region than multi-family homes, and would therefore result in additional conversion in natural habitats and open space and greater impacts to biological resources.

Cultural Resources

Alternative 2 would result in similar impacts in regards to cultural resources when compared with the implementation of the Plan. Impacts to cultural resources are directly linked to the amount of ground disturbance a potential project proposes Alternative 2 encourages a land use pattern and housing mix that is slightly less compact (39 percent homes and 48 percent jobs in HTQAs) than the Plan (47 percent and 56 percent, respectively) and includes more construction of large lot single-family homes (36 percent or 4 percent more as opposed to 32 percent for the Plan), concurrently with less construction of multifamily homes (2 percent less from 41 percent for the Plan to 39 percent for Alternative 2) (**Table 4.3-1**). In addition, conversion of greenfield to development would be more dispersed under Alternative 2 as there would be 4 percent more standard residential and 8 percent less housing in HQTAs resulting in an additional 20 square miles of greenfield land to be converted.¹⁴ Single-family homes, especially large lot single-family homes would require more acreage to accommodate the influx of people into the SCAG region than multi-family homes, and would therefore result in additional conversion in previously undeveloped land and greater impacts to cultural resources.

Energy

Alternative 2 would have greater impacts on the residential energy consumption, building energy consumption, water consumption, and water-related energy consumption than the Plan, because this Alternative has lower density and more single-family homes, particularly large lot single-family homes than the 2016 RTP/SCS (**Table 4.3-1**). Non-renewable energy consumption will also have greater impacts than the Plan because transportation fuel consumption increases with the increased VMT for this Alternative. At 19,983 trillion Btu and \$750 billion, Alternative 2 would result in similar but somewhat higher consumptive energy use and estimated cost of energy use than the Plan.

Geology and Soils

Alternative 2 would result in similar impacts to the Plan as anticipated population growth would remain constant over all of the alternatives and the Project, as the entire region is subject to seismic risk. Alternative 2 would result in slightly more compact development and more development in HQTAs. However, new development would still occur as a result of population growth placing people at risk from seismic activity, and there would be a similar number of transportation projects as the Plan.

Alternative 2 would result in similar impacts as the Plan with regard to the exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault

¹⁴ SCAG modeling, 2015,

Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction, and landslides due to anticipated population growth remaining constant over all of the alternatives and the Project, and the entire region's seismic risk.

Alternative 2 would result in similar impacts as the Plan with regard to substantial soil erosion or the loss of topsoil because there would be a similar amount of transportation projects as the Plan.

Alternative 2 would result in similar impacts as the Plan with regard to being located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse due to there being a similar amount of transportation projects as the Plan.

Alternative 2 would result in similar impacts as the Plan with regard to being located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property due to Alternative 2 having fewer transportation projects than the Plan.

Greenhouse Gas Emissions and Climate Change

The GHG emissions for building energy and water-related energy (56.6 MMTCO_{2e}) would be greater under Alternative 2 compared to the Plan (54.8 MMTCO_{2e}). For transportation, the GHG emissions are projected to be greater under Alternative 2 compared to the Plan because of increased VMT. The Plan would improve regional GHG emissions compared to Alternative 2.

Unlike the Plan, the Alternative 2 would not achieve SB 375 targets for 2020, because the 2012 RTP/SCS transportation network and land use pattern, as updated by local input, fails to achieve the GHG emission reductions made possible by the more integrated transportation and land use strategies in the Plan. Because SCAG has no control over many future emissions factors (e.g., energy and water demand), SCAG made extremely conservative assumptions regarding these factors. Similarly, per capita GHG emissions would decrease compared to the baseline, but not enough to achieve the 8 percent target set for 2020. In addition, Alternative 2 would not be able to accomplish the accelerated goals.

Hazards and Hazardous Materials

Alternative 2 would result in greater impacts related to hazardous materials. Alternative 2 would not include the land use strategies included in the SCS of the Plan that are intended to focus new growth in existing urban and developed areas. Alternative 2 would not include as much redevelopment of urban infill properties or properties that would have already been developed in the past as the 2016 RTP/SCS and, therefore, may result in a greater chance related to disturbance of contaminated sites, and hazards and hazardous materials as compared to the Plan and greater potential impacts.

Hydrology and Water Quality

Alternative 2 would result in greater impacts to hydrology and water quality. Under Alternative 2, more areas would be impacted by excavation and construction activities related to transportation projects as compared to the Plan. Alternative 2 would result in a land use pattern and housing mix that is slightly less compact (39 percent homes and 48 percent jobs in HTQAs) than the Plan (47 percent and 56

percent, respectively) and includes more construction of large lot single-family homes (36 percent or 4 percent more as opposed to 32 percent for the Plan), concurrently with less construction of multifamily homes (2 percent less from 41 percent for the Plan to 39 percent for Alternative 2) (**Table 4.3-1**). In addition, conversion of greenfield to development would be more dispersed under Alternative 2 as there would be 4 percent more standard residential and 8 percent less housing in HQTAs resulting in an additional 20 square miles of greenfield land to be converted.¹⁵ However, Alternative 2 would not include the land use strategies included in the SCS of the Plan, intended to focus more growth in walkable, mixed-use communities, and existing and planned HQTAs. Therefore, Alternative 2 would result in development patterns consuming a greater amount of land and associated impacts to hydrology and water quality.

Land Use and Planning

Alternative 2 would result in the construction of a similar number transportation projects as the Plan. New growth would occur consistent with local general plans as a result of the local input process. Alternative 2 encourages a land use pattern and housing mix that is slightly less compact (39 percent homes and 48 percent jobs in HTQAs) than the Plan (47 percent and 56 percent, respectively) and includes more construction of large lot single-family homes (36 percent or 4 percent more as opposed to 32 percent for the Plan), concurrently with less construction of multifamily homes (2 percent less from 41 percent for the Plan to 39 percent for Alternative 2) (**Table 4.3-1**). In addition, conversion of greenfield to development would be more dispersed under Alternative 2 as there would be 4 percent more standard residential and 8 percent less housing in HQTAs resulting in an additional 20 square miles of greenfield land to be converted.¹⁶ However, as a result of the similar scale and number of transportation projects being constructed for both the Plan and Alternative 2, it is likely that in some cases impacts would not be mitigated to a less than significant level.

Alternative 2 would result in less impacts with regard to conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect due to the similar scale and number of transportation projects being constructed.

Alternative 2 would result in less impacts with regard to physically dividing an established community due to the similar scale and number of transportation projects being constructed.

Alternative 2 would result in greater impacts with regard to conflicting with an HCP or NCCP. Alternative 2 would not include transportation and land use strategies that focus growth along existing corridors and in urbanized areas; nor would it encourage additional greenways. As a result, development would be more scattered throughout the region when compared to the Plan, and native habitat conversion and fragmentation would increase. The Plan includes transportation and land use strategies that focus growth along existing corridors and in urbanized areas, rather than allowing development of vacant, open space/recreation, and agricultural lands. This compact development pattern included in the Plan would concentrate population in urban areas. Without the Plan development pattern, impacts to

¹⁵ SCAG modeling, 2015.

¹⁶ SCAG modeling, 2015.

biological resources would be more widespread throughout the region, and the likelihood of conflicts with an existing HCP or NCCP would be greater.

Mineral Resources

Alternative 2 would result in similar impacts to mineral resources as the Plan. Population growth and subsequent related development would still occur, requiring limited aggregate resources. Transportation network improvements would occur in a similar proportion as the Plan, requiring a comparable amount of aggregate resources to be used for the construction of the transportation network improvements.

Similar to the 2016 RTP/SCS, Alternative 2 would result in significant impacts from the loss of availability of a known mineral resource that would be of value to the region and the residents of the state due to significant impacts from transportation network improvements that would occur in a similar proportion as the Plan requiring a comparable amount of aggregate resources to be used for the construction of the transportation network improvements.

Similar to the 2016 RTP/SCS, Alternative 2 would result in significant impacts from the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan due to transportation network improvements that would occur in a similar proportion as the Plan with potential to remove an important mineral resource recovery site from production.

Noise

Alternative 2 would result in slightly reduced, but similar impacts from noise when compared with the 2016 RTP/SCS. Alternative 2 would have the same population, housing, and employment as the 2016 RTP/SCS, but in a less dense fashion. Alternative 2 encourages a land use pattern and housing mix that is slightly less compact and has a greater emphasis placed on the construction of single-family homes concurrently with a lower emphasis on multifamily home construction. Fewer transportation projects would be built than under the 2016 RTP/SCS, resulting in less construction noise. However, construction noise would still exceed the significance thresholds established in the CEQA Guidelines. Development would be more scattered throughout the region when compared to the 2016 RTP/SCS. Therefore, operational noise would likely be reduced when compared to the 2016 RTP/SCS since transportation-related activities would be more dispersed throughout the region. However, operational noise would still likely exceed the significance thresholds established in the CEQA Guidelines.

Alternative 2 would result in less impacts from the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to significant impacts from temporary construction noise and permanent operational noise.

Alternative 2 would result in less impacts from the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels due to significant impacts from temporary construction vibration and permanent operational vibration from heavy trucks and trains.

Alternative 2 would result in less impacts from the substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project due to the significant impacts from permanent operational noise.

Alternative 2 would result in less impacts from the substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project due to the significant impacts from permanent operational noise.

Alternative 2 would result in less impacts from the substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project due to significant impacts from temporary construction noise.

Alternative 2 would result in less than significant impacts for projects located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, that result in the exposure of people residing or working in the project area to excessive noise levels.

Alternative 2 would result in less than significant impacts for projects within the vicinity of a private airstrip that result in the exposure of people residing or working in the project area to excessive noise levels.

Population and Housing

Under Alternative 2, the same number of transportation investments would be made to the transportation network as in the Plan. As a result, impacts related to population growth, population displacement, and the need to construct replacement housing would be similar to the Plan. Population growth would still occur for the Plan, the No Project Alternative, and Alternatives 2 and 3. With regard to the displacement of people and the need to construct replacement housing, impacts would be similar to the Plan as the same number of transportation improvements would be made to the transportation network, resulting in a similar likelihood that transportation improvement projects will result in the displacement of people and the need to construct replacement housing.

Alternative 2 would result in similar impacts from the potential to induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure) due to the same number of transportation investments being made as the Plan and the same anticipated population growth over the Plan and all alternatives.

Alternative 2 would result in similar impacts from the potential to displace substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere due to the same number of transportation investments being made as the Plan and the same anticipated population growth over the Plan and all alternatives.

Alternative 2 would result in similar impacts from the potential to displace substantial numbers of people, necessitating the construction of replacement housing elsewhere due to the same number of transportation investments being made as the Plan and the same anticipated population growth over the Plan and all alternatives.

Public Services

Alternative 2 would result in similar impacts to the Plan with regard to requiring additional fire protection and emergency response service facilities, and additional public protective security service facilities. Although the number of transportation improvement projects would be less under this Alternative, there would still be a need for new public services as a result of population growth. Population growth would remain constant over all of the alternatives and the Project, which would result in a similar need for fire protection and emergency response service facilities, and additional public protective security service facilities, but the congestion that would result from a lack of additional transportation improvements and a more dispersed population distribution would result in delayed emergency vehicle response times that would require the provision of additional fire protection and emergency response facilities as well as public protective security service facilities to provide adequate service levels. In particular, additional fire protection facilities would be necessary than under the Plan in order to meet emergency response time standards, which range from 5 minutes in urban areas to 12 minutes in more rural areas. Police protection standards are based on sworn officers per 1,000 persons. As a result, the same population growth for the SCAG region over all alternatives would mean that same number of sworn officers would be required. The 2012 RTP/SCS Updated with Local Input Alternative 2 would result in similar impacts to the Plan with regard to requiring additional fire protection and emergency response service facilities, and additional public protective security service facilities. Similarly, with regard to the need for additional schools, impacts would be similar to the Plan.

Recreation

Alternative 2 would result in a somewhat less adverse, but still significant impact when compared to the Plan in regard to increasing use of existing recreational facilities and a similar impact in regard to expanding or constructing recreation facilities. With no concentration of growth, the park usage would be more disperse in urban and suburban areas leading to a reduced need for expansion or construction of recreation facilities, but the reduced need for parks would also be associated with construction of recreational facilities in less urban areas where there is a greater potential for adverse physical effects on the environment to occur.

Transportation, Traffic, and Safety

Alternative 2 would result in somewhat more adverse impact to transportation, traffic, and safety when compare to without implementation of the Plan. Alternative 2 would generally be expected to result in more miles traveled, more vehicle hours traveled, and more delay than the Plan. In 2040, Alternative 2 would result in 23.07 VMT per capita, 13,225 VHT, and 5.74 VHD per capita (**Table 4.3-1**). Implementation of the Plan would reduce vehicle miles traveled by approximately 1 percent to 22.78 VMT per capita, reduce VHT by 2 percent to 12,977 VHT, and reduce VHD by 5 percent to 5.48 VHD per capita.

The effects of growth and other external factors are included in the Regional Travel Demand Model that produces the results reported above. Because these external factors are modeled, the cumulative effects of regional growth are captured in the VMT, VHT, and VHD data for Alternative 2 (**Table 4.3-1**). Alternative 2 would have more cumulative impacts than the Plan.

The Plan includes transportation and land use strategies that focus growth along existing corridors and in urbanized areas, discouraging development of vacant, open space/recreation and agricultural lands. This compact pattern of development is complemented by Active Transportation Strategies that encourages development of walking and biking infrastructure, and supportive First mile/Last mile strategies. This compact development pattern included in the Plan would concentrate population in urban areas and encourage alternative modes of travel other than automobiles. While Alternative 2 captures the HQTAs-focus based on local plans, it encourages land use pattern and housing mix that is slightly less urban, less compact, and more standard suburban as compared to the Plan (**Table 4.3-1**). Also, this Alternative has a slightly weaker land use and transit coordination in HQTAs (39% homes and 48% jobs) than that for the Plan (47% homes and 56% jobs) (**Table 4.3-1**). Vehicles miles travels, vehicle hours of delay, worker commute trips, and accident rates would be higher than under the Plan.

Utilities and Service Systems

Alternative 2 would result in greater impacts to solid waste disposal and transfer facilities as the Plan. Contrary to the Plan, there would less compact development under Alternative 2. With a less compact development pattern, the need for solid waste disposal facilities for construction related material would be greater under Alternative 2 than under the Plan. The need for new or expanded I wastewater treatment facilities and stormwater drainage facilities to accommodate the less compact development patterns would be greater under Alternative 2 than under the Plan. The jurisdictional level local input-based growth forecast is the same under Alternative 2 as under the Plan, thereby resulting in similar need for solid waste disposal and transfer facilities to accommodate the population. At 133,468,304 acre-feet and \$185 billion, Alternative 2 would result in similar consumptive water use and estimated cost of water to the Plan.

Alternative 3: Intensified Land Use Alternative

Aesthetics

Alternative 3 would result in somewhat less impacts to scenic vistas, similar impacts to scenic highways, visual character, and light and glare, and greater impacts to shade and shadow than the Plan. Conversion of greenfields to development would be less dispersed as there would be less standard suburban residential and more compact walkable land use and homes in HQTAs, resulting in 28 fewer square miles of greenfield land being consumed (see **Table 4.3-1** and **Table 4.4-1**). Alternative 3 would have a similar impact on the scenic highways because there are the same projects that are not located State-designated scenic highway corridors as the Plan. Because population growth would be more concentrated in HQTAs and TPAs than the 2016 RTP/SCS, there would be fewer overall impacts to scenic vistas and visual character and quality in more rural areas than the Plan; however, there would be greater impacts to visual character in existing communities due to impacts to historic buildings, which would ultimately result in similar impacts to visual character. Fewer nighttime lighting impacts would occur in undeveloped areas, yet increased daytime and nighttime glare as a result of taller building and increased shadow-sensitive uses, such as homes, near grade separation projects as the projects are more compact. Therefore, there would be similar light and glare impacts and greater shade and shadow impacts compared to the Plan.

Agriculture and Forestry Resources

Alternative 3 would result in somewhat less impacts related to agriculture and forestry resources when compared with the Plan. Impacts to agricultural resources are directly linked to the amount of agricultural land conversion in non-urban areas. **Table 4.3-1** indicates that there would be slightly more construction of multifamily homes (42 percent) than the Plan (41 percent) and that there would be slightly less construction of large lot single-family homes (31 percent) than the Plan (32 percent). However, Alternative 3 would lead to a much improved land use and transit coordination (50 percent homes and 60 percent jobs) in comparison to the Plan (47 percent and 56 percent, respectively). A further improved land use and transit coordination development pattern would likely require less acreage to accommodate future growth and a higher concentration of development in urban areas will reduce the conversion of agricultural uses. Neither the Plan nor this Alternative is expected to result in the loss of forest land or the conversion of forest land to no-forest use. Therefore, Alternative 3 would result in less conversion of agricultural land and somewhat less impacts to agriculture and forestry resources.

Air Quality

Alternative 3 would have the same population, housing and employment as the Plan, but in a more dense fashion. Similar to the Plan, construction emissions would likely exceed the significance thresholds established in the CEQA Guidelines and result in a significant short-term impact especially considering multiple projects occurring in a condensed area. In the long term, Alternative 3 would have a similar impact to the local AQMPs and a reduced cumulative impact since development projects would be more efficient by design. As with the Plan, Alternative 3 achieves order of magnitude reductions in cancer risk levels associated with diesel particulate matter. As with the Plan, Cancer Risk for Alternative 3 remain above the acceptable standard of 1, established by U.S. Environmental Protection Agency. The cancer risk and impact to public health for Alternative 3 would be similar when compared to the Plan since the transportation network is the same as the Plan with minor adjustments for land use and transit coordination strategies (**Table 4.4-5, Plan Compared to Alternative 3: Summary of Maximum Exposed Individuals Residential 30-Year Exposure Cancer Risk**). Five of the sixteen segments analyzed for Alternative 3 reduce Cancer Risk, beyond the reductions achieved by the Plan. However, for two of the segments analyzed, Segment 7 (Orange) and Segment 14 (San Bernardino) result in increased Cancer Risk. Segment 14 results in substantial increase in Cancer Risk when compared to the Plan; therefore, Segment 14 would be expected to result in greater health risk than the Plan .

**TABLE 4.4-5
PLAN COMPARED TO ALTERNATIVE 3: SUMMARY MAXIMUM EXPOSED INDIVIDUAL
RESIDENTIAL 30-YEAR EXPOSURE CANCER RISK**

Segment No.	Transportation Segment	County/Region	Alternative 3	2016 RTP/SCS
1	IMP I-8	Imperial / El Centro	18	19
2	IMP SR-78	Imperial / Westmoreland	9	9
3	LA I-110	Los Angeles / Carson	45	46
4	LA I-710	Los Angeles / Compton	54	55
5	LA SR-60 DB	Los Angeles / Diamond Bar	60	60
6	LA SR-60 SEM	Los Angeles / South El Monte	43	44
7	ORA I-5	Orange / Orange	33	33
8	ORA I-405	Orange / Seal Beach	78	78
9	RIV I-10	Riverside / Banning	14	15
10	RIV I-15	Riverside / Temecula	38	38
11	RIV SR-91	Riverside / Corona	56	55
12	SB I-15 ONT	San Bernardino / Ontario	25	25
13	SB I-15 VIC	San Bernardino / Victorville	63	64
14	SB SR-60	San Bernardino / Ontario	47	39
15	VEN US-101 SB	Ventura / San Buenaventura	11	11
16	VEN US-101 TO	Ventura / Thousand Oaks	45	48

SOURCE:

Health Risk Assessment (**Appendix D**).

NOTE:

Cancer Risk Threshold is 10 per 1 million.

Objectionable odors are expected to be similar as well since construction impacts will be similar to the Plan.

Biological Resources

Alternative 3 would result in somewhat less impacts related to biological resources when compared with the implementation of the Plan. Impacts to biological resources are directly linked to the amount of native habitat conversion in non-urban areas a potential project proposes. **Table 4.3-1** indicates that there would be slightly more construction of multifamily homes (42 percent) than the Plan (41 percent) and that there would be slightly less construction of large lot single-family homes (31 percent) than the Plan (32 percent). However, Alternative 3 would lead to a much improved land use and transit coordination (50 percent homes and 60 percent jobs) than the Plan (47 percent and 56 percent, respectively). Increasing the density and intensity of development within existing communities may potentially increase impacts to urban area “pockets” of protected habitat areas for sensitive species and open space areas used as wildlife corridors within urbanized areas. While Alternative 3 would affect fewer acres of natural lands, impacts to biological resources in and near the urban areas would remain significant because impacts to sensitive species in areas that are currently protected may occur. Overall, a further improved land use and transit coordination development pattern associated with Alternative 3 would require less acreage to accommodate the influx of people into the SCAG region than single-family homes, and a higher concentration of development in urban areas will reduce the conversion of native

habitats. Therefore, Alternative 3 would result in somewhat less habitat conversion and fewer impacts to biological resources.

Cultural Resources

Alternative 3 would result in slightly less impacts in regards to cultural resources when compared with the implementation of the Plan, due to the fact that there would be a net reduction of 28 square miles of greenfield development (**Table 4.3-1**). Impacts to cultural resources are directly linked to the amount of ground disturbance a potential project proposes. **Table 4.3-1** indicates that there would be slightly more construction of multifamily homes (42 percent) than the Plan (41 percent) and that there would be slightly few construction of large lot single-family homes (31 percent) than the Plan (32 percent). However, Alternative 3 would lead to a much improved land use and transit coordination (50 percent homes and 60 percent jobs) than the Plan (47 percent and 56 percent, respectively).

Further, increases in the density and intensity of development within existing communities could result in an increased likelihood of adverse direct and indirect impacts to cultural resources (including historic, archeological and paleontological resources) located within the existing urbanized areas, particularly within established communities in the region. Historic and archeological resources frequently occur within the region based on pre-historic and historic use patterns that concentrated development near the reliable water resources and trade routes that formed the framework for the existing regional development pattern. Archeological resources have been discovered (and often disturbed) in infill and urbanized areas (such as Playa Vista). A further improved land use and transit coordination development pattern would require less acreage to accommodate the influx of people into the SCAG region, and would therefore result in less ground disturbance and fewer impacts to cultural resources.

Energy

This Alternative contains more mixed-use, walkable, and urban infill development to accommodate a higher proportion of growth in more energy-efficient housing types like townhomes, apartments, and smaller single-family homes, as well as more compact commercial building types. As a result, residential energy consumption, building energy consumption, water consumption, and water-related energy consumption would decrease compared to the 2016 RTP/SCS because there will be a higher percentage of multi-family units and higher density in the land use. Non-renewable energy consumption would also have fewer impacts than the Plan because transportation fuel consumption decreases with the decreased VMT for Alternative 3.

At 19,983 trillion Btu and \$728 billion, Alternative 3 would result in similar but somewhat lower consumptive energy use and estimated cost of energy use than the Plan.

Geology and Soils

Alternative 3 would result in similar impacts as the Plan with regard to the exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction, and landslides due to anticipated population growth remaining constant over all of the alternatives and the

Project, and the entire region's seismic risk. This Alternative would result in more compact development and more development in HQTAs than the Plan. However, new development would still occur as a result of population growth placing people at risk from seismic activity.

Alternative 3 would result in similar impacts as the Plan with regard to substantial soil erosion or the loss of topsoil due to there being a similar amount of transportation projects as the Plan.

Alternative 3 would result in similar impacts as the Plan with regard to being located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse due to there being a similar amount of transportation projects as the Plan.

Alternative 3 would result in similar impacts as the Plan with regard to being located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property due to there being a similar amount of transportation projects as the Plan.

Greenhouse Gas Emissions and Climate Change

The GHG emissions for building energy and water-related energy (53.9 MMTCO_{2e}) would be less with Alternative 3 compared to the Plan (54.8 MMTCO_{2e}). For transportation, the GHG emissions are projected to be less under Alternative 3 compared to the Plan because of decreased VMT. Alternative 3 would improve regional GHG emissions compared to the 2016 RTP/SCS.

As with the Plan, the GHG emissions achieved by Alternative 3 are in alignment with the AB 32 goals. As with the Plan, Alternative 3 would reduce per capita GHG emissions compared to the 2005 baseline so it would achieve both the 8 percent target set for 2020 and exceed the 13 percent set for 2035, set pursuant to SB 375.

Hazards and Hazardous Materials

Alternative 3 would result in greater impacts related to hazardous materials. Alternative 3 would not include the land use strategies included in the SCS of the Plan that are intended to focus new growth in existing urban and developed areas. Alternative 3 would not include as much redevelopment of urban infill properties or properties that would have already been developed in the past as the 2016 RTP/SCS and, therefore, may result in a greater chance related to disturbance of contaminated sites, and hazards and hazardous materials as compared to the Plan and greater potential impacts.

Hydrology and Water Quality

Under Alternative 3, fewer undeveloped areas would be impacted by excavation and construction activities related to transportation projects as compared to the Plan. Alternative 3 focuses on further aggressive and compact development in HQTAs, and further expansion of non-motorized transportation, thereby resulting a much better coordination between land use and transit (50 percent homes and 60 percent jobs as opposed to 47 percent homes and 56 percent jobs in **Table 4.3-1**). Additionally, Under Alternative 3, there would be slightly more multifamily homes and fewer large lot single-family homes. Hence, this Alternative would likely result in a somewhat more reduction in the amount of impervious surfaces and decreasing impacts to water resources as compared to the 2016 RTP/SCS.

Land Use and Planning

Alternative 3 would result in greater impacts to land use and planning as the Plan. Alternative 3 would result in a greater chance for there to be conflicts with an existing plans or regulations including local general plans as a result of the policies encouraging a much more compact land use development pattern in urbanized areas such as HQTAs. This Alternative would result in the construction of a substantively similar number and scale of transportation projects as the Plan, which would result in similar impacts related to the division of an established community or conflict with existing plans. Additionally, there would be a greater chance for there to be conflicts with an existing plan or regulation including local general plans because of the much more compact and aggressive land use development pattern in urbanize areas such as HQTAs.

Alternative 3 would result in greater impacts with regard to conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect due to the similar scale and number of transportation projects being constructed.

Alternative 3 would result in similar impacts with regard to physically dividing an established community due to the similar scale and number of transportation projects being constructed.

Mineral Resources

Alternative 3 would result in similar impacts to mineral resources as the Plan. Population growth and subsequent related development would still occur, requiring limited aggregate resources. With this Alternative, more development would occur in a compact manner focused in and around HQTAs. However, transportation network improvements would occur in a similar proportion as the Plan requiring a comparable amount of aggregate resources to be used for the construction of the transportation network improvements.

Similar to the 2016 RTP/SCS, Alternative 3 would result in significant impacts from the loss of availability of a known mineral resource that would be of value to the region and the residents of the state due to significant impacts from transportation network improvements that would occur in a similar proportion as the Plan, requiring a comparable amount of aggregate resources to be used for the construction of the transportation network improvements.

Similar to the 2016 RTP/SCS, Alternative 3 would result in significant impacts from the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan due to transportation network improvements that would occur in a similar proportion as the Plan with potential to remove an important mineral resource recovery site from production.

Noise

Alternative 3 would result in greater impacts from noise when compared with the 2016 RTP/SCS. Alternative 3 would have the same jurisdictional level local input-based population, housing, and

employment as those in the 2016 RTP/SCS, but the difference is that this Alternative would cause land use development and distribution patterns to be in a more compact and dense. The projected housing mix and growth for Alternative 3 indicates there would be slightly more multifamily homes and a slightly fewer large lot single-family homes, along with a higher concentration of development in urban areas. When compared with the 2016 RTP/SCS, Alternative 3 would further intensify transportation and land use strategies that focus growth along existing corridors and in urbanized areas and further strengthen the land use and transit coordination; thereby having a potential resulting in somewhat greater noise impacts from the more intensified level of construction or operation of new transportation infrastructure and the development in HQTAs. A greater number of individual projects would be built within condensed areas when compared to the 2016 RTP/SCS, resulting in greater temporary construction noise, which would exceed the significance thresholds established in the CEQA Guidelines. Development would be more dense and clustered in HQTAs and opportunity areas when compared to the 2016 RTP/SCS. Since there would be more transit-related activities within HQTAs, operational noise would also likely be increased in these areas when compared to the 2016 RTP/SCS, which would exceed the significance thresholds established in the CEQA Guidelines.

Similar to the 2016 RTP/SCS, Alternative 3 would result in significant impacts from the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to significant impacts from temporary construction noise and permanent operational noise.

Alternative 3 would result in greater impacts from the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels due to significant impacts from temporary construction vibration and permanent operational vibration from heavy trucks and trains.

Alternative 3 would result in greater impacts from the substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project due to the significant impacts from permanent operational noise.

Alternative 3 would result in greater impacts from the substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project due to the significant impacts from permanent operational noise.

Alternative 3 would result in greater impacts from the substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project due to significant impacts from temporary construction noise.

Alternative 3 would result in less than greater impacts for projects located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, that result in the exposure of people residing or working in the project area to excessive noise levels.

Alternative 3 would result in less than greater impacts for projects within the vicinity of a private airstrip that result in the exposure of people residing or working in the project area to excessive noise levels.

Population and Housing

Under Alternative 3, the same number of transportation investments would be made to the transportation network as in the Plan but development would be even more concentrated and densified in HQTAs than the Plan. However, impacts related to population growth, population displacement, and the need to construct replacement housing would be similar to the Plan. The projected population growth discussed under the Plan would still occur under the Plan and all of the alternatives. With regard to the displacement of people and the need to construct replacement housing, impacts would be somewhat more adverse than the Plan as a result of higher population growth in designated communities within HQTAs and an increase in the number of residences or business that are displaced as a result of more compact, higher density redevelopment.

Alternative 3 would result in similar impacts as the Plan from the potential to Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure) due to the same number of transportation investments being made as the Plan and the same anticipated population growth over the Plan and all alternatives.

Alternative 3 would result in somewhat more adverse impacts as the Plan from the potential to displace substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere due to higher population growth in designated communities within HQTAs and an increase in the number of residences or business that are displaced as a result of more compact, higher-density redevelopment.

Alternative 3 would result in greater impacts as the Plan from the potential to displace substantial numbers of people, necessitating the construction of replacement housing elsewhere due to higher population growth in designated communities within HQTAs and an increase in the number of residences or business that are displaced as a result of more compact, higher-density redevelopment.

Public Services

Under the Intensified Land Use Alternative 3, the same number of transportation investments would be made to the transportation network as in the Plan, but development would be more concentrated in HQTAs than the Plan, but development would be more concentrated in HQTAs than the Plan and more people would live and work in high-density buildings. This Alternative would therefore result in somewhat more adverse impacts than the Plan with regards to requiring additional fire protection and emergency response service facilities, and additional public protective security service facilities and school facilities, due to the increase on population density. In general, urban areas are well served by police, fire and emergency services, although the recent economic recession and structural financing challenges for municipal services have resulted in some curtailments in services. Substantially increasing population densities and building intensities would place additional strain on existing facilities, service ratios and new challenges on existing fire, police protection and emergency services. For example, fire trucks and other response equipment that is designed to service traditional development patterns with wider streets (allowing larger trucks) in communities with few if any buildings higher than three to four stories would not be suitable for narrower, walkable street designs and mid- and high-rise construction. Firefighter training for different types of structural fires, and different fire pattern risks in high-density building areas, would also be required. Similarly, suburban policing models and facilities generally are

very automobile-dependent, with a central station and patrol car service as the backbone of suburban community policing. Police services in higher density, urbanized areas often require (or benefit from) different deployment models including more substations and more foot and bicycle patrols. Police protection standards are based on sworn officers per 1,000 persons. Due to population growth being concentrated in urbanized areas, new officers to patrol these areas would need to be hired and additional facilities to support police serves would need to constructed.

Recreation

Alternative 3 would have a greater impact in regard to increasing use of existing recreational facilities and a similar impact in regard to expanding or constructing recreation facilities. With the same population growth anticipated as the Plan, the need for the construction of parks would be similar. However, fewer communities with planned high-density growth would be able to meet Quimby Act targets for parks than under the Plan. With higher population density, there would more use of the same parks, leading to greater deterioration of existing recreational facilities in urban areas. As with the Plan, park development and expansion in urban areas is normally beneficial, although there may be limited instances where impacts will occur during construction or expansion of a park.

Transportation, Traffic, and Safety

Alternative 3 would result in somewhat more adverse transportation impacts than the Plan. Alternative 3 would result in 19,550 VMT per household annually, less than the Plan's 20,500 VMT per household annually and the VMT in the base year, and Alternative 3 would generally be expected to result in fewer miles traveled, fewer vehicle hours traveled, and less delay than the Plan. In 2040, Alternative 3 would result in 22.47 VMT per capita, 12,763 VHT and 5.30 VHD per capita (**Table 4.3-1**). Comparing these number to the Plan (22.78 VMT per capita, 12,977 VHT and 5.48 VHD per capita), Alternative 3 would reduce vehicle miles traveled by approximately 1 percent, reduce VHT by 2 percent, and reduce VHD by 3 percent. Despite the overall reduction in VMT and VHD as compared to the Plan, Alternative 3 does not maximize mobility and accessibility for all people and goods in the region to the extent of the 2016-2040 RTP/SCS because it results in more severe localized traffic congestion conditions with adverse mobility and reliability consequences for goods and people (increased vehicle and truck delay).

The effects of growth and other external factors are included in the RTDM that produces the results reported above. Because these external factors are modeled, the cumulative effects of regional growth are captured in the VMT, VHT and VHD data for Alternative 3. Alternative 3 increases localized congestion and compromises accessibility to destinations which would result in more adverse effects related to safety considerations for pedestrians, cyclists, and motorists.¹⁷ Hence, this Alternative would have somewhat more adverse impacts than the Plan.

Utilities and Service Systems

Alternative 3 would result in fewer impacts related to solid waste disposal and transfer facilities than the Plan. Alternative 3 includes the transportation network that is included in the Plan; therefore, construction and operation of transportation projects under this Alternative would require a similar

¹⁷ RAND. 2008. Research Brief. "Reducing Traffic Congestion in Los Angeles." 1776 Main Street, Santa Monica, CA 90407.

amount of solid waste disposal and transfer facilities during project construction. However, the growth scenario associated with Alternative 3 maximizes urban centers, TODs and HQTAs; and it also includes a more progressive jobs/housing distribution optimized for TOD and infill. . At 132,723,264 acre-feet acre-feet and \$184 billion , Alternative 3 would result in similar consumptive water use and estimated cost of water to the Plan.

4.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Section 15126.6 of the State CEQA Guidelines requires that an “environmentally superior” alternative be selected among the alternatives that are evaluated in the EIR. In general, the environmentally superior alternative is the alternative that would be expected to generate the fewest adverse impacts. If the No Project alternative is identified as environmentally superior, then another environmentally superior alternative shall be identified among the other alternatives.

For purposes of this PEIR, the impacts associated with reducing global GHG emissions and regional air pollutants must be examined alongside the other adverse impacts that are caused by increasing the density and intensity of the region’s development patterns and, for example, bringing people closer to higher sources of air pollutants such as transit corridors and freeways. The tension between CEQA’s mandate to reduce all types of impacts to the maximum extent feasible, and the statutory mandates of reducing GHG emissions under AB 32 and SB 375, is a well-recognized CEQA compliance challenge.¹⁸ CEQA does not provide any legal mechanism for “weighting” environmental impacts, and scoring some categories of impacts as “more important” and others as “less important.” Instead, CEQA is structured to require the disclosure of all impacts for each Alternative and the Plan, to foster informed decision making and to disclose the inherent trade-offs between different types and magnitudes of impacts associated with different Alternatives.

As indicated by the comparative analysis, the Plan and each Alternative result in many impacts that are “significant and unavoidable” under CEQA (**Table 4.5-1, Summary of Comparative Impacts between Alternatives and the Proposed Project**). Alternative 3, Intensified Land Use Alternative, would result in somewhat less adverse impacts for nine of the 18 environmental issues that were analyzed pursuant to Appendix G of the State CEQA Guidelines (agriculture and forestry resources; biological resources; cultural resources; energy, greenhouse gas emissions and climate change; hazards and hazardous materials; hydrology and water quality; transportation, traffic, and safety; and utilities and service systems). The anticipated increases in the density and intensity of development within the region’s established communities under Alternative 3 would result in more localized impacts that are greater than the Plan in four areas (land use; noise; public services and recreation).

Of the three alternatives, Alternative 3 would be considered the environmentally superior alternative from the perspective of fewer impacts to natural lands and reduced GHG emissions because it substantially restricts the use of land for single-family development, in a manner that differs from the adopted general plans of the six counties and 191 member cities in the SCAG region. Alternative 3 concentrates development in existing urban centers around transit stations and activity centers and, therefore, has less impact on rural and undeveloped areas. However, Alternative 3 would have much

¹⁸ Adams, Tom (California League of Conservation Voters), and Amanda Eaken and Anne Nothoff (Natural Resources Defense Council). 2010. *Tackling California’s Global Warming Challenge: A Guide to SB 375*, by Tom Adams (California League of Conservation Voters), p. 24.

more severe impacts on the built environment (i.e., seven CEQA impact categories: localized air quality, land use; noise and vibration, displacement, public services, traffic delay, and existing overtaxed recreation facilities in the vicinity of HQTAs).

Of the three alternatives, Alternative 3 would be considered the environmentally superior alternative because it uses a more compact land use pattern (**Table 4.5-1**). Alternative 3 requires implementation of the same mitigation measures required for the 2016 RTP/SCS and would not resolve any of the significant and unavoidable impacts of the Plan. However, the more intensified and compact land use development pattern would result in somewhat less adverse impacts to energy, land, and water resources due to the more densified pattern of development. Alternative 3 would also achieve greater overall reductions in criteria air pollutants and greenhouse gas emissions, as a result of the more compact pattern of land use development. The level of impact for Alternative 2 and Alternative 3 varies in relation to the land use development pattern, but neither is capable of avoiding any of the significant and unavoidable impacts of the Plan, because those impact are primarily associated with net increase in population that is anticipated for the SCAG region. Therefore, the comparative impacts between the alternatives and the Project are primarily related to the level of severity of the impacts.

Similarly, the No Project Alternative does not avoid the significant and unavoidable impacts of the 2016 RTP/SCS, and in several instances the impacts would be more adverse due to the failure to achieve reductions in the consumptive use of land, energy, and water resources achieved through the policies and program embedded in the 2016 RTP/SCS that facilitate a more efficient use of these resources. The proposed project, Alternative 2, and Alternative 3 would have less than significant impacts in relation to cumulatively considerable impacts for pollutants in non-attainment. However, the No Project Alternative would have significant and unavoidable impacts.

**TABLE 4.5-1
SUMMARY OF COMPARATIVE IMPACTS BETWEEN ALTERNATIVES AND THE PROPOSED PROJECT**

Alternative	More Adverse Impacts When Compared to the Proposed Project	Similar Impacts When Compared to the Proposed Project	Less Adverse Impacts When Compared to the Proposed Project
Alternative 1: No Project	Agriculture and Forestry Resources Air Quality Biological Resources Cultural Resources Energy Geology and Soils Greenhouse Gas Emissions and Climate Change Hazards and Hazardous Materials Hydrology and Water Quality Transportation, Traffic, and Safety Utilities and Service Systems	Aesthetics Public Services Recreation	Land Use Mineral Resources Noise Population, Housing, and Employment
Alternative 2: 2012 RTP/SCS Updated with Local Input Alternative	Agriculture and Forestry Resources Biological Resources Energy Greenhouse Gas Emissions and Climate Change Hazards and Hazardous Materials Hydrology and Water Quality Transportation, Traffic, and Safety Utilities and Service Systems	Aesthetics Air Quality Cultural Resources Geology and Soils Mineral Resources Population, Housing, and Employment Public Services	Land Use Noise Recreation
Alternative 3: Intensified Land Use Alternative	Land Use Noise Recreation Transportation, Traffic, and Safety	Aesthetics Agriculture and Forestry Resources Air Quality Geology and Soils Mineral Resources Population, Housing, and Employment Public Services	Biological Resources Cultural Resources Energy Greenhouse Gas Emissions and Climate Change Hazards and Hazardous Materials Hydrology and Water Quality Utilities and Service Systems